

CHAPTER 16



Affect Intensity

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History of Affect Intensity

Affect intensity refers to individual differences in the typical intensity with which people experience their emotional responses (Larsen & Diener, 1987). The construct also includes affective variability, such that not only are persons high on affect intensity more emotionally reactive but also, over time, their emotional states vary more widely as they react to ongoing life events. The construct generalizes over emotions, such that, for example, people who experience their positive emotions more strongly will, over time, generally experience their negative emotions more strongly as well. The characteristic highlights that folk notion that “the higher you go up when you are up, the lower you go down when you are down.”

Research on affect intensity began in the mid-1980s, when Larsen and colleagues (e.g., Larsen & Diener, 1985) began conducting daily studies of mood and emotion using the experience-sampling method (ESM). When examining global daily mood plotted for individuals over several months, they noticed that participants who exhibited wide swings upward in positive mood on good days also showed wide swings downward in negative mood on bad days. In fact, when they calculated the mean positive mood on positive days and mean negative mood on negative

days, these two measures of daily mood intensity correlated .60 to .77 across persons in their samples. Moreover, a mean daily emotional intensity score could be calculated (by averaging positive and negative intensity scores) that in turn exhibited high test–retest reliability and that correlated in interesting ways with peer reports of emotionality, with parental ratings, and with various other criterion variables. It appeared to be a meaningful individual-difference characteristic and one not clearly identified as such in existing taxonomies of personality.

Only a few prior studies had examined individual differences in constructs related to intensity of emotional response. One important study was that published by Weissman and Ricks (1966), which examined the daily moods of Harvard and Radcliff students using ESM. They identified two aspects of individual differences in daily affect; mean mood level over time and mean variability over time. A person’s amount of mood variability, indexed by a within-subject standard deviation on mood measures over time, would be a natural consequence of having an intense emotional response system. A second important paper was written by Underwood and Froming (1980), who were interested in trait-like characteristics of mood and who developed a questionnaire measure of mood level and mood reactivity. However, the

mood reactivity scale was never validated against daily mood measures or laboratory or field measures of emotional reactivity and so remains rarely used or cited.

Larsen and Diener's (1987) early work assessed emotional intensity using ESM, calculating affect intensity scores based on the average distance each participant's daily moods deviated from the expected values. Several important observations were made based on these data, including the fact that the frequency with which people experienced their positive and negative emotions was independent of their intensity (Diener, Larsen, Levine, & Emmons, 1985). Affect intensity also correlated with a cluster of other variables, including ratings of the importance of life events and life goals (Emmons & King, 1989; Larsen, Diener, & Emmons, 1986). However, using ESM to assess affect intensity has drawbacks. Primary among these is the inordinate amount of time and effort it takes to obtain repeated measures of mood on enough occasions to calculate a reliable estimate of mean affect intensity for each participant.

Measurement of Affect Intensity

Because of the need for an efficient and economical measure of trait affect intensity, Larsen (1984) constructed and validated a questionnaire measure called the Affect Intensity Measure (AIM). The scale construction strategy, including item generation, selection, and refinement into a final 40-item measure, is described in Larsen and Diener (1987). That report also includes preliminary reliability and validity information as well, some of which I review later.

Since the AIM was originally published (Larsen, 1984), at least four other measures of affect intensity have been developed. The Emotional Intensity Scale (EIS; Bachorowski & Braaten, 1994) has 30 items that each ask the participant to imagine him- or herself in a specific emotionally evocative situation, then to indicate which of several responses (which vary on intensity) they are most likely to have in that scenario. This scale correlates .45 with the AIM (Bachorowski & Braaten, 1994) and exhibits a pattern of correlations with third variables that is very similar to the

AIM. Incremental validity of the EIS over the AIM has not been documented, and validity evidence for the EIS is sparser than it is for the AIM. Another scale, the Affect Intensity Questionnaire (EIQ—Elliot, Sherwin, Harkins, & Marmarosh, 1995; Harkins, Gramling, & Elliot, 1990) is a visual analog scale with 18 items that asks the participants to rate the relative intensities of distinct affects that they experience. This scale seems most useful for assessing state, rather than trait, affect. Two other drawbacks of the EIQ are that the psychometrics of this measure are influenced by the ipsatizing effects of the instructions to rate emotions *relative to each other*. In addition, this scale remains unpublished.

A third measure is the Intensity and Time Affect Survey (ITAS—Diener, Fujita, & Seidlitz, 1991; Lucas, Diener, & Larsen, 2003; Schimmack & Diener, 1997), which was developed in tandem with another affect intensity measure called the Scenario Rating Task (SRT; Schimmack & Diener, 1997). The ITAS is an adjective-rating task, employing 24 emotion terms, in which the participant is asked: "How intensely do you typically experience X, if you experience X?" (where X is one of the 24 emotions). In examining the predictive validity correlates of several affect intensity measures, the ITAS showed lower validity coefficients than either the AIM or the SRT (Schimmack & Diener, 1997). The SRT presents participants with 20 standardized scenarios and asks them to imagine being in each of these situations, much like the EIS. However, for each of the SRT scenarios, the participant rates 10 emotions on how much of each he or she thinks will be evoked by the imaginary scenarios. The SRT is thus a long and repetitive instrument (requiring 200 ratings) and is based on respondents' hypothetical responses to imagined situations. It does, however, exhibit validity correlations that are comparable to the much shorter and more economical AIM (Schimmack & Diener, 1997). Whereas the SRT has not been published, the ITAS is reproduced in Lucas and colleagues (2003).

Because the predominant measure of affect intensity remains the AIM, this chapter focuses primarily on this measure. The AIM has been translated into several languages (e.g., German, Spanish, Portuguese, Ital-

ian, Swedish, Croatian), has been shortened, has had its reading level lowered, and has been widely used in research. The two papers in which the AIM has been published (Larsen & Diener, 1987; Larsen, Diener, & Emmons, 1986) have been widely cited. The original item set for the AIM was written based on a construct definition derived from prior empirical work (e.g., Larsen & Diener, 1985). The construct definition emphasizes a distinction between frequency and intensity of emotional experience such that intensity applies to all emotions regardless of their specific hedonic tone and that individual differences in affect intensity would be evident in a variety of channels, including felt affect, bodily responses, and certain aspects of cognitive performance.

Larsen and Diener (1987) provide details on construction and validation of the AIM. The 40-item total score exhibits an acceptable level of internal consistency, with a coefficient alpha ranging from .90 to .94 across four samples (Larsen & Diener, 1987), with split-half correlations ranging from .73 to .82, and with the mean corrected item-total correlations ranging from .41 to .51. In terms of temporal stability, the AIM obtains 1-, 2-, and 3-month test-retest correlations of .80, .81, and .81, respectively. The AIM is not related to extreme response style or to social desirability response set.

The original report (Larsen, 1984) describes five interpretable yet highly intercorrelated factors, which break out as two positive intensity factors, two negative intensity factors, and a method factor. Several researchers have published factor analyses of the AIM item set, with several reporting four factors (Goldsmith & Walters, 1989; Weinfurt, Bryant, & Yarnold, 1994) and several others reporting three factors (Bryant, Yarnold, & Grimm, 1996; Geuens & de Pelsmacker, 2002; Simonsson-Sarnecki, Lundh, & Törestad, 2000). The most useful conclusion to come out of this factor-analytic work is that, in some situations, it may be appropriate to consider subscales within the 40-item AIM. In testing various theories, it may be useful to make a distinction between positive affect intensity and negative affect intensity, which, although highly correlated with each other, can differentially correlate with third variables.

Research on Affect Intensity

Construct Validity

Because the AIM was developed as a convenient replacement measure for the ESM approach to assessing affect intensity, an important validity consideration is the correlation between these two very different forms of measuring affect intensity. Larsen and Diener (1987) report that average daily affect intensity, calculated with ESM data, correlated with the AIM at .61 ($n = 62, p < .01$) in one sample, .53 ($n = 74, p < .01$) in another, and .49 ($n = 54, p < .01$) in a third sample. In addition, Larsen and Diener (1985) found that self-reports of affect intensity assessed with the AIM correlated .50 with parental reports of their children's affect intensity and .41 with peer reports of affect intensity.

Because the construct of affect intensity also refers to emotional reactivity to life events, it should correlate with measures of emotional variability. Larsen (1987) used spectral analysis to quantify the frequency of daily mood changes and found that the affect intensity correlated with a significantly faster frequency of daily mood change. In addition, affect intensity correlated with a measure of being at risk for cyclothymia and bipolar affective disorder (Diener, Sandvik, & Larsen, 1985).

In another important validity study, Larsen, Diener, and Emmons (1986) had 62 participants in an ESM study write down the most significant good event and bad event each day for 8 consecutive weeks, resulting in 3,064 good-event descriptions and 2,907 bad-event descriptions. Participants also rated their moods each day of the study. The event descriptions were rated by a team of raters for "how good or bad would this event be for the average person," essentially norming the events for objective emotional impact. Larsen and colleagues found that, at each level of objective event severity, participants high on affect intensity reported more extreme emotions than participants low on affect intensity. This finding was also replicated using a scenario task in Study 2 in Larsen and colleagues. Moreover, there was no correlation between the AIM and the average objective severity of life events. Thus, although the life events of participants with high and low affect intensity appear to be

about the same, the participants with high affect intensity report stronger emotional reactions to those events than participants with low affect intensity.

To examine how individuals with high affect intensity come to react so differently to the same kinds of events compared with individuals with low affect intensity, Larsen, Diener, and Cropanzano (1987) conducted a thought-sampling study while exposing participants to emotionally evocative images. They proposed that affect intensity would be associated with a distinct pattern of cognitive operations that would be present while viewing the emotional images. The theoretical notion was that these cognitive operations would lead individuals to interpret or construe emotion-provoking stimuli in a manner that intensifies the affective response to those stimuli. Larsen and colleagues found that individuals with high affect intensity engaged in significantly more personalizing cognition and more generalizing cognition than those with low affect intensity. *Personalizing cognition* refers to the tendency to relate to an event by seeing it as self-relevant or focusing on the personal meanings for oneself. So a person might see an image of a child wounded in a war and start thinking about a time when he or she was hurt as a child. *Generalizing cognition* refers to abstracting from a single event to arrive at broad conclusions that are not warranted. For example, seeing an image of a child wounded in war, a person might start thinking about how war is horrible and that human nature at its core is dark and destructive. People high in affect intensity, relative to those low in it, tended to both personalize and generalize more often, and they did this to both positive and negative emotional images (relative to neutral). These findings were replicated in a study by Dritschel and Teasdale (1991) using a sample of middle-aged British women. Larsen, Billings, and Cutler (1996) conceptually replicated these effects by having participants generate informative descriptions of life events, finding that the descriptions of participants with high affect intensity contained significantly more generalizing and more references to arousal and personal feeling states than the descriptions of participants with low affect intensity.

The cognitive style of personalizing and generalizing most likely intensifies affective

responses by increasing the perceived importance of events. Schimmack and Diener (1997) demonstrate that affect intensity is correlated with the importance ratings of life events, and they argue that the attribution of importance to events is a likely cause of affect intensity. Diener, Colvin, Pavot, and Allman (1991) also demonstrate, across five studies, that the importance one attaches to an event strongly influences the intensity of emotional reactions to that event.

Correlates and Consequences of Affect Intensity

Physiology

Emotional experience depends in part on perceived physiological changes. Several researchers have therefore examined affect intensity in relation to perceptions of physiological activity. One interesting study reported by Chwalisz, Diener, and Gallagher (1988) examined affective reactions in persons with spinal cord injuries, who have limited perception of their bodily states. Participants with greater autonomic feedback (i.e., lower spinal cord injury) reported more intense emotions than participants with weaker autonomic feedback. However, participants with very high lesions, who had almost no autonomic feedback, still reported the experience of emotions, but at a lower intensity level. Such findings suggest that the perception of autonomic arousal may not be necessary for emotional experience. However, increased perception of autonomic arousal may enhance the felt intensity of emotional experience.

Blascovich and colleagues (1992) provide another perspective on the perception of physiological arousal in relation to trait affect intensity. The authors report three separate studies of individual differences in visceral self-perception assessed using a standard heartbeat detection paradigm. Although the AIM was unrelated to actual cardiac arousal, it was negatively related to perceived cardiac arousal in all three studies. These findings suggest that individuals with high affect intensity have relatively diminished visceral awareness of their own cardiac activity. These results are discussed in terms of how individuals with high affect intensity may not become aware of their

emotional reactions until those reactions become quite strong. As such, these individuals would require stronger emotional stimulation before they engaged in self-regulation to dampen their emotional reactions. Larsen (2000; Larsen et al., 1996) presents a control-theory model of emotion regulation, with individual differences in the self-perception of physiological arousal playing an important role.

Vanman, Dawson, and Brennan (1998) report similar findings of diminished physiological reactivity on the part of participants with high affect intensity. This study examined the eyeblink startle reflex to affect-laden images. Loud auditory tones were presented quasi-randomly while participants viewed a series of affective images. The standard finding is that, when viewing negative slides, the eyeblink reaction to the auditory startle probe tends to be stronger than it is to positive or neutral images. However, this eyeblink startle effect was significantly diminished for participants high in affect intensity, suggesting that individuals high in affect intensity are less easily aroused by the startle probe.

Larsen, Diener, and Emmons (1986) also report negative correlations between affect intensity and measures of peripheral physiology. Both resting galvanic skin response (the number of spontaneous spikes in a 1-minute interval) and resting heart rate were found to correlate negatively with the AIM ($r = -.31$ and $-.26$, respectively). These negative associations suggest that individuals high in affect intensity, when placed in a quiet, stimulus-reduced environment, are physiologically less aroused relative to the participants low in affect intensity. These findings, and those in the preceding paragraph, are consistent with basic notions of arousal regulation theory, which I now briefly describe.

An Arousal Regulation Theory of Affect Intensity

This theory has a few basic postulates. The first is that, for any given task, there exists an optimal level of arousal for completing the task; the second is that individuals will seek a common optimal level of arousal in a given situation (Hebb, 1955). A third postulate is that individuals differ with respect to base-

line arousal and/or their reactivity to stimulation. Consequently, the fourth postulate is that some individuals will need more stimulation than others to reach their optimal levels and some will need less stimulation. The theory predicts individual differences in stimulation-seeking behavior, mainly to compensate for underreactivity and/or lower levels of baseline arousal. This homeostatic theory of arousal regulation has existed in personality theory in various forms for some time (e.g., Eysenck, 1967; Gale, 1986; Geen, 1983; Zuckermann, 1979).

Most of the research on arousal regulation has focused on two sources of stimulation that are sought out to compensate for underreactivity. One source is behavior: either socializing, heightened activity level, or sensation seeking. In fact, both Eysenck's theory of extraversion and Zuckerman's early theory of sensation seeking were based on the notion of individual differences in baseline arousal and the management of arousal level through the regulation of behavioral activities (Eysenck, 1967; Zuckermann, 1979). Extraverted behavior is seen as an attempt to maximize stimulation input through social activity in order to compensate for a relatively underaroused condition at baseline. Introverts, on the other hand, avoid social stimulation (as well as intense stimulation in general) in order to avoid increasing their already relatively overaroused condition at baseline.

A second mechanism of arousal regulation is through sensory stimulation. Some individuals exhibit dampened reactivity to sensory stimulation. Theories of this individual difference have variously been called stimulus intensity modulation theory (Barnes, 1976; Petrie, 1967), reducer-augmenter theory (Herzog, Williams, & Weintraub, 1985; Sales, 1971, 1972), and strength of the nervous system theory (Pavlov, 1957; Strelau, 1982, 1985). All refer to the tendency of some people to react less strongly to sensory stimuli, as, for example, in individual differences in pain tolerance. Low-reactive persons should be motivated to seek out stronger forms of stimulation, whereas high-reactive persons, those who are more sensitive, should seek to avoid strong sensory stimulation. Research testing these predictions generally find support in that low-sensory-reactive persons do exhibit a greater

need for stimulation (Herzog et al., 1985; Mishara & Baker, 1981), are bored easily and are motivated to seek out stronger forms of stimulation (Larsen & Baggs, 1986), and have higher levels of activity and socializing (Petrie, 1967; Sales, 1971) and a tendency to abuse illicit stimulant and consciousness-altering drugs (Kohn, Barnes, & Hoffman, 1979).

Larsen (1984; Larsen & Diener, 1987) suggested that emotion might be a third source of stimulation that could play a role in arousal regulation. If this is true, then individuals with high affect intensity should display diminished physiological reactivity, a hypothesis consistent with the findings described in the previous section. Moreover, if the regular experience of intense emotions is a compensatory strategy for overcoming low levels of baseline arousal or diminished reactivity, then affect intensity should correlate with other individual differences related to arousal regulation, such as extraversion, sensation seeking, and sensory reducing. Such correlations have been reported in the literature (e.g., Dritschel & Teasdale, 1991; Larsen & Diener, 1987; Larsen, Diener, & Emmons, 1986; Maio & Esses, 2001; Ruch, Angleitner, & Strelau, 1991). Also, both questionnaire and psychophysical measures of sensory reducing have been found to correlate negatively with the AIM (Larsen & Zarate, 1991). The study by Larsen and Zarate (1991) also demonstrated that people use emotions to compensate for diminished arousal. In this study we induced boredom in participants for 35 minutes, then offered them the choice of participating in an emotion manipulation study or a questionnaire study. Participants who chose to undergo the emotion manipulation experience scored significantly more in the reducing direction on a measure of sensory reducing—augmenting.

In a study of desired affect, Rusting and Larsen (1995) showed that most people desire more pleasant and positive emotions, though affect intensity correlated significantly with the desire for stronger felt arousal. The arousal regulation theory of affect intensity generates a variety of interesting predictions concerning the behavioral and experiential implications of emotion-provoking situations for individuals high versus low in affect intensity. For example, in one study we examined the effects of high sensory stimu-

lation (85 dB intermittent white noise and bright flashing lights) on the proofreading performance of participants who scored high or low on the affect intensity dimension (Larsen, Zarate, & Dare, 1986). We found that strong sensory stimulation actually improved the performance of participants high on the affect intensity dimension, whereas participants low in affect intensity showed a decline in performance when going from normal to high stimulation conditions. In another study participants were asked how they would perform in a situation while they were emotionally aroused (e.g., being angry when having to do homework, feeling nervous while taking a test, feeling jealous while having to work on a term paper). We found that participants low in affect intensity reported that the emotion would interfere with or disrupt their performance, whereas persons high in affect intensity thought that having the emotional stimulation would actually facilitate their performance. Further research on how emotions can facilitate or impair performance, as well as individual differences in these kinds of effects, is an important topic for future research. One interesting observation I have made over the years is that persons high on affect intensity, while acknowledging that their emotions sometimes get them into trouble, nevertheless like their intense emotional lifestyle and generally do not want to change.

Emotion Regulation

Whereas arousal regulation refers to felt levels of energy and activation, emotion regulation refers to self-control attempts to modulate hedonic tone or specific emotional reactions. By up-regulating felt arousal through strong emotions, persons with high affect intensity may appear low on emotion regulation. Moreover, due to its relation to emotional reactivity and variability, affect intensity likely is related to low levels of emotional control. Several researchers (e.g., Hunt, 1993; Goldsmith & Walters, 1989) have found that persons high in affect intensity express their emotions more and are more socially expressive and sensitive (Flett, Blankstein, Bator, & Pliner, 1989). When people high in affect intensity engage in suppression as a coping style, they are especially likely to experience distress or depres-

sion (Lynch, Robins, Morse, & MorKrause, 2001). Cheavens and colleagues (2005) have argued that attempts to suppress emotions can actually backfire, resulting in stronger emotions that are even more difficult to regulate.

Other researchers have examined beliefs and expectancies about the self-regulation of emotion. For negative emotions, affect intensity is associated with the expectation of diminished ability to regulate negative moods (Flett, Blankstein, & Obertynski, 1996). Affect intensity correlates negatively with perceived emotional self-control, though it is unrelated to perceived self-control in other areas of life or to generalized self-control expectancies (Flett et al., 1989). Research suggests that such beliefs in diminished self-control of emotions are veridical. Eisenberg and Okun (1996) showed that, in stressful circumstances, individuals with high negative affect intensity engage in fewer emotion regulation behaviors and experience more personal distress. An exploratory yet interesting report on rapid eye movement (REM) sleep and affect intensity (Nofzinger et al., 1994) reported a positive correlation between affect intensity and the amount and density of REM sleep patterns. They argue that the intense experience of emotions in the daytime is carried over into sleep, resulting in elevated phasic REM sleep, which they see as an indicator of autonomic instability.

Several researchers have shown that affect intensity is unrelated to overall happiness or life satisfaction (e.g., Chamberlain, 1988; Diener, Colvin, et al., 1991; Larsen & Diener, 1987). Although counterintuitive given the preceding discussion, there may be several reasons for this finding. First, the experience of intense emotions may be a compensatory mechanism in providing desired levels of heightened arousal. Although high affect intensity comes with the cost of wear and tear on the autonomic nervous system and distress when things do not go well, it may satisfy a more basic need to up-regulate felt arousal. A second reason affect intensity may be unrelated to happiness is that, because happiness is the ratio of long-term positive to negative affect (Larsen & Prizmic, 2008) and because persons with high affect intensity do have strong positive emotional reactions when good events happen (along with strong negative reactions when bad events

happen), the net effect on long-term happiness is nil.

Psychopathology

The connection between affect intensity and various forms of psychopathology has been an active area of research. One disorder receiving much attention is borderline personality disorder (BPD), which is characterized, in part, by extreme emotional instability. Bland, Williams, Scharer, and Manning (2004) showed that women with BPD scored higher on affect intensity, though the effect was particularly strong for the Negative Intensity subscale (consistent with the idea that BPD is related to deficient anger management). A relationship between BPD and affect intensity has also been found by other researchers (e.g., Yen, Zlotnick, & Costello, 2002). Henry and colleagues (2001) provides a strong test of this relationship by examining affect intensity in BPD compared with other disorders of affect, including bipolar disorder. They report that affect intensity is elevated in BPD relative to other disorders. In terms of etiological factors, Rosenthal, Cheavens, Lejuez, and Lynch (2005) showed that elevated affect intensity also was related to a (self-reported) history of childhood abuse among persons with BPD.

BPD is also related to self-harm, and at least one study (Gratz, 2006) has shown that, in a nonclinical sample of adult women, the AIM subscales discriminated women with a history of self-harming behavior from women with no history of self-harm. In particular, high negative affect intensity and low positive affect intensity distinguished women high in self-harm (illustrating the utility of considering subscales, in addition to the total score, when using the AIM). Others studies have found elevated affect intensity among persons with a history of suicidal behavior (Iancu et al., 1999). Lynch, Cheavens, Morse, and Rosenthal (2004) found that, although affect intensity was elevated in persons with a suicidal history, this relationship was moderated by emotional suppression, such that persons with high affect intensity were more likely to be at risk for suicide when they also chronically inhibit their emotional reactions.

Flett and Hewitt (1995) took a broad-band approach to personality disorders by

administering the Millon Clinical Multiaxial Inventory (Millon, 1983), along with the AIM, in a sample of adult psychiatric patients. Affect intensity was found to correlate positively with indices of BPD, as well as with passive-aggressive personality, and negatively with compulsive-conforming personality. Affect intensity also correlated with symptom measures of poor adjustment, somatization, hypomania, alcohol abuse, and psychotic thinking. The authors conclude that affect intensity may contribute to a variety of forms of psychopathology, primarily through diminished self-control of emotion and poor inhibition (Flett & Hewitt, 1995).

A variety of other forms of psychopathology have also been related to affect intensity. For example, Day and Wong (1996) found that persons high in psychopathy (or antisocial character traits) have lower affect intensity and exhibit less intense emotional reactions to everyday life events than persons low in psychopathy. Also, not surprisingly, affect intensity is associated with being at risk for anxiety and panic disorder. At least one study has shown that persons high in affect intensity are at risk for substance abuse, most likely in attempts to self-medicate for emotional suppression (Thorberg & Lyvers, 2006). And finally, as might be imagined, extremely low affect intensity is associated with alexithymia, a characteristic deficiency in understanding, processing, or describing emotions (Iancu et al., 1999; Jacob & Hautekeete, 1999; Ritz, 1994). Alexithymia is characterized by difficulty in identifying and describing feelings, constricted imagination and paucity of fantasy, and an externally oriented cognitive style (Taylor, Bagby, & Parker, 1997). Although not classified as a mental disorder, alexithymia is a trait that places people at risk for developing disorders, as well as making people less responsive to various psychological treatments.

Cognition and Emotion

Because cognitive and emotional processes are linked, it is likely that individual differences in one are related to, or perhaps even driven by, individual differences in the other. As mentioned earlier, Larsen and colleagues (Larsen et al., 1987, 1996) reported that affect intensity is associated with a cognitive style of personalizing events and overgen-

eralizing from events. They also found that this cognitive style was stable over time and consistent across situations and that it operated similarly for men and women.

A study by Sheldon (1994) found that affect intensity discriminated between art and science graduate students, with art students scoring significantly higher on affect intensity than science students. Affect intensity was assessed at the start of their training, so it is likely that affect intensity differences existed prior to exposure to training in these respective fields. Sheldon suggests that the cognitive style associated with affect intensity lends itself to an interest in art more than in science. Moreover, he suggests that artists and scientists face different social norms regarding the expression of emotion, with artists being encouraged to exaggerate, dwell on, and express their emotional reactions and scientists encouraged to downplay theirs. His findings suggest that individual differences in such temperamental factors as affect intensity, and their associated cognitive styles, may underlie vocational choices.

Another cognitive style concerns event appraisal. If an event is appraised as very important, then affective reactions to the outcome of that event will be more intense than if the event were viewed as less important. Indeed, if you want to know what is important to a person, you might proceed by inquiring about the kinds of events that provoke the strongest emotions. Along these lines, Emmons and King (1989) reported that the importance ratings attached to life goals and strivings were associated with individual differences in affect intensity. Moreover, individuals high in affect intensity had more differentiated goals, that is, more strivings that were unrelated to each other. Individuals with high affect intensity want all sorts of things out of life, even though their goals may be in conflict (e.g., to have a high-powered career, a loving and committed marriage, lots of interesting hobbies, and a large family). Moreover, individuals with high affect intensity had fewer discrete plans for how they might achieve their goals. In other words, their goal structure was relatively shallow, with many discrete goals but fewer concrete plans for ways they might realize those goals. Similarly, a study by Dance, Kuiper, and Martin (1990)

demonstrated that affect intensity is associated with a higher number of distinct self-relevant roles, as assessed in a role-sorting task. It may be that affect intensity is related to high self-concept complexity (Linville, 1985).

Personality and Demographic Correlates

Far and away the personality variables most frequently found to correlate with affect intensity are extraversion and neuroticism (e.g., Dritschel & Teasdale, 1991; Kardum, 1999; Larsen & Diener, 1987; McFatter, 1998). Both of these personality variables correlate positively and moderately with affect intensity. The reason most likely is that extraversion (E) is related to a disposition to respond with stronger positive emotional reactivity and neuroticism (N) with a disposition to respond with negative emotional reactivity (as found in experimental studies of laboratory mood induction procedures; see Larsen & Ketelaar, 1989, 1991; Rusting & Larsen, 1997, 1998, 1999; Zelenski & Larsen, 1999, 2002). If personality space is defined by the orthogonal dimensions of E and N, then affect intensity is a vector that is located halfway between them. The incremental validity of affect intensity over E and N concerns the focus on affective reactions for these two constructs. Whereas the construct definition of N has always contained reference to affect, particularly anxiety and fear, the construct definition of E has not, until very recently, made much reference at all to the affective associates of this trait. Moreover, because E and N are unrelated, the distribution of persons in the two-dimensional space defined by these constructs is normally distributed around any vector passing through the origin of the space. This means that the affect intensity dimension represents, at the high end, persons who are high on *both* positive and negative emotional reactivity—or, in other words, persons who have *both* high approach motivation *and* high avoidance motivation (Larsen & Augustine, 2008) or are highly sensitive to *both* cues of reward *and* cues of punishment (Zelenski & Larsen, 1999).

Other personality variables have also been studied in relation to affect intensity, including self-esteem variability (Oosterwegel, Field, Hart, & Anderson, 2001), public and

private self-consciousness and the social-stimulation facet of affiliation motivation (Blankstein, Flett, Koledin, & Bortolotto, 1989), and trait arousability (Mehrabian, 1995). One study examined emotional intelligence in relation to affect intensity (Engelberg & Sjöberg, 2004), wherein the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2001), which has been highly criticized in the literature (e.g., Larsen & Lerner, 2006), showed no correlations with affect intensity or with the criterion behavior of accuracy in the assessment of mood experienced by others.

In terms of demographics, a consistent finding is that women score higher than men, at least among young adult samples (Fujita, Diener, & Sandvik, 1991; Goldsmith & Walters, 1989; Seidlitz & Diener, 1998; Williams & Barry, 2003). The gender difference tends to get smaller with age, such that, by late middle age, men and women are no longer significantly different (Diener, Sandvik, & Larsen, 1985). Although men and women both decline on affect intensity with age, women decline faster. Looking at gender roles, Jakupcak, Salters, Gratz, and Roemer (2003) found that stereotypically masculine men report even lower levels of affect intensity than men with more modern gender-role attributes. The stereotype of women as the more emotional gender appears to have a kernel of truth, at least when it comes to self-report measures of affect intensity among young adult women. The constructive aspect of this gender difference is that women also report more intense positive emotions, such as enthusiasm and joy, compared with men (Fujita et al., 1991).

In terms of age trends, after it peaks in adolescence, affect intensity appears to drop with age (Diener, Sandvik, & Larsen, 1985). Many others have also shown that subjective emotional experiences go down with age, particularly for negative emotions (e.g., Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Gross et al., 1997). Studies of aging and emotion have also examined physiological measures of emotional reactivity, and these studies have also documented decreased reactivity to emotional stimuli among older adults (e.g., Levenson, Carstensen, Friesen, & Ekman, 1991; Levenson, Carstensen, & Gottman, 1994). A recent study by Mather and colleagues (2004)

examined amygdala activation during exposure to positive and negative images, with older participants showing diminished amygdala activation to negative, relative to positive, stimuli.

Applications of Research on Affect Intensity

One applied aspect receiving some attention concerns individual differences in response to advertising appeals. Some advertisers target emotional reactions, whereas others appeal to facts in their advertisements. Chang (2006) reviews the literature on affect intensity within consumer research and discusses several mechanisms whereby individual differences in affect intensity might influence how people respond to advertising materials—for example, persons with high affect intensity might be more likely to elaborate on positive emotional appeals, more likely to respond to appeals that promise to relieve negative affect, and so forth. Moore, Harris, and Chen (1995) present empirical data from two experiments showing that participants high, compared with low, in affect intensity are more responsive to emotional advertising appeals and showed no differences in response to nonemotional appeals. In a later study, Moore and Homer (2000) showed that participants with high affect intensity responded with significantly stronger emotions in response to affectively charged advertising appeals and that affect intensity predicts arousing lifestyle activity preferences. Moore and Harris (1996) also demonstrated that the effects of emotional advertising appeals, both positive and negative, were stronger for participants high in affect intensity than for those low in it. They argue that the relation between affect intensity and responding to advertising appeals, as well as attitudes toward the ads, are mediated by emotional responses.

Weiss, Nicholas, and Daus (1999) discuss affective variables in organizational behavior contexts. They report a study of affect in the workplace that found that affect intensity predicted heightened variability in mood on the job, consistent with other studies of affect intensity and mood variability. Rhoades, Arnold, and Jay (2001) examined affective traits during episodes of organizational conflict in an experience sampling study of business employees. Conflict man-

agement was related to affective traits, including affect intensity, though the effects of these traits on conflict behaviors were fully mediated by state affect on the day of the conflict. Given that other people are a frequent source of emotion, understanding the implications of individual differences in affect intensity for social relations and within social organizations is an important topic for further research.

Social justice research often examines how people react to the behaviors of others that are perceived as fair or unfair. Given that such reactions often contain a strong affective component, van den Bos, Maas, Waldring, and Semin (2003) hypothesized that affect intensity would be related to an exaggerated response to unfairness. In two studies, they found that people high in affect intensity show strong affective reactions following the experience of outcome and procedural unfairness. Participants with low affect intensity exhibited weak to no unfairness effects, leading the authors to suggest that, for them, actual fairness may not be an important aspect of social justice concerns.

Conclusions

Affect intensity is a construct that refers to individual differences in the characteristic magnitude of emotion reactions. It generalizes to both positive and negative affect, as well as to specific emotions. It implies emotional variability over time, as individuals react strongly to various hedonic events in their lives. Several measures of affect intensity have been developed, though the one with the most validity evidence and the longest research track record is the AIM. The AIM exhibits desirable psychometric properties, has been translated into a number of languages, and exists in a short form.

The broad theoretical appeal of the affect intensity construct is likely due to several things. One is the existence of a sound measure with good validity evidence. Another is the explosion of research on affect and emotion that occurred in the 1990s and early 2000s. A third reason has to do with using individual-differences measures to test various theories. For example, if some phenomenon is theorized to be driven by affect, or if affect is the underlying mechanism, then

individual differences in the phenomenon might be related to individual differences in affect intensity. For example, a researcher might theorize that a certain attitude effect relies on affect for its impact. If this is true, then individual differences in affective reactivity should predict individual differences in the attitude effect. As a different example, a researcher might hypothesize that affect produces a narrowing of attention. If this is true, then individual differences in affect intensity should predict individual differences in the narrowing of attention. In this way, affect intensity can be a useful tool for testing broad theories that posit an important role for affect in producing some main-effect phenomenon.

Similarly, if there is a theory about some causal mechanism involved in affect, then that mechanism might relate to individual differences in affect intensity. For example, if personalizing cognitions are thought to produce stronger affective responses, then persons with characteristically stronger affective responses (i.e., those high in trait affect intensity) should display more personalizing cognitions. If the mechanism is truly causal, then manipulating the mechanism should diminish affect intensity such that a person high in affect intensity would begin to react more like a person low in affect intensity. The idea of testing general theories with individual-difference measures is an interesting and effective application of personality psychology to the broader questions of psychology in general.

A final question about the nature of individual differences in affect is implicit in the material covered earlier. The question concerns the locus and interpretation of individual differences in affect intensity. Most experimental studies of affect intensity involve the manipulation or measurement of some stimulus, typically a mood induction or the hedonic value of some life event. Then emotional responses are assessed and examined for predictable individual differences. This can be displayed in the typical stimulus–organism–response model:

$$S \rightarrow O \rightarrow R$$

This simple formulation suggests that the locus of individual differences in affective response could originate from two different

processes. One process concerns the link on the right side between organism and response and implies that the individual difference is in the response magnitude or the response output side of the equation. Throughout most this chapter, I have been treating affect intensity as though it were due to this part of the formulation. However, another possibility is that the individual difference is due to the link on the left side, between the stimulus and the organism. This component refers to the stimulus sensitivity, or threshold-for-activation side of the formulation. In a few places in this chapter I have treated affect intensity as though this process might also be involved, for example, when talking about affect intensity as reactivity to life events. Distinguishing these component parts of the affect system is important for understanding the mechanisms of affect and will also contribute to our understanding of the nature of affect intensity as an individual difference.

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