Context Matters: The Benefits and Costs of Expressing Positive Emotion Among Survivors of Childhood Sexual Abuse

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Positive emotions promote adjustment to aversive life events. However, evolutionary theory and empirical research on trauma disclosure suggest that in the context of stigmatized events, expressing positive emotions might incur social costs. To test this thesis, the authors coded genuine (Duchenne) smiling and laughter and also non-Duchenne smiling from videotapes of late-adolescent and young adult women, approximately half with documented histories of childhood sexual abuse (CSA), as they described the most distressing event of their lives. Consistent with previous studies, genuine positive emotional expression was generally associated with better social adjustment two years later. However, as anticipated, CSA survivors who expressed positive emotion in the context of describing a past CSA experience had poorer long-term social adjustment, whereas CSA survivors who expressed positive emotion while describing a nonabuse experience had improved social adjustment. These findings suggest that the benefits of positive emotional expression may often be context specific.

Keywords: laughter, smiling, social adjustment, childhood sexual abuse, positive emotion

Even the most fitness-enhancing adaptations in nature can incur significant costs. The salience of these costs depends on the fit between the adaptation and current context (e.g., Tooby & Cosmides, 1990). For example, the peacock's exaggerated and colorful tail promotes sexual selection by serving as an effective signal for genetic fitness, but in nonmating contexts exposes the male to increased risks of predation (Houle & Kondrashov, 2002; Petrie, 1994). In humans, the display of positive emotion appears to serve a number of adaptive functions. However, relatively few research studies has asked whether in certain contexts positive emotional displays might also engender undesirable and unintended consequences.

Once ignored or dismissed as a form of unhealthy denial (e.g., Bowlby, 1980), positive emotion is now widely viewed as a resilience factor that fosters coping with adverse life events (Bonanno, 2004; Fredrickson, 1998, 2001; Tugade & Fredrickson, 2004). The experience and expression of positive emotion contribute to the building of personal and interpersonal resources (Fredrickson, 2001; Keltner & Bonanno, 1997), as well as the cultivation of resilient personality characteristics (Bonanno, 2004, 2005; Tugade & Fredrickson, 2004) and coping in the context of potentially traumatic events (e.g., Bonanno & Keltner, 1997).

However, is positive emotion always adaptive? There are compelling reasons to suspect that the expressions of positive emotion in the context of highly stigmatizing events may be associated with untoward social consequences (e.g., laughter while disclosing a stigmatizing experience might confuse or distress listeners). In the current investigation, we examined the long-term benefits and social costs of laughter and smiling in a sample of young adult women, approximately half of whom had documented histories of childhood sexual abuse (CSA).

The Adaptive Value of Positive Emotion

Numerous lines of inquiry speak to the adaptive value of positive emotion. Positive emotions are associated with the reduction of distress (Bonanno & Keltner, 1997; Folkman & Moskowitz, 2000; Fredrickson, 1998, 2001; Levenson, 1988; Moskowitz, Folkman, & Acree, 2003), the undoing of negative emotions

(Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000), and the broadening and building of cognitive and social resources (Fredrickson, 1998, 2001; Fredrickson & Joiner, 2002). For example, after the September 11th terrorist attacks, the experience of positive emotions was associated with resilience among high-exposure survivors (Bonanno, Rennicke, & Dekel, 2005), and found to mediate the relationship between self-reports of trait resilience in college students and post-9/11 adjustment (Fredrickson, Tugade, Waugh, & Larkin, 2003).

The evidence is particularly compelling for the adaptive value of positive emotional expressions. Here researchers have distinguished between genuine or Duchenne expressions and non-Duchenne expressions (for a review, see Gervais & Wilson, 2005). Duchenne laughs and smiles involve activity in the orbicularis oculi muscles surrounding the eye and have been associated with genuine positive emotion (Duchenne de Bologne, 1862; Ekman & Friesen, 1982; Frank, Ekman, & Friesen, 1993; Keltner & Bonanno, 1997). Non-Duchenne expressions are smiles that do *not* involve contraction of the orbicularis muscles and are *not* associated with the experience of positive emotion. Non-Duchenne expressions appear to serve various functions, including the communication of social politeness, deception, or appeasement (e.g., Bonanno et al., 2002; Keltner, 1995). Duchenne expressive displays (but not non-Duchenne expressions) have been associated with favorable long-term adjustment. For example, among bereaved individuals discussing the recent death of a spouse, Duchenne laughter was associated with reduced grief symptoms over time (Bonanno & Keltner, 1997, 2004; Keltner & Bonanno, 1997).

Duchenne expressions have been associated with numerous social benefits. Duchenne smiles and laughter invite others to approach by signaling affiliative intent (Borkenau & Liebler, 1992; Frank et al., 1993; Frijda & Mesquita, 1994; Henley & LaFrance, 1984; Keltner & Kring, 1998; Matsumoto & Kudoh, 1993; Ruch, 1993). Genuine positive emotional signals evoke contagious positive emotional responses in others (Hatfield, Cacioppo, & Rapson, 1992; Haviland & Lelwica, 1987; Provine, 1992; Termine & Izard, 1988), helping behavior and cooperation (Cunningham, 1988; Isen, 1987), promote group cohesiveness (Vinton, 1989), regulate conversation (Provine, 1993), and encourage ongoing social activities by rewarding others' actions (Weisfeld, 1993). In a particularly striking study, women who exhibited Duchenne smiles in their college yearbook photos reported improved relations with others and greater satisfaction with their marriages and lives in general for the next 30 years compared with those women who did not show Duchenne smiles (Harker & Keltner, 2001).

Context Matters: The Situation Specific Nature of the Adaptive Value of Emotion

Positive emotions appear to serve fairly general adaptive functions across diverse contexts (Fredrickson, 1998, 2001). Yet, it is widely assumed that the functions of all emotions are "context bound" (Cole, Michel, & Teti, 1994, p. 84); that is, emotions foster adaptation to specific environmental threats and opportunities (Ekman, 1992, 1993; Frijda, 1986; Lazarus, 1991; Tooby & Cosmides, 1990). The effective regulation of emotional expression therefore requires a flexible response to the demands of the situation (Bonanno et al., 2004). For example, anger may facilitate

responses to injustice that restore more just relations (e.g., Lerner, Goldberg, & Tetlock, 1998), but when expressed in contexts that require rapport-building or affiliation, such as friendship development, anger damages bonds (Cole & Zahn-Waxller, 1992; Keltner, Ellsworth, & Edwards, 1993).

Ultimately, the long-term consequences of expressing either positive or negative emotions depend on repeated interactions between personal goals and broader situational constraints (Bonanno, 2001; Cole et al., 1994). A key point from a self-regulation perspective is that "behaviors exist only to control consequences that affect the organism" (Powers, 1978, p. 410. In other words, a specific behavior, or a specific type of emotional expression, may appear to be perfectly appropriate from the standpoint of the goals that drive the system, but completely inappropriate when viewed from outside the system. As one of us has noted elsewhere, "This simple but crucial point explains why humans may often behave in a manner that appears to an external observer as irrational, unhealthy, or even psychotic. What may be more appropriately considered irrational or unhealthy are the reference values (i.e., goals) that drive the control system" (Bonanno, 2001, p. 254).

In objective terms, a pattern of emotional experience or expression becomes dysfunctional when it "jeopardizes or impairs productive and appropriate functioning" (Cole et al., 1994, p. 84). By implication, emotions consistently expressed in contexts that are generally viewed as inappropriate by other people should covary with problems in social adaptation (Cole et al., 1994; Gruber & Keltner, in press; Keltner & Kring, 1998). This claim summarizes many findings relating emotional expression to poor social adjustment. For example, in one study children who were rated by their teachers as prone to aggression and violence showed elevated anger in an academic setting (Keltner, Moffitt, & Stouthamer-Loeber, 1995). Orbitofrontal patients, known for their poor social adjustment, expressed increased pride in an embarrassing task that produced elevated embarrassment in matched controls (Beer et al., 2003).

Do the consequences of context inappropriate expression extend to genuine positive emotions? Intuition alone suggests so. Laughing at another's misfortune or expressing affection toward a stranger in a formal setting would seem to index poor social adjustment (Cole et al., 1994). Recent research with young children has documented the maladaptive consequences of positive emotional expressions in the context of negative peer interactions. For example, preschool children who displayed "inappropriate positive affect in the context of teasing" or "gleeful taunting" (Miller & Olson, 2000, p. 344) tended to receive negative evaluations of their social behavior by both teachers and peers. Similarly, children reported unfavorable responses to so-called "happy victimizers," hypothetical moral transgressors who were described as experiencing positive emotions (Keller, Lourenco, Malti, & Saalback, 2003). An important limitation of these studies, however, is that they did not distinguish between Duchenne and non-Duchenne expressions.

In the present study we focused primarily on Duchenne expressions, which in their prototypical origins are associated with safe, playful, and familiar contexts (Fredrickson & Branigan, 2001; Izard, 1977). Although the outward display of genuine positive emotion expressions may have benefits in threatening contexts (Keltner & Bonanno, 1997; Tugade & Fredrickson, 2002), we

suggest that sometimes these benefits may be counteracted by significant social costs. Genuine laughter and smiling in threatening contexts may violate social norms for appropriate emotional behavior, thus signaling poor social adjustment (Cole et al., 1994). In an experimental study (Papa & Bonanno, 2001), observers reacted favorably toward people who showed Duchenne laughter while describing a negative life event, including the death of a spouse, but reacted negatively toward people who laughed while talking about the death of a child. Positive emotions may even more clearly violate social norms when they are expressed in the context of stigmatized negative events such as pediatric HIV/AIDS (Sherman, Bonanno, Wiener, & Battles, 2000) or the event upon which the current study focuses: adult disclosure of a past incident of CSA (Nagel, Putnam, Noll, & Trickett, 1997).

Smiling in the Face of CSA

Two lines of reasoning suggest that the expression of positive emotion may index poor adjustment in the context of disclosing a highly stigmatizing event like CSA. First, the disclosure of CSA is unsettling for both survivors and listeners and can potentially lead to misattribution and social discord surrounding issues of culpability. For CSA survivors, the prospect of disclosing a past abuse experience often results in acute shame and embarrassment, misdirected self-blame, and uncertainties about how others might respond to the disclosure (Bonanno et al., 2002; Femina, Yeager, & Lewis, 1990; Nagel et al., 1997; Zupancic & Kreidler, 1999). Listeners hearing about abuse events in turn may experience distress at levels that threaten their own assumptions that the world is a safe and just place (Harber & Pennebaker, 1992; Silver, Wortman, & Crofton, 1990), and may react with ambivalence and anger toward the disclosing survivor (Regehr, 1990; Shipman, Zeman, Penza, & Champion, 2000). In this context, disclosure becomes something of a "cruel paradox" (Harber & Pennebaker, 1992); the desire to share the event with others may be countered by realistic fears that listeners will be unsympathetic and skeptical with respect to the veracity of the abuse (Femina et al., 1990; Kelly & McKillop, 1996). When considered in this context, the expression of positive emotion on the part of the survivor could increase the likelihood of negative reactions and attributions in listeners, and thus increase the discloser's risk for social censure, rejection, and isolation.

The expression of genuine positive emotion in the context of a stigmatizing event, such as CSA, may relate to difficulties in social adjustment for a second reason: such displays may reflect unpredictability and ambiguity in the individual's communication of social intentions. In the establishment of cooperative, long-term bonds, a feature of social adjustment, individuals are often excluded because of *unpredictability* (Kurzban & Leary, 2001; Tooby & Cosmides, 1996). That is, cooperative relationships require that each person be able to judge the other person's goals and values, which in turn fosters each person's ability to reliably predict the others' actions based on inferences about their intentions. Individuals whose intentions cannot be easily predicted or whose behavior characteristically violates societal norms and expectations are primary candidates for social exclusion (Kurzban & Leary, 2001; Tooby & Cosmides, 1996).

Nonverbal displays provide reliable cues to the individual's predictability and cooperative intent (Baron-Cohen, 2002;

Bonanno & Keltner, 2004; Ekman, 1993). For instance, positive emotional signals, such as Duchenne smiles, forward leans, and head nods, have been associated with increased relationship commitment and relationship satisfaction (Gonzaga, Keltner, Londahl, & Smith, 2001). College students who exhibited more frequent Duchenne smiles during interviews also had broader and more diverse social networks during college (Papa & Bonanno, in press). By contrast, victims of childhood sexual abuse often display more negative social signals. They demonstrate inappropriate sexual and aggressive behaviors in childhood (Friedrich, Urquiza, & Beilke, 1986; Friedrich, Grambsch, Damon, & Hewitt, 1992; Trickett & Putnam, 1993) and a mixed pattern of sexual preoccupation and sexual aversion later in adolescence, as issues of sexuality become developmentally salient (Noll, Trickett, & Putnam, 2003). In this context, the intense expression of genuine positive emotion by CSA survivors may serve as a confusing and socially ambiguous signal, and indicate global social deficits in the realm of emotion display rules on the part of the survivor (Cole et al., 1994). Together, these considerations suggest that expressions of positive emotion among CSA survivors in the context of discussing a past abuse event may be indicative of global deficits in the types of skills required to manage predictable social encounters and, as a consequence, increasing interpersonal conflict and social withdrawal.

The Current Investigation

The present study examined the expression of positive emotions prospectively in relation to social adjustment among a sample of late-adolescent and young adult women who were participating in an ongoing longitudinal study on women's health and development. Approximately half of participants were recruited into the study via referrals from social services agencies and had documented histories of CSA. At the time of the current investigation, three prior waves of assessment had been completed. Although the prior assessments involved psychological variables (e.g., questions about mood and behavior), the researchers gave no indication at any point that the study pertained to sexual abuse. Nor did any of assessments up to the point of the current study involve questions about sexual abuse. The first wave of the current investigation (the fourth wave of the longitudinal study), occurred approximately seven years after the study's onset. Participants engaged in a disclosure interview in which they were asked to describe the most distressing event or series of events they had ever experienced to an interviewer. The interviewer was introduced as a member of the research team, and as part of the ongoing study. No mention was made of CSA during the disclosure interview and the interviewer was blind as to whether participants had a CSA history or not. As anticipated, based on previous research (e.g., Williams, 1994), some of the CSA survivors chose not to disclose their past abuse, thus resulting in three unique groups: (a) CSA survivors who voluntarily disclosed a past abuse experience (CSA disclosure group), (b) CSA survivors who disclosed a nonabuse event (CSA nondisclosure group), and (c) women who had never been abused (nonabused comparison group). Data supporting the validity of these three groups is detailed in previous studies (Bonanno et al., 2002; Bonanno et al., 2003).

We anticipated that the expression of positive emotion across the different disclosure contexts would hold important implica-

tions for subsequent social adjustment, particularly for the CSA survivors. At the time of the T1 interview, participants were on average 18 years of age and making the transition to *emerging adulthood* (Arnett, 2000), a period associated with maturation toward a stable adult identity and commitment to adult life plans (Erikson, 1968; Marcia, 1980; McAdams, 2001). Numerous investigators have emphasized the importance of this period for the development of mature social relations and interpersonal intimacy (e.g., Gottlieb, Still, & Newby-Clark, 2007; Scharf et al., 2004). For survivors of CSA, the transition through emerging adulthood can be particularly demanding. CSA can exert pervasive negative effects on well-being throughout development (Browne & Finkelhor, 1986), in particular with respect to issues of identity, intimacy, and sexuality during the critical transition to adulthood (Noll et al., 2003).

We measured three forms of positive expression: genuine or Duchenne smiling, Duchenne laughter, and non-Duchenne smiling. The interviews were also coded for facial expressions of anger, fear, sadness, disgust, and shame. We also measured positive social adjustment, in the form of social competence, and negative social adjustment, in the form of social problems and social withdrawal. The social adjustment variables were measured at the time of the disclosure interview (T1) and again two years later (T2).

In keeping with the general adaptive value of genuine positive emotional expression, we expected that both Duchenne smiling and laughter at T1 would show clear favorable associations with social adjustment at T2, particularly for CSA participants who showed these expressions while describing a non-CSA event (CSA nondisclosers). However, we also hypothesized that Duchenne smiling and laughter would indicate context-inappropriate positive emotion when expressed by CSA survivors who described a past abuse experience (CSA disclosers); thus we predicted interactive effects in which the association of Duchenne expressions to T2 social adjustment would depend on disclosure context (CSA disclosure or nondisclosure). We did not make specific predictions regarding the relation of non-Duchenne smiling to adjustment. However, previous research has linked greater expression of non-Duchenne smiling when discussing a stressful life event with untoward social consequences (e.g., negative responses from observers, Keltner & Bonanno, 1997). In the current study, we explored whether non-Duchenne smiling during a stressful interview might also evoke long-term social consequences and thus predict pooer T2 social maladjustment.

In conducting these analyses, we attempted to identify the unique effects of positive emotional expression independent of other aspects of emotional behavior that might have occurred during the interviews. In a previous study with this sample (Bonanno et al., 2002), we examined expressions of five negative emotions (anger, fear, disgust, shame, and sadness). In that study, we examined cross-sectional patterns of association between emotional expression and disclosure behavior. Although expressions of negative emotion are likely also to inform long-term adjustment (e.g., Bonanno & Keltner, 1997), our aims in the current study pertained exclusively to positive emotional expression. Therefore, we chose to control for negative emotional expression to more fully isolate the effects of positive emotional expression. In addition, because CSA may also be associated with internal emotional dysregulation (Cicchetti & Rogosch, 2001; Debellis, 2001), we

also included a self-report measure of felt emotion during the interview. Again, although this aspect of emotional behavior may be of interest in its own right, we chose to control for negative affect rather than explore it in detail to more fully isolate the long-term predictive effects of positive emotional expression. Finally, we attempted to isolate the influence of emotional expression from other individual-differences variables. In a previous study of the same sample (Bonanno et al., 2003), CSA disclosers showed a greater propensity toward dissociative experiences while CSA nondisclosers scored higher on a measure of repressive coping. To control for the possible overlap between emotional expressive behavior in the different disclosure context and other factors that may have informed disclosure, we included measures of repressive coping and dissociative experiences as control variables in a set of secondary regression analyses.

Method

Participants

Participants were part of an ongoing longitudinal study of the long-term effects of CSA on female development that began in 1987. The sample for the current study is comprised of those involved in the fourth and fifth waves of data collection ($N = 105$), which mapped onto T1 and T2 of the current study. Abused participants were originally referred by city or county protective service agencies in the greater Washington, DC, metropolitan area. Eligibility criteria for inclusion in the study were (a) that the participant be a girl at least 6 years of age; (b) that disclosure of abuse occurred within 6 months of participation in the study; (c) that abuse involved genital contact and/or penetration; (d) that the perpetrator was a family member including parent, stepparent, mother's live-in boyfriend, uncle, or other relative; and (e) a nonabusing parent or guardian (usually the child's mother) was willing to participate in the study. Nonabused comparison females were recruited through community advertising and were similar to the abused girls in terms of ethnic group, age, predisclosure socioeconomic status (SES), family constellation (one or two parent families), and zip codes. All families ranged from low to middle SES, with mean Hollingshead (1975) scores of approximately 35 (defined as blue collar or working class). The sample has been reassessed approximately every 2 years after this initial assessment.

The fourth wave of data collection (T1 in the current study), occurred an average of 7.1 year after participants' original abuse-related assessment. The sample at the fourth wave consisted of 163 participants—142 original participants and 21 new recruits for the nonabused comparison group (74 abused, 89 nonabused)—resulting in an 85.5% retention rate (142/166). Of the 163 participants, 8 did not provide information about trauma histories (2 were too young to receive the trauma interview, 1 participated by mail, 2 refused to answer the questions, and 3 provided incomplete information). Twelve additional participants could not be classified as abused or comparison participants because they entered the study as comparison participants but later revealed that they had experienced some form of CSA or because they entered as abused participants with noncriterion abuse histories. Finally, data from six participants could not be coded for facial expressions of emotion because the video quality was poor, a portion of the face was

obscured (by hair or turned head), or the participant moved out of visual range. Thus, the cross-sectional analysis is based on 137 (67 abused, 70 nonabused) of the original participants. The average age of these participants was 18.1 year ($SD = 3.4$ years). There were slightly more Caucasian ($n = 72$, 53%) than minority (Black or Hispanic) participants ($n = 65$, 47%) at T1. Abused and nonabused groups did not differ with respect to these demographics (all $ps > .15$). For prospective analyses, data were examined from the 115 females in common between the fourth (T1) and fifth (T2) waves of data collection (54 abused, 61 nonabused) that occurred approximately 2 years later.

T1 Interview Procedure and Categorization of Disclosure Groups

The interviewer read a script adapted from procedures described by Bonanno, Keltner, Holen, and Horowtiz (1995) for conducting open-ended, narrative interviews. The script informed participants that they would be asked to speak for several minutes about the most distressing event or series of events they had ever experienced. Participants were further informed that the interviewer would keep track of the time and indicate the beginning and end of the interview, that the best way to approach the task was to "try to relate as openly as possible whatever comes to your mind," and that the interviewer would seldom speak other than to ask clarifying questions. To encourage spontaneous discourse, it was stated that "if at any time you go blank, or run out of things to say, just relax and give yourself time to think about something else related to the topic." Once participants identified their most distressing event(s), they were instructed to describe the event(s) for approximately 6 minutes.

During the interview, 44 (66%) CSA participants disclosed an abuse event (CSA disclosure group) as the most distressing event of their life. The remaining 23 CSA participants disclosed nonabuse topics as the most distressing event in their life (CSA nondisclosure group). The most frequent topics described by the nondisclosure group were the death of a close friend or family member ($n = 8$), followed by family conflict or divorce ($n = 4$) and conflicts with friends or peers ($n = 4$). Seventy participants composed the nonabused sample at Time 1. Similar to the CSA nondisclosure group, the most frequent topics disclosed by the nonabused sample were the death of a close friend or family member ($n = 19$), family conflict or divorce ($n = 15$), and conflicts with friends or peers ($n = 15$).

Facial Displays of Positive and Negative Emotion

Participants' facial behavior during the 6-minute T1 disclosure interview was coded using the Emotion Facial Action Coding System (EMFACS; Ekman & Rosenberg, 1997), a version of the Facial Action Coding System (FACS; Ekman & Friesen, 1976). The FACS is a comprehensive, anatomically based, and well-validated technique for measuring all observable facial movement. This system distinguishes 44 action units (AUs), or minimal units that are anatomically separate and visually distinguishable. EMFACS concentrates on coding only the emotion-relevant facial muscle movements that have been derived from previous theory and research (Ekman, 1984). EMFACS criteria were used to translate the coded facial muscle movements into facial expres-

sions for three positive emotional signals (Duchenne smiles, non-Duchenne smiles, and Duchenne laughter[1]; Keltner & Bonanno, 1997; Ruch, 1993), and five negative emotional signals (anger, disgust, shame, fear, and sadness). Cross-sectional data on these same positive and negative expressions has been reported elsewhere (Bonanno et al., 2002, 2003). Because the current study focused primarily on positive emotional signals, the negative items were averaged to form a composite negative emotional expression variable.

Coding was done by Dacher Keltner and three advanced graduate students. Each coder was unaware of participants' group status and responses on other measures. Intercoder reliability was assessed by calculating the pairwise agreement of two pairs of coders for four participants per pair. A ratio was calculated in which the number of facial action units on which the two coders agreed was multiplied by two and then divided by the total number of action units scored by the two persons. Interrater reliability (pairwise agreement) was above .75 in all cases, and the mean ratio of agreement was .80. To increase reliability for analyses involving the facial displays, *expression-magnitude* scores were calculated by standardizing the frequency, intensity, and duration of each facial display and then adding the resulting z scores for each participant (Bonanno & Keltner, 1997).

Self-Reported Negative Affect

Participants' self-reports of negative affect during the T1 interview was obtained at the end of the 6-minute disclosure period using a brief self-report instrument (Bonanno et al., 2003). Seven negative affect terms were measured (fear, anxiety, guilt, sadness, anger, distress, embarrassment). The seven items were averaged to form a measure of negative affect ($\alpha = .82$).

Repressive Coping and Dissociative Experiences

Repressive coping was measured as the discrepancy between self-reported negative affect and change in autonomic arousal during the interview. A number of previous studies have linked this pattern of discrepancy, commonly referred to as affective-autonomic response discrepancy (AARD), to questionnaire measures of repressive coping (e.g., Bonanno, Keltner, Holen, & Horowitz, 1995; Coifman, Bonanno, Ray, & Gross, 2007). For more details on the measurement and calculation of the AARD score in the present sample, see Bonanno et al. (2003). The tendency toward dissociative experiences was measured using the Adolescent Dissociative Experiences Scal (ADES; Armstrong et al., 1997). Following Waller et al. (1996), eight ADES items were used to create a pathological dissociation taxon scale (ADES-T).

Social Adjustment and Maladjustment

Social adjustment was measured as *social competence*, using a subscale of the Harter Perceived Competence Scale for Adolescents (Harter, 1988). The Harter scale is grounded in a solid theoretical basis, and all domains were discriminable through

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[1] Because non-Duchenne laughter is controversial and relatively infrequent, we limited our analyses to Duchenne laughter and smiling and non-Duchenne smiling only.

Table 1

Means and Standard Deviations for Facial Expression-Magnitude and T1 and T2 Social Adjustment Variables Across Disclosure Groups

Expression magnitude	CSA Disclosure $n = 44$	CSA Nondisclosure $n = 23$	Nonabused $N = 70$	Sample total $N = 137$
Duchenne smile	−0.38 (2.60)	−0.59 (2.49)	0.58 (2.58)	0.08 (2.40)
Duchenne laugh	−0.34 (1.99)	−0.20 (1.27)	0.44 (1.65)	0.07 (2.60)
ND smile	−0.55 (1.65)	1.22 (3.11)	−0.11 (1.65)	−0.03 (2.04)
Anger	−0.13 (2.61)	−0.24 (2.07)	0.33 (2.17)	0.09 (2.30)
Disgust	0.59 (2.89)	−0.49 (2.63)	−0.05 (2.48)	−0.08 (2.66)
Shame	0.02 (2.41)	1.96 (2.82)	−0.68 (2.11)	−0.01 (2.50)
Fear	−0.02 (2.53)	0.63 (2.49)	−0.08 (2.35)	0.06 (2.42)
Sad	0.23 (2.26)	0.01 (2.54)	−0.07 (2.11)	0.03 (2.22)
Negative expression average	0.13 (1.48)	0.37 (1.40)	−0.11 (1.22)	0.04 (1.34)
Negative affect average	2.26 (0.66)	1.89 (0.57)	1.82 (0.61)	1.97 (0.65)
Social adjustment				
T1 Social competence	16.05 (3.39)	15.78 (4.16)	17.30 (2.42)	16.60 (3.11)
T1 Social problems	2.68 (2.17)	2.61 (2.64)	2.53 (2.14)	2.69 (2.26)
T1 Social withdrawal	6.73 (2.21)	7.74 (2.26)	6.54 (2.46)	6.83 (2.35)
T2 Social competence	16.75 (2.55)	16.85 (2.65)	17.51 (2.25)	16.78 (2.93)
T2 Social problems	2.62 (2.47)	2.82 (2.51)	2.14 (1.96)	2.37 (2.21)
T2 Social withdrawal	6.97 (2.74)	7.82 (2.92)	6.69 (2.02)	6.86 (2.45)

factor analytic processes across several samples (Harter, 1988). The social competence subscale items refer to the extent to which individuals feel they are popular and have many friends. All of the subscales have been found to have adequate internal consistency reliabilities (average of .83 and all αs > .80). Social maladjustment was measured by two scales: The *social problems* and *social withdrawal* subscales of the Youth Self-Report (YSR, Song, Singh, & Singer, 1994). The YSR is the self-report version of the Child Behavior Checklist (Achenbach, 1983) and has been used extensively with normal and high-risk samples. Both scales have shown adequate test-retest (average of .89) and internal consistency (average of .90) reliabilities (Achenbach, 1993).

Caseworker Abuse History Questionnaire

Details of past abuse experience were obtained from the Caseworker Abuse History Questionnaire (Bonanno et al., 2002) which collected information from the caseworker about the abuse event(s) that resulted in the referral to the protective service agency. Among the variables obtained are: (a) age at first abuse in years; (b) perpetrator identity, coded as three dichotomous variables including biological father versus others, father figure including stepfather or mother's live-in boyfriend versus others, and other relative including grandfather, uncle, or older sibling versus others; (c) duration of abuse coded in months; and (d) abuse severity, which was dichotomized based on previous analyses (Bonanno et al., 2002) to represent sexual abuse accompanied or not accompanied by either actual physical or threatened physical abuse.

Results

Mean expression-magnitude scores (the standardized product of the frequency, intensity, and duration of each expression) for each positive and negative emotional display, mean negative affect, and mean adjustment scores for the three disclosure groups are displayed in

Table 1. In a previous study (Bonanno et al., 2002), planned contrast analyses indicated that Duchenne smiling was more prevalent among the nonabused participants, whereas non-Duchenne smiling was more prevalent among the CSA nondisclosure group. That study also indicated that expressions of anger and disgust were more prevalent in the CSA disclosure, whereas shame expressions were more prevalent in the CSA nondisclosure group. In a related study (Bonanno et al., 2003) negative affect was found to be greatest in the CSA disclosure group and lowest in the nonabuse comparison group. The prevalence of laughter among these participants had not yet been examined. Accordingly, we conducted a similar planned contrast to examine whether Duchenne laughter might be more prevalent in the nonabused group. This analyses was marginally significant, $t(134) = 1.81$, $p < .10$. We also examined possible group differences in social adjustment. The only significant difference to emerge was for T1 social competence, $F(2, 134) = 3.27$, $p < .05$. Pairwise comparisons indicated that T1 social competence scores were higher in the nonabused group ($M = 17.3$, $SD = 2.42$) than in either the CSA disclosure ($M = 16.0$, $SD = 3.38$) or CSA nondisclosure ($M = 15.8$, $SD = 4.15$) groups. No other T1 or T2 differences reached significance.

All the social adjustment variables were significantly correlated across the 2-year period of the study (T1 to T2). However, the correlation across time was relatively mild for positive social adjustment (social competence, $r = .18$, $p < .05$), and stronger for the social maladjustment measures (social problems, $r = .65$, $p < .001$, and social withdrawal, $r = .43$, $p < .001$).

Consistent with previous studies (Bonanno & Keltner, 1997), positive emotions exhibited a pattern of mild to moderate zero-order correlations with social adjustment symptoms when measured concurrently but showed stronger correlations with the T2 adjustment variables. The pattern of correlations was generally consistent with the hypothesized context effects (see Table 2). Most notably, for CSA participants who described stressful experiences that did not pertain to sexual abuse (CSA nondisclosure group), the expression of positive emotions tended to correlate

Table 2

Zero-Order Correlations Between Positive Facial Displays at T1 and Social Adjustment Measures at T1 and T2 for Each Disclosure Group

	CSA Disclosure			CSA Nondisclosure			Nonabused		
	Duchenne smile	Non-Duchenne smile	Duchenne laugh	Duchenne smile	Non-Duchenne smile	Duchenne laugh	Duchenne smile	Non-Duchenne smile	Duchenne laugh
T1 social competence	.06	−.09	−.03	.09	.23	−0.1	.02	−.20[+]	.15
T1 social problems	−.12	−.00	.04	−.38[+]	−.42[*]	−.24	−.08	.22[+]	−.01
T1 social withdrawal	−.10	.21	−.01	−.21	−.19	−.24	.08	.31[**]	.06
T2 social competence	−.09	−.06	−.32[+]	−.19	−.08	−.22	.21[+]	−.08	−.11
T2 social problems	.26	.46[**]	.45[**]	−.20	−.13	−.27	−.04	.38[**]	.21
T2 social withdrawal	.32[+]	.22	.30[+]	−.41[+]	−.58[*]	−.57[*]	−.14	.18	.12

Note. Symp = Symptoms.
[+] $p < .10$. [*] $p < .05$. [**] $p < .01$.

with improved T2 social adjustment. By contrast, for CSA participants who described a sexual abuse experience (CSA disclosure group), the expression of positive emotion tended to correlate with poorer T2 social adjustment. The correlations between positive emotional expression and social adjustment for nonabused participants were less robust and did not indicate a clear pattern of association. It was also noteworthy, however, that non-Duchenne smiles were associated with poor social adjustment in both the nonabused group and the CSA disclosure group, but associated with better social adjustment (e.g., an inverse relation to social withdrawal) among the CSA nondisclosure group.

Predicting T2 Social Adjustment and Maladjustment

To examine these associations and the predicted context effects more thoroughly, we conducted separate regression analyses for each Time 2 dependent variable (social competence, social problems, and withdrawn symptoms). As control variables, these analyses included the potential influence of age and minority status, disclosure group membership, T1 scores on the social adjustment variable, the mean expression-magnitude for negative emotions and the mean self-reported negative affect score. Disclosure group membership was entered using two dummy variables: one variable contrasted the CSA participants who described an abuse experience (CSA disclosure group) against other participants; a second contrasted the CSA participants who described a nonabuse, nonstigmatized event (CSA nondisclosure group) against other participants. As mentioned earlier, the negative emotion variables were included in these analyses to examine whether positive emotional expressions were associated with long-term social adjustment independent of the experience and expression of negative emotion. Each analysis also explored the interactions of the positive and negative expression scores with disclosure condition.

As anticipated and consistent with previous research, these analyses provided evidence of a general salubrious effect of expressing positive emotion. More important, however, in each analysis the effects of positive emotion on T2 social adjustment evidenced the predicted moderating influence of disclosure context. These results are summarized in Table 3.

The first analysis used T2 social competence as the dependent measure and explained 22% of the variance in that measure. Consistent with the general adaptive value of expressing positive

emotion, Duchenne smiling loaded as a significant overall predictor of T2 social competence. In line with the predicted context effects, however, significant 2-way interactions emerged between Duchenne smiling and the CSA disclosure group and between Duchenne smiling and the CSA nondisclosure group.

To understand the interactions, we graphed the simple slopes of smiling against T2 social competence for each group (see Figure 1). The graph indicated that Duchenne smiling was clearly predictive of better T2 social competence among the nonabused comparison group. The slope (β) of smiling to T2 social competence for the nonabused group was .48. By contrast, the slope of smiling against social competence was near zero for both the CSA disclosure group, β = −.04, and the CSA nondisclosure group, β = −.02, thus indicating that for these Groups Duchenne smiling was essentially unrelated to T2 social competence.

The second analysis used T2 social problems as the dependent measure. This analysis explained an impressive 56% of the T2 social problems variance. A good bit of the explanatory power of this analysis was because of the strong association between T1 and T2 social problems. There was also a significant positive association between T2 social problems and non-Duchenne smiling. The latter result is consistent with previous findings linking greater levels of non-Duchenne smiling when discussing stressful life events with untoward social consequences (Keltner & Bonanno, 1997). Most important, and again in keeping with the predicted effect of disclosure context, a significant interaction emerged between Duchenne laughter and CSA nondisclosure. A graph of this interaction (see Figure 2) indicated that among CSA participants who described a previous abuse experience (CSA disclosers) greater Duchenne laughter during the interview predicted increased social problems at T2, β = .29. By contrast, for CSA participants who did not describe a previous abuse experience (CSA nondisclosers), laughter during the interview showed the opposite effect; an inverse association with T2 social problems, β = −.44. The nonabused group evidenced a mild positive association between laughter and T2 social problems, β = .19.

The third analysis used T2 symptoms of social withdrawal as the dependent measure. This analysis explained 36% of the social withdrawal variance. T1 social withdrawal again emerged as a strong predictor in this analysis. Importantly, however, although none of the positive emotion variables in this analysis produced

Table 3

Summary of Regression Analyses Predicting T2 Social Adjustment

DV = T2 social competence	B	SE	β
CSA disclosure	−1.05[+]	.57	−.19
CSA nondisclosure	−.23	.74	−.03
Age	−.11	.07	−.15
Minority status	1.02	.53	.20
T1 social competence	.15[+]	.08	.18
Negative expression	−.05	.18	−.03
Negative affect	.88[*]	.41	.23
Duchenne laughter	−.86	.55	−.17
Duchenne smiling	.48[**]	.16	.48
non-Duchenne smiling	−.03	.13	−.02
Duchenne Smiling × CSA Disclosure	−.52[*]	.21	−.31
Duchenne Smiling × CSA Nondisclosure	−.52[+]	.28	−.22

DV = T2 social problems	B	SE	β
CSA disclosure	.66	.43	.13
CSA nondisclosure	.01	.57	.01
Age	−.03	.05	−.04
Minority status	.20	.37	.04
T1 social problems	.63[***]	.08	.64
Negative expression	−.13	.13	−.08
Negative affect	.14	.31	.04
Duchenne laughter	.22[+]	.08	.22
Duchenne smiling	.03	.09	.03
Non-Duchenne smiling	.23[**]	.09	.23
Duchenne Laughter × CSA Nondisclosure	−.68[*]	.27	−.22

DV = T2 social withdrawal	B	SE	β
CSA disclosure	.46	.54	.09
CSA nondisclosure	1.06	.76	.16
Age	−.10	.07	−.15
Minority status	.22	.49	.05
T1 social withdrawal	.38[***]	.10	.39
Duchenne laughter	−.58	.50	−.12
Duchenne smiling	−.22	.13	−.21
Non-Duchenne smiling	.19	.16	.17
Duchenne Smiling × CSA Disclosure	.51[*]	.20	.30
Non-Duchenne Smiling × CSA Nondisclosure	−.57[*]	.23	−.35

Model: $F(12, 103) = 2.09$, $p < .05$, $R^2 = .22$. Model: $F(11, 93) = 10.01$, $p < .001$, $R^2 = .58$. Model: $F(12, 94) = 3.83$, $p < .001$, $R^2 = .36$.

main effects, the anticipated context effects again emerged; both Duchenne and non-Duchenne smiling evidenced significant interactions with disclosure context.

A graph of the interaction for Duchenne smiling (see Figure 3) showed that genuine or Duchenne smiling among CSA participants who were describing a past abuse experience (CSA disclosure group) predicted increased social withdrawal at T2, $\beta = .39$. As in the previous analysis the opposite was evidenced for CSA participants who smiled while describing a nonabuse experience; for the CSA nondisclosure group, greater Duchenne smiling during the interview predicted reduced T2 social withdrawal, $\beta = -.33$. The nonabused comparison group evidenced a mild inverse association between Duchenne smiling and T2 social withdrawal, $\beta = -.13$.
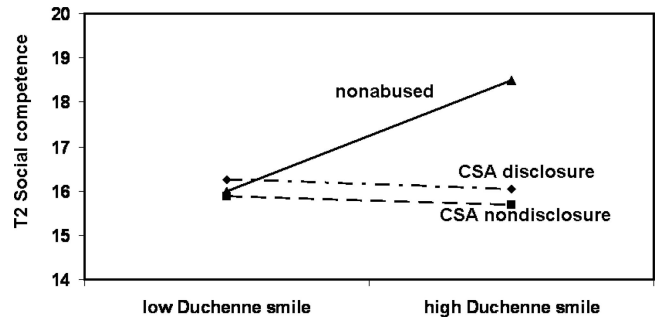

Figure 1. Interaction of disclosure group and T1 Duchenne smiling as predictors of T2 social competence.

The interaction between non-Duchenne smiling and disclosure context (see Figure 4) indicated that for CSA participants who did not describe an abuse experience (CSA nondisclosure group) non-Duchenne smiling was clearly predictive of reduced T2 social withdrawal, $\beta = -.37$, whereas non-Duchenne smiling showed a mild positive association with T2 social withdrawal for both the CSA disclosure group, $\beta = .13$, and the nonabused comparison group, $\beta = .18$

Potential Confounding Influence of Abuse Characteristics, Repressive Coping, and Dissociative Experiences

Because the results indicative of group differences could be interpreted as an effect of context or an effect of related individual difference variables, we repeated each of the regression analyses reported above while controlling for measures of dissociative experiences and repressive coping, found in a previous study to inform disclosure group membership (Bonanno et al., 2003). To control for the possible influence of these variables, we repeated the regression analyses with the measures associated with dissociation and repressive coping included in the model; the previously observed interactions of positive emotional expression and disclosure group remained significant and essentially the same as without these variables. Thus, the moderating effect of the disclosure groups appears to be most clearly a context effect rather than a result of preexisting individual differences. We also explored the potential influence on these interactions of the abuse severity variables (age at first abuse, perpetrator identity, duration, and severity of abuse). However, none of these variables was related to
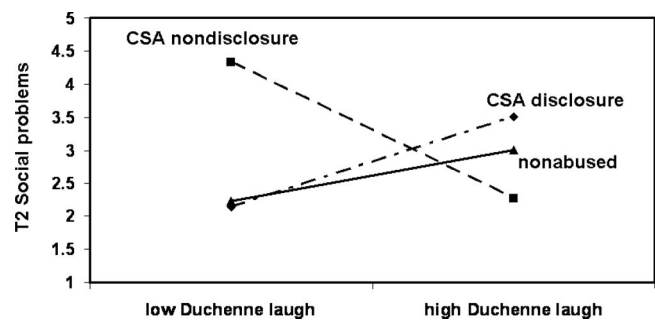

Figure 2. Interaction of disclosure group and T1 Duchenne laughter as predictors of T2 social problems.
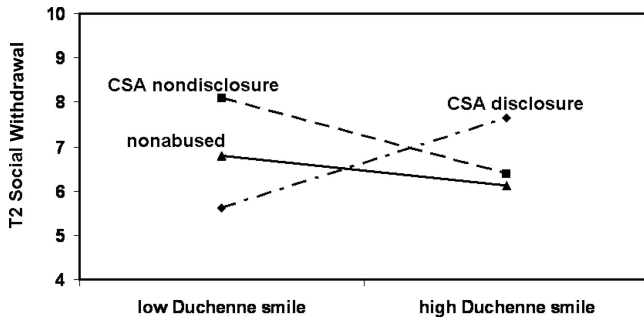
Figure 3. Interaction of disclosure group and T1 Duchenne smiling as predictors of T2 social withdrawal.

social adjustment, and inclusion of these variables in the regression analyses did not markedly alter the previously reported results.

Discussion

Recent theorizing (Fredrickson, 2001) and empirical studies (Bonanno & Keltner, 1997; Fredrickson et al., 2003; Keltner & Bonanno, 1997; Moskowitz et al., 2003; Tugade & Fredrickson, 2004) consistently indicate that positive emotions promote adjustment following aversive events. Might these benefits vary across different contexts? Evolutionist accounts, which presuppose that traits are most beneficial in specific contexts, and studies of trauma disclosure, would suggest that expressing positive emotion in the context of disclosing a highly stigmatized event such as a past CSA experience may also incur serious long-term social costs.

The results from the current investigation lend credence to both claims about positive emotional expression. The expression of positive emotion produced a clear main effect consistent with the idea of general long-term social benefits. Specifically, genuine or Duchenne smiling predicted overall improved T2 social competence. By contrast non-Duchenne smiling (i.e., a positive signal not associated with genuine positive emotion) predicted increased T2 social problems; a finding that converges with other evidence linking non-Duchenne smiling during disclosures of aversive events to negative social consequences (e.g., Keltner & Bonanno, 1997).

At the same time, context mattered. A number of significant interactions were observed between positive emotional expression and disclosure context. These interactions clearly indicated the long-term social consequences of expressing positive emotion whereas disclosing deeply personal information depended on who was making the disclosure and on what the disclosure was about. For example, the main effect of Duchenne smiling on T2 social competence was qualified by interactions with both CSA disclosure conditions. A graph of the interactions indicated that the positive association of Duchenne smiling with long-term social competence was observed only among the nonabused comparison group. For CSA participants, regardless of whether they were talking about abuse or not, Duchenne smiling during the interview was essentially unrelated to long-term social competence.

A different pattern was observed for Duchenne smiling in relation to T2 social withdrawal. In this case, for nonabused participants there was almost no association between Duchenne smiling and long-term social withdrawal. However, for participants with a prior history of CSA, the relationship of Duchenne smiling with

long-term social withdrawal depended on whether or not a past abuse experience was disclosed during the interview. Consistent with arguments about the possible untoward effects of expressing positive emotion in the context of discussing CSA, Duchenne smiling among the CSA disclosure group predicted increased T2 social withdrawal. By contrast, for CSA participants who did *not* describe a past abuse experience during the interview, Duchenne smiling predicted *decreased* social withdrawal at T2.

This pattern was also observed for Duchenne laughter in predicting T2 social problems. Again, for the nonabused group, the effects of laughter had relatively little long-term association with social problems. However, for CSA participants, whether laughter was associated with favorable or unfavorable social adjustment depended on whether or not they were disclosing a past abuse experience. CSA participants who showed genuine laughter whereas disclosing CSA had worse T2 social problems while CSA participants who expressed genuine laughter while disclosing a nonabuse experience had *deceased* T2 social problems.

Also lending support to the importance of context in this paper, the effects of non-Duchenne smiling on long-term social withdrawal depended on disclosure context. In this case, for both the nonabused group and the CSA disclosure group non-Duchenne smiles showed mild positive associations with T2 social problems. Although the slopes of these associations were quite modest for both groups, they are not inconsistent with the general adverse social effects of non-Duchenne smiling when disclosing aversive material, as discussed above. By contrast, for CSA participants who chose not to disclose a past CSA experience, non-Duchenne smiling during the interview evidenced a clear inverse association with long-term social problems.

Limitations

Several methodological limitations of the present study warrant discussion. A primary concern is that the disclosure/nondisclosure of a sexual abuse experience among CSA survivors was measured as a between-subjects variable. We had originally designed the open-ended interview task to compare facial displays among CSA survivors who spontaneously disclosed or did not disclose their past abuse (Bonanno et al., 2002). Unfortunately, given this design we could not compare facial behavior in the same participants across different types of events. A more informative design alternative would have been to include a second interview in which CSA survivors who had originally disclosed an abuse experience also disclosed a distressing,
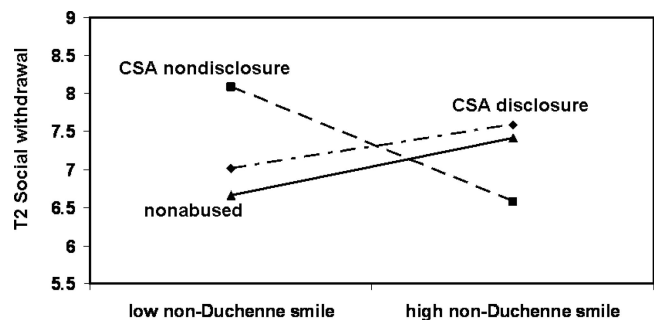

Figure 4. Interaction of disclosure group and T1 non-Duchenne smiling as predictors of T2 social withdrawal.

nonabuse experience and CSA survivors who originally disclosed a nonabuse experience also disclosed an abuse experience.

As a secondary measure, we attempted to statistically control for some of the factors that may have informed group differences in disclosure behavior independent of emotion. This type of data could at least partially rule out alternative explanations for the observed interactions between disclosure group status and the consequences of positive emotional expression. One such explanation is that the findings of the present study do not reflect context effects but rather preexisting individual differences. Several lines of evidence argue against this explanation. For instance, a previous study has shown that the CSA disclosure group tended to score higher on a trait measure of dissociative experiences whereas the CSA nondisclosure group tended to score high on a trait measure of social desirability and low on a measure of trait anxiety, a pattern associated with repressive coping (Bonanno et al., 2003). Controlling for these variables in the current study did not influence any of the key findings. Additionally, the CSA disclosure and CSA nondisclosure groups did not differ meaningfully on any of the social adjustment measures, nor were the results influenced by controlling for intellectual functioning or characteristics of the original abuse. Finally, the interactive effects of disclosure context and positive emotional expression were evidenced incrementally, over-and-above both the experience and the expression of negative emotion. Statistical control of these variables helped account for possible individual differences in emotion dyregulation associated with CSA that may have predated the disclosure interviews. Despite these controls, however, we still cannot directly rule out the possibility that other personality factors or other unknown variables may have influenced participants' decision to disclose a past abuse experience. Therefore, caution is warranted in concluding that context alone was the sole factor driving the observed pattern of findings.

A second limitation is that differences between the CSA and nonabused groups might have been attenuated because of self-selection of the CSA participants. Although the CSA survivors in this study met stringent criteria for a CSA experience, because of the study's requirement that all participants be referred by protective services and have a nonabusing caretaker as a willing informant, it is possible that this sample is not representative of the broader CSA survivor population. Families that qualified to participate, therefore, may have been relatively more intact. Further, although the attrition rate since the participants' original recruitment is impressive relative to other longitudinal studies of high-risk populations, it is possible that the most disturbed of the abused population did not return. Because of the assumption that only the highest functioning victims have been assessed, the CSA-related results of this study may be relatively conservative.

Finally, a third potential limitation involves the use of self-report scales to measure social adjustment. We attempted to limit the impact of this problem by including several different social adjustment scales. One of these measures, the Harter scale that provided the measure of social competence, is likely to yield scores that have less potential for bias as it was constructed using a structured alternative format that decreases the tendency for respondents to give socially desirable responses. Nonetheless, it will be imperative for future studies of the social benefits and costs of positive emotional expression to utilize more objective behavioral measures of social adjustment.

The Adaptive Benefits of Expressing Positive Emotion

Granted these concerns, the current findings suggest several implications for future research and theory on positive emotion. Although our primary aim in this study was to examine context effects, it is important to note that the overall pattern of findings supports claims about the general adaptive benefits of expressing positive emotion. For nonabused participants, positive emotional expressions predicted long-term social competence and were not meaningfully associated with maladaptive consequences. The current results also extend this body of evidence by providing the first demonstration that positive emotions promote adjustment for female survivors of CSA. This conclusion is constrained of course, as we discuss below, by the interactive effects of disclosure context; specifically, the expression of positive emotions among CSA survivors appeared to be generally adaptive, as long as it did not occur in the context of disclosing a past abuse experience.

There is good reason why positive emotions would be especially relevant for adaptation following CSA. At each development phase, CSA survivors are likely to reevaluate their abuse experiences in light of the particular developmental tasks characteristic of that stage (Celano, 1992; Cole & Putnam, 1992; Spaccarelli, 1994). Success in negotiating the tasks of emerging adulthood hinges greatly on social adjustment, an area frequently disrupted in CSA survivors. During the emerging adulthood period covered in the current study, many of the CSA participants were taking on new social roles in marriage or cohabitation (32% of the CSA survivors) and motherhood (37% of the CSA survivors) (Noll et al., 2003). Thus, CSA survivors may have been coping with sexual abuse-related issues that were not salient during earlier developmental periods and in this context it seems that the social benefits of expressing positive emotion appear to have been particularly adaptive.

A Context-Specific Cost of Expressing Positive Emotion

The current data also provide important support for arguments about the contextual specificity of positive emotional expression. More precisely, the data support arguments we advanced earlier suggesting that expression of genuine positive emotions would promote adjustment to adversity, but only in contexts that are relatively free of social stigma or where possible misattributions of culpability are not likely (e.g., death of a loved one or a natural disaster). It is understood that survivors of CSA are entirely blameless for the abuse they had experienced. Unfortunately, however, it is well established that CSA survivors frequently blame themselves or mistakenly attribute to themselves some measure of responsibility for the perpetrator's actions (Celano, 1992; Celano, Hazzard, Campbell, & Lang, 2002; Owens & Chard, 2001). Moreover, the disclosure of a past CSA experience may often make listeners highly uncomfortable and evoke judgmental responses toward the survivor (Femina et al., 1990; Nagel et al., 1997), causing them to reject, denigrate, or stigmatize the individual to alleviate personal concerns for safety (Hafer & Begue, 2005; Hirschberger, 2006; Lerner, 1980). When expressed in this context, genuine smiling and laughter would more than likely heighten these concerns, increasing discomfort and ambiguity as well as potential misattributions from listeners. At the most basic level, it may be the case that displays of genuine positive emotion while disclosing sexual abuse are simply unexpected and therefore confusing to others. It will be important in future research to clarify whether

the costs of expressing positive emotions are as localized to highly stigmatizing events, as we have suggested, or whether such costs might also emerge in other situational contexts with themes (e.g., competition, social distance, the suffering of others) that mismatch the affiliative intent of Duchenne smiling and laughter.

By contrast, the adaptive effects of Duchenne smiling and laughter for the CSA survivors in the current study who were not describing a previous abuse experience are congruent with previous findings indicating that positive emotion may be most beneficial in times of heightened distress (Zautra, Reich, & Guarnaccia, 1990). Duchenne expressions have been shown to elicit affiliation (Gonzaga, Keltner, Londahl, & Smith, 2001) and positive emotional reactions (Keltner & Bonanno, 1997; Surakka & Hietanen, 1998). Duchenne smiles have been associated with more diverse social networks (Papa & Bonanno, in press). Duchenne laughter tends to occur almost exclusively in social settings (Provine & Fischer, 1989) where it may serve multiple socially adaptive functions, such as communicating praise, dramatizing conversation, and increasing physical proximity (Weisfield, 1993). Thus, in general, Duchenne expressions appear to encourage social affiliation and help make social resources available for coping with adversity (Fredrickson, 1998, 2001; Keltner & Bonanno, 1997).

Of additional interest, in the current study the long-term social consequences of non-Duchenne smiles were also found to vary by disclosure context. For all participants, non-Duchenne smiling was associated with greater T2 social problems and, for nonabused participants and CSA disclosure participants, with greater T2 social withdrawal. By contrast, for CSA participants who did not describe an abuse experience, non-Duchenne smiling predicted *reduced* T2 social withdrawal. Explanation for these effects may lie in the differences between Duchenne and non-Duchenne expressions, noted earlier. Whereas Duchenne smiles consistently co-occur with positive emotion, non-Duchenne expressions typically do not. Duchenne and non-Duchenne expressions also appear to be associated with unique neuroanatomical correlates. Most important, from a social adjustment standpoint, Duchenne and non-Duchenne smiles differ visually and may communicate different types of social intent. Duchenne expressions involve contraction of the orbicularis oculi muscles around the eyes, resulting in the classic appearance of crow's feet or smiling with the eyes. Non-Duchenne expressions do not involve the oculi muscles, and therefore may appear as a less sincere type of smile. Thus, whereas Duchenne expressions communicate genuinely positive experiences, non-Duchenne expressions appear to function as markers of social politeness or as deceptive signals that mask feelings and communicate appeasement (e.g., Bonanno et al., 2002; Ekman, Friesen, & O'Sullivan, 1988; Hecht & LaFrance, 1998; Hess, Banse, & Kappas, 1995; Keltner, 1995; Prkachin & Silverman, 2002).

Against this backdrop, then, one explanation for the global negative social effects of non-Duchenne smiles in disclosure situations is that they communicate politeness but not genuine warmth. In the context of disclosing personally distressing experience, such expressions may be interpreted as a lack of sincerity and thus viewed disapprovingly by others. For instance, Keltner and Bonanno (1997) found that observers who watched the bereaved widows and widowers on video were less likely to report a desire to comfort those who showed greater prevalence of non-Duchenne smiles. Similarly, it may be that non-Duchenne smiles weakly signal positive emotional experience without instigating the supportive affiliation associated with genuine smiling; thus,

frequent use of such expressions might undermine approach behaviors and possible offerings of support from others.

On the other hand, non-Duchenne smiles proved more adaptive for CSA nondisclosers. For this group, non-Duchenne smiles predicted reduced social withdrawal. Perhaps these polite smiles were effective in this case because they allowed for a form of communication, or cordial nonverbal interaction, which did not necessitate actually speaking about the past experience of CSA. Non-Duchenne smiles may have also been related to CSA nondisclosers' attempts to compensate for not disclosing their abuse by behaving politely and acknowledging their feelings of distress. In support of such a compensatory explanation, non-Duchenne expressions among bereaved individuals who had been discussing their recent loss were found to predict a heightened awareness of distress (Keltner & Bonanno, 1997; see also Ekman & Friesen, 1982, for related discussion of the miserable smile).

Conclusion

Emotions are adaptive to the extent that they facilitate beneficial responses to specific contexts. By implications, emotional expressions that are inappropriate to the context should predict poor adjustment. This hypothesis has generated support in studies of the negative and self-conscious emotions (e.g., Gruber & Keltner, in press; Keltner & Kring, 1998). To the best of our knowledge, the present study is the first to suggest that the expression of genuinely positive or Duchenne emotional displays in inappropriate social contexts might predict poor social adjustment. Across several different dependent measures, the social costs of expressing positive emotion in the context a stigmatizing event like CSA were clearly evident. In a speculative vein, we suggest that as useful as positive emotions appear to be in the general case, their adaptive advantage when expressed in the context of extreme or stigmatized events may be countered by other adaptive social mechanisms; those associated with the selection or exclusion of partners for cooperative social exchange based on the predictability of their future intentions. We could not directly address this issue in the current study, nor did we examine the host of other possible factors that may have informed our participants' long-term social adjustment. However, it is our hope that future research on positive emotional expression will continue to document not only its adaptive usefulness, both in everyday life and in the context of coping with extreme adversity, but also the possible down side of expressing positive emotions and the ways in which such expression may compete with other human strengths and adaptive tendencies.

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