Published in final edited form as:

J Forens Psychiatry Psychol. 2011 September 1; 22(5): 706–723. doi:10.1080/14789949.2011.617541.

Shame, Guilt and Remorse: Implications for Offender Populations

June Price Tangney, Jeff Stuewig, and Logaina Hafez

George Mason University

Abstract

The emotions shame and guilt may represent a critical stepping stone in the rehabilitation process. Often referred to as “moral” emotions owing to their presumed role in promoting altruistic behavior and inhibiting antisocial behaviors, shame and guilt provide potentially exciting points of intervention with offenders. In this article, we describe current psychological theory and research that underscores important differences between shame and guilt. We note parallels between psychologists’ conceptions of guilt and shame, and criminologists’ conceptions of reintegrative and disintegrative shaming. We summarize recent research investigating the implications of these moral emotions for criminal and risky behavior, with special emphasis on the handful of studies conducted with actual offenders. We conclude with a discussion of implications for treatment in criminal justice settings.

The emotions shame and guilt may represent a critical stepping stone in the rehabilitation process. Often referred to as “moral” emotions owing to their presumed role in promoting altruistic behavior and inhibiting antisocial behaviors, shame and guilt provide potentially exciting points of intervention with offenders.

Are There Meaningful Distinctions Between Shame, Guilt and Remorse?

Most psychologists regard remorse as a primary component of the guilt experience. Phenomenological studies underscore the centrality of remorse to guilt (e.g., Lewis, 1971; Lindsay-Hartz, 1984). Until research identifies theoretically or practically important distinctions, we will employ “guilt” as an umbrella term, subsuming “remorse.”¹ The distinction between shame and guilt, in contrast, is an important one both theoretically and practically.

One basis for distinguishing between shame and guilt concerns the types of situations that elicit these emotions. Analyses of personal shame and guilt experiences provided by children and adults, however, reveal few, if any, reliably shame-inducing or guilt-inducing situations (Keltner & Buswell, 1996; Tangney, 1992; Tangney & Dearing, 2002; Tracy & Robins, 2006). Guilt has been more narrowly linked to moral transgressions, whereas shame can be elicited by a broader range of situations including both “moral” and “non-moral” failures (Ferguson, Stegge, & Damhuis, 1991; Sabini & Silver, 1997; Smith, Webster, Parrott & Eyre, 2002), but most types of events (e.g., lying, cheating, stealing, etc.) are cited by some as eliciting shame and by others as eliciting guilt. In short, type of event does not reliably distinguish between shame and guilt.

¹Recently, Zeelenberg and Breugelmans (2008) examined situational antecedents of guilt and regret. They found that regret was experienced in response to both situations involving harm to self and situations involving harm to others, whereas guilt was predominantly experienced in situations involving harm to others.

A second basis for distinguishing between shame and guilt emphasizes the public vs. private nature of the emotion-eliciting situation (e.g., Benedict, 1946; Smith et al., 2002; Wolf, et al., 2009). From this point of view, shame is the more “public” emotion arising from exposure to disapproving others, whereas guilt is the more “private” experience represented by internally-generated pangs of conscience. It turns out that people *feel* more exposed, more scrutinized by others when experiencing shame than guilt (Smith et al., 2002). But the actual structure of the emotion-eliciting situation for shame and guilt is remarkably similar (Tangney & Dearing, 2002; Tangney, Miller, Flicker & Barlow, 1996). Most types of events that elicit shame *and* guilt are public, in the sense that other people are aware of the emotion-eliciting failure or transgression, and the frequency with which others are aware of the respondents’ behavior does not vary as a function of shame or guilt (see Tangney, Youman & Stuewig, 2009, for review).

The evidence favors a third basis for distinguishing between shame and guilt – focus on self vs. behavior. From this perspective, shame arises from a negative focus on the self – one’s core identity; guilt arises from a negative focus on a specific behavior (Lewis, 1971). This differential emphasis on self (“I did that horrible thing”) vs. behavior (“I did that horrible thing”) sets the stage for different emotional experiences and different patterns of motivation and subsequent behavior.

Shame is typically the more painful, disruptive emotion because the self, not simply one’s behavior, is the object of judgment. When people feel shame about the self, they feel “small,” worthless, and powerless. Shamed people also feel exposed. Even though an actual observing audience need not be present, there is often the imagery of how one’s defective self would appear to others.

Guilt, on balance, appears to be less disruptive and more adaptive. Although painful, guilt is less overwhelming because what is at issue is a specific behavior, somewhat apart from the self. So people stricken with guilt are drawn to consider their *behavior* and its consequences, rather than feeling compelled to defend the self. Feelings of remorse and regret are central to the phenomenology of guilt. When feeling guilt, people are inclined to ruminate over the misdeed, wishing they had behaved differently.

Although the field is not unanimous (see Luyten, Fontaine & Corveleyn, 2002; Sabini & Silver, 1997) there is broad empirical support for Lewis’s (1971) distinction between shame and guilt from a range of studies utilizing diverse methodologies including qualitative case studies, content analyses of shame and guilt narratives, participants’ quantitative ratings of personal shame and guilt experiences, analyses of attributions associated with shame and guilt, and analyses of participants’ counterfactual thinking (for reviews, see Tangney & Dearing, 2002; Tangney, Stuewig & Mashek, 2007; Tracy & Robins, 2006).

In sum, shame and guilt refer to related but distinct negative “self-conscious” emotions. Although both are unpleasant, shame is the more painful self-focused emotion linked to hiding or escaping. Guilt, in contrast, focuses on the behavior and is linked to making amends.

Shame and Guilt in Criminology

In his review of psychological and criminological perspectives on shame and guilt, Tibbetts (2003) observed that most criminologists do not take into account the distinction between these two self-conscious emotions (e.g. Grasmick & Bursik, 1990; Nagin & Paternoster, 1993). In fact, Tibbetts (2003) notes, “In the criminological research, virtually all measures of self-conscious emotions consist of one- or two-item measures...” (p. 110), and “have

tended to operationalize shame as the amount of ‘guilt’ one feels (or would feel) if they were to commit a given act.” (p. 107).

Unlike most criminologists, Braithwaite’s (1989) Reintegrative Shaming Theory (RST) has made the distinction between behavior and self. In RST, “disintegrative shaming” or stigmatization are practices and policies that focus on the individual. The person is isolated and humiliated, forgiveness is not bestowed and the goal is to punish the person by instilling feelings similar to what we would call shame. In contrast, “reintegrative shaming” focuses not on the individual, but identifies the crime as irresponsible, wrong, or bad. The behavior is condemned but the person is respected, accepted back into society, and given the chance to make reparation for the criminal act. In reintegrative shaming, behavior is explicitly “uncoupled” from the self and the aim is to instill emotions akin to what psychologists term “guilt” (Braithwaite & Mugford, 1994).

Both RST and psychological theory call into question the notion that shame is an inhibitor of immoral or illegal behavior (for reviews, see Tangney et al., 2007; Stuewig & Tangney, 2007). Whether one uses “shame and guilt” or “disintegrative shame and reintegrative shame,” there appear to be two different ways to feel bad about one’s failures and transgressions, one more adaptive than the other.

What Does the Empirical Research Tell Us About Shame and Guilt?

In this review of the empirical literature, we have omitted studies from psychology and criminology that assess shame and guilt in a way that confounds the two emotions. Although we focus on studies based on Reintegrative Shaming Theory (Braithwaite, 1989) or Lewis’s (1971) self vs. behavior distinction, we include studies that did not explicitly make this distinction but that employed a measure of shame conceptually distinct from guilt and/or a measure of guilt conceptually distinct from shame.

Research on Reintegrative Shame Theory

Reintegrative Shame Theory (RST; Braithwaite, 1989) emphasizes the utility of reintegrative shaming (as opposed to “disintegrative” shaming). There has not been an abundance of systematic empirical research on RST, but most studies have been at least partially supportive of the theory (Harris, 2006; Hay, 2001; Makkai & Braithwaite, 1994; Murphy & Harris, 2007). Most of this research focuses on outcomes of the practice of reintegrative shaming (or disintegrative shaming) offenders. Such studies do not typically assess whether the perpetrating individual actually experiences shame or guilt, or whether these emotions are then related to subsequent behavior. In a rare study of the full mediational process, Murphy and Harris (2007) explicitly examined whether shaming practices led to shame which in turn led to offending behavior. In this cross-sectional correlational study of 652 tax evaders, Murphy and Harris found clear support for Braithwaite’s notion that stigmatizing practices (in this case, perceptions of stigmatizing practices) should be associated with higher rates of re-offense. The mediational hypotheses involving experiences of shame, however, were largely unsupported, perhaps because the model failed to distinguish between feelings of disintegrative shame and reintegrative shame (guilt). In fact, some unexpected results suggested the importance of an affective factor reflecting remorse and a desire to put matters right, consistent with psychologists’ conceptions of guilt.

Research on Shame and Guilt from Psychology

The empirical literature in psychology has focused heavily on *dispositional* shame and guilt – that is, individual differences in the tendencies to experience shame and guilt across a range of situations. However, it is important to note that studies of *state* shame and guilt –

feelings of shame and guilt in the moment -- converge with the dispositional studies (for a review, see Tangney, et al. 2007). Studies utilizing multiple methods, at various levels of measurement, with diverse populations, indicate that guilt is the more adaptive moral emotion, while shame is a moral emotion that can easily go awry (Baumeister, Stillwell & Heatherton, 1994; Tangney, 1991; Tangney & Dearing, 2002). Five lines of research illustrate the adaptive functions of guilt, in contrast to the hidden costs of shame.

Hiding vs. Amending—Research consistently shows that shame and guilt lead to contrasting motivations or “action tendencies” (Ketelaar & Au, 2003; Lindsay-Hartz 1984; Tangney, Miller, et al., 1996; Wallbott & Scherer, 1995; Wicker, et al., 1983). Shame often motivates efforts to deny, hide or escape the shame-inducing situation. Guilt often motivates reparative action (e.g., confession, apology, efforts to undo the harm).

Other-oriented Empathy vs. Self-Oriented Distress—Feelings of guilt go hand in hand with other-oriented empathy. If anything, shame is apt to disrupt people’s ability to connect empathically with others. This differential relationship of shame and guilt to empathy is apparent both at the level of emotion disposition and at the level of emotional state (Joireman, 2004; Leith & Baumeister, 1998; Silfver, Helkama, Lonnqvist, & Verkasalo, 2008; Stuewig, et al., 2010; Tangney, 1991; Tangney & Dearing, 2002).

Externalization of Blame, Anger, and Aggression—Research indicates a robust link between shame and tendencies to externalize blame and anger, again observed at both the dispositional and state levels. Among individuals of all ages and from all walks of life, proneness to shame is positively correlated with anger, hostility, and the propensity to blame others (Bear, Uribe-Zarain, Manning, & Shiomi, 2009; Bennett, Sullivan, & Lewis, 2005; Harper & Arias, 2004; Luyten, et al., 2002; Paulhus, Robins, Trzesniewski, & Tracy, 2004; Tangney & Dearing, 2002). Similarly, in laboratory setting, experimentally induced shame was associated with aggressive behavior, particularly among those high in narcissism (Thomaes, Bushman, Stegge, & Olthof, 2008)

In an effort to escape painful feelings of shame, shamed people are inclined to defensively “turn the tables,” externalizing blame and anger outward onto a convenient scapegoat (Lewis, 1971; Scheff & Retzinger, 1991; Tangney, 1990). By doing so, the shamed person attempts to regain some sense of control and superiority in their life, but the long-term costs can be steep. Friends, co-workers, and loved ones may feel confused and alienated by apparently irrational bursts of anger. The link between shame and overt physical aggression, observed in many but not all studies (Tangney, et al., 1996; for a review see Tangney, Stuewig & Mashek, 2007) appears to be almost entirely mediated by externalization of blame (Stuewig, Tangney, Heigel, Harty, & McCloskey, 2010).

In sharp contrast, guilt-prone individuals are inclined to take responsibility for their transgressions and errors. Externalization of blame has been consistently negatively correlated with guilt at both the state and trait levels (Tangney, Stuewig & Mashek, 2007). Guilt-proneness is unrelated to anger – that is, guilt-prone people are just as prone to anger as anyone else, but when angered, guilt-prone individuals are inclined manage their anger constructively and they are *disinclined* toward aggression (Ahmed & Braithwaite, 2004; Lutwak, et al., 2001; Paulhus et al., 2004; Stuewig, et al., 2010; Tangney, Wagner, Hill-Barlow, Marschall, & Gramzow, 1996).

Psychological Symptoms and Substance Abuse—Research regarding shame and psychological problems is consistent. Across measurement methods and diverse age groups and populations, the propensity to experience shame is linked to a broad range of symptoms, including low self-esteem, depression, anxiety, eating disorders, post-traumatic stress

disorder (PTSD), suicidal ideation, and substance dependence (Ashby et al. 2006; Brewin et al. 2000; Crossley & Rockett 2005; Dearing, Stuewig, & Tangney, 2005; Feiring & Taska 2005; Feiring et al. 2002; Ferguson, et al. 1999, 2000; Ghatavi et al. 2002; Harper & Arias 2004; Henderson & Zimbardo 2001; Luyten, et al., 2002; Leskela et al. 2002; Meehan et al., 1996; Mills 2003; Murray et al. 2000; Orsillo et al. 1996, Stuewig & McCloskey 2005; Tangney, et al., 1992; Tilghman-Osborne, et al., 2008).

Results regarding guilt and psychopathology are more mixed. Studies employing global adjective checklists (e.g., the Personal Feelings Questionnaire-2 (PFQ-2); Harder, Cutler & Rockart, 1992) find that proneness to guilt is positively related to psychological symptoms (e.g., Harder & Lewis, 1987; Harder, Cutler & Rockart, 1992). Elsewhere, Tangney (1996) has argued that global adjective measures of one's propensity to feel "guilt" or "remorse" (e.g., the PFQ-2, her own State Shame and Guilt Scale (SSGS)) that are devoid of situational context seem ill-suited to assess guilt about behaviors distinct from shame about the self. When proneness to guilt is assessed using measures sensitive to Lewis's (1971) distinction between shame about the self vs. guilt about a specific behavior (such as the Test of Self-Conscious Affect (TOSCA)), the propensity to experience "shame-free" guilt is essentially unrelated to psychological symptoms (Bybee, et al., 1996; Gramzow & Tangney, 1992; Leskela et al. 2002; Quiles & Bybee, 1997; Tangney, 1999; Tilghman-Osborne, et al., 2008).²

Substance use deserves special mention, given the extraordinarily high rates of substance use disorders among incarcerated individuals. Here, too, shame and guilt-proneness show a differential relationship. In two independent studies, adults in recovery programs had lower guilt-prone scores and higher shame-prone scores as compared to individuals in community samples (Meehan et al., 1996; O'Connor, Berry, Inaba, Weiss, & Morrison, 1994). In two samples of undergraduates and one sample of jail inmates, shame-proneness was consistently positively related to both alcohol and drug problems, whereas guilt-proneness was (less consistently) negatively related to such problems (Dearing, Stuewig, & Tangney, 2005). In a longitudinal study, shame and guilt proneness in the fifth grade predicted alcohol and drug use at 18 years of age (Tangney & Dearing, 2002). Children high in shame tended to start drinking earlier than those low in shame and were more likely to later use heroin, uppers and hallucinogens. Those high in guilt started drinking at a later age than those low in guilt and were less likely to use heroin, with similar trends for marijuana and uppers.

The Bottom Line: Criminal Behavior—Finally, to what degree are shame and guilt associated with criminal behavior? Tibbetts (1997) found that undergraduates' *anticipated* shame was inversely related to students' *intention* to drive drunk or shoplift. Proneness to shame, however, was unrelated to such intentions. Regarding *actual* illegal behavior, Tibbetts (2003) found that undergraduates' criminal offending indexed by number of illegal behaviors (including use of drugs) was consistently negatively related to guilt-proneness. Results involving shame-proneness were mixed. An overall shame-proneness index, comprising three dispositional measures of shame, was unrelated to illegal behavior, further refuting the assumed inhibitory function of shame.

Two prospective studies investigated the long-term effects of shame and guilt-proneness in predicting delinquency. In a study of public school children, guilt-proneness assessed in the

²Some psychologists (Ferguson & Stegge, 1998; Luyten, Fontaine, and Corveleyn, 2002) have suggested that the TOSCA family of measures fail to capture pathological forms of guilt. It is important to note that these measures tap feelings of shame and guilt with respect to failures or transgressions for which the person was responsible. The measures do not capture problematic tendencies to take responsibility for situations that are beyond one's reasonable control (e.g., many instances of survivor guilt, O'Connor et al., 1997). We agree that problems with guilt are apt to arise when people have an exaggerated or distorted sense of responsibility for events, or when guilt becomes fused with shame (Dearing & Tangney, in press; Tangney & Dearing, 2002).

5th grade negatively predicted arrests and convictions reported by the participant at age 18. In contrast, shame-proneness predicted neither (Tangney & Dearing, 2002). In another sample, Stuewig and McCloskey (2005) examined whether proneness to shame or guilt in early adolescence mediated the relationship between maltreatment in childhood and subsequent delinquency and depression assessed in late adolescence. Guilt again emerged as a protective factor. “Shame-free” guilt negatively predicted delinquency assessed both by juvenile court records and by self-report; proneness to “guilt-free” shame did not. Moreover, in the full models the inverse link between guilt and delinquency was robust, even when symptoms of conduct disorder in childhood and parenting in adolescence were integrated in the model.

Research with Criminal Justice Populations

Research in psychology has mostly been conducted on community samples – often college students. A few studies have employed clinical samples; studies of criminal offenders are rare. Two key questions arise. First, do shame and guilt behave similarly among community and criminal justice populations, in terms of their relationship with important psychological variables? Second, do studies conducted in community settings involving relatively minor transgressions generalize to more serious offenses, among individuals involved in the criminal justice system?

In contrast to the research reviewed thus far, Harris (2003) found no evidence that shame and guilt form distinct factors when examining event-specific shame and guilt in a sample of (non-incarcerated) convicted drunk drivers, many with substance abuse problems. Harris, however, focused on a unique, homogeneous sample and a single type of transgression. It is possible that experiences of shame and guilt are not well-differentiated among individuals with substance abuse problems or alternatively, guilt and its empathic focus on the harmed other may be less relevant to transgressions such as drunk driving which typically do not result in objective physical harm to others. (Only drunk drivers not involved in automobile accidents were selected for Harris’s study.) Due to these issues the generalizability of these findings are unclear.

Only a handful of studies have attempted to distinguish and examine shame and guilt in incarcerated samples. Two were methodological in nature representing efforts to develop new measures of shame and guilt for offenders, and did not include measures of criminal justice-relevant outcomes.

Using the Delphi method, Xuereb, Ireland and Davies (2009) generated items for a new measure of shame, guilt, and denial specifically for offender respondents. An initial version of the measure was piloted with a sample of 339 offenders from a Medium Secure English prison. Confirmatory factor analyses failed to provide evidence for shame, guilt, and denial as three distinct factors, likely owing to the heterogeneity of items hypothesized to load on their respective factors. For example, it is not clear how certain stable factors (e.g., “I have been told that I respect other people’s opinions”) map on to any of the key constructs (shame, guilt, and denial). Similarly, “feel angry” as a response to thinking about the index offense is conceptually distinct from shame and guilt. Likewise, “feel anxious” is a poor marker of shame or guilt, as anxiety is conceptually distinct from these moral emotions.

Having determined that the three-factor model was a poor fit, the authors then conducted exploratory factor analyses separately for 27 stable/chronic items and for 50 offense-related items. The former yielded three factors which the authors labeled chronic distress and low self-worth, chronic self-blame, emotional capacity and respect. The offense-related items yielded 5 factors labeled by the authors as responsibility and self-blame, distress and rejection, lack of negative emotion, minimization of harm, and functions of denial. Several

of the factors had notably low internal consistency. Given the exploratory nature of the factor analyses, the large number of items relative to the number of participants, and the conceptual heterogeneity of the items, it is unclear whether the factor structure would replicate in an independent sample. According to Xuereb, Ireland and Davies (2009), the main finding was a lack of support for the shame-guilt distinction. However, as noted by the authors, it is not clear how many of the experts generating items were familiar with current distinctions between shame and guilt, as two thirds were described as having “published work about shame, guilt, denial *and/or offenders*” [italics added] (p. 644).

In contrast, Wright and Gudjonsson (2007) presented support for the distinction between shame and guilt in a study of 60 male offenders detained in a forensic psychiatric unit in England. A new measure of offense-related shame and guilt was compared with several existing measures, including the TOSCA-3. An exploratory factor analysis of the Offence-Related Shame and Guilt Scale (ORSGS) yielded distinct shame and guilt factors, which converged as expected with the TOSCA-3 shame and guilt scales (but not the State Shame and Guilt Scales; Marschall, Sanftner, & Tangney, 1994). No measures of criminal behavior or crime-related constructs were included, thus it is not clear how the ORSGS relates to actual behavior, but in a follow up article, Wright, Gudjonsson and Young (2008) reported that offense-related shame was associated with anger difficulties, whereas offense-related guilt was associated with the ability to control anger. Using the Internalized Shame Scale in a sample of 50 adult offenders, Morrison and Gilbert (2001) found that shame was associated with psychopathy, especially secondary psychopathy, aggression, and other antisocial personality characteristics. In contrast, in a study of 60 college students and 56 young (ages 18-20) incarcerated offenders, Farmer and Andrews (2009) found a link between shame and anger among college students but not young offenders. In addition, young offenders were less shame-prone than their undergraduate counterparts.

Three studies of incarcerated individuals (two of adolescents, one of adults) have examined the degree to which shame and guilt are related to pre- or post-incarceration criminal behavior. Robinson, Roberts, Strayer and Koopman (2007) compared a group of 64 incarcerated adolescent male offenders to a sample of 60 male high school students. Shame and guilt proneness only marginally differentiated between groups. However, the two groups were not terribly distinct in terms of antisocial behavior, as adolescents from the community sample engaged in antisocial behavior at a fairly high rate. When the two samples were combined, shame-proneness was mostly unrelated to self-reported antisocial attitudes and behavior, or in a few cases *positively* related (with aggression and anger). In contrast, guilt-proneness was consistently negatively related to antisocial attitudes and behaviors.

Hosser, Windzio and Greve (2008) reported impressive results from a German sample of 1,243 incarcerated adolescents and young adults (ages 14-24). In this large sample of young offenders, single item shame and guilt ratings assessed within four weeks of incarceration indicated that 70% reported feeling at least some guilt regarding their offense; 40% reported at least some offense-related shame. Remarkably, these single item measures of shame and guilt predicted post-release recidivism over a period of 6+ years. Specifically, shame ratings at the outset of incarceration predicted higher recidivism rates whereas guilt ratings predicted lower recidivism. These findings held when controlling for a host of potentially confounding variables such as age, intelligence, history of substance use, and parents' criminal records.

Most recently, we examined the concurrent and background correlates of proneness to shame and proneness to guilt in a sample of 550 (379 male and 171 female) adult jail inmates detained on felony charges (Tangney, Stuewig, Hastings & Mashek, in press). Taken together, findings supported the reliability and validity of the Test of Self-Conscious

Affect for Socially Deviant (TOSCA-SD; Hanson & Tangney 1996) as a measure of jail inmates' proneness to shame and guilt and extended the empirical literature in several respects. First, results indicated substantial variance in offenders' propensity to experience both shame and guilt. Most felony offenders do not lack the capacity for moral emotions, as some might believe. Second, shame and guilt appear to serve similar functions among offenders as in community samples. For example, as in community samples, inmates' shame-proneness was associated with psychological symptoms, alcohol and drug problems, and the tendency to eschew responsibility and blame others. Inmates' guilt-proneness was positively associated with other-oriented empathy and negatively associated with externalization of blame and hostility, relative to those less guilt-prone. As in community samples, guilt among inmates appears to be the more adaptive "moral emotion," whereas, if anything, shame carries a heavy cost.

Third, this study examined the relation of these moral emotional styles to psychological and behavioral factors known to be important in predicting crime. In brief, proneness to guilt emerged as a protective factor, whereas proneness to shame appears to be a risk factor for criminally-relevant characteristics and behaviors. For example, self-control was positively correlated with inmates' propensity to experience guilt and negatively correlated with inmates' proneness to shame. Inmates' proneness to guilt was significantly negatively correlated with the clinician-rated *Psychopathy Checklist: Screening Version (PCL:SV*; Hart, Cox, & Hare, 1995) and the Violence Risk Appraisal Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 1998). Guilt-proneness was also negatively correlated with criminogenic cognitions, severity of current charges, prior jail experience, prior felony convictions, custody level at the jail, and with the Antisocial Personality scale and the Violence Potential Index from the Personality Assessment Inventory (PAI; Morey, 1991). In contrast, inmates' shame-proneness was unrelated to severity of current charges, prior jail experience, custody level at the jail, and clinician ratings of psychopathy and violent risk, and positively correlated with self-reported Antisocial Personality and criminogenic cognitions.

In sum, our findings converge with those of Hosser et al. (2008) and Robinson, et al. (2007) indicating that the propensity to experience guilt about specific behaviors is a protective factor vis-à-vis severity of crime, involvement in the criminal justice system, and known predictors of recidivism. In contrast, there is little evidence that the propensity to experience shame serves an inhibitory function. Rather, it is positively related to a host of psychological problems, a range of risk factors for criminal recidivism, and in Hosser et al.'s (2008) study, with recidivism itself. Of practical importance, in our study (Tangney et al., in press), we demonstrated that the pattern of findings generalized across male and female samples, and across white and African-American inmates. That is, there were no race or gender differences in the *correlates* of proneness to shame and guilt, beyond what would be expected by chance. Male or female, white or black, proneness to shame appears to be maladaptive, whereas proneness to guilt appears to function as a protective factor.

Applied Implications

These findings have clear implications for multiple levels of the criminal justice system. First, regarding criminal sentencing practices, research argues strongly against "shaming" sentences designed to shame and humiliate offenders. Shame is associated with outcomes directly contrary to the public interest -- denial of responsibility, substance abuse, psychological symptoms, predictors of recidivism and recidivism itself. Judges seeking creative alternative types of sentences might instead consider sanctions designed to foster constructive feelings of guilt by focusing offenders on the negative consequences of their behavior, particularly how their behavior affects their communities, their friends, and their families. Community service sentences, for example, may be tailored to the nature of the

crime, underscoring the tangible destruction caused by the offense and providing a path to redemption. Drunk drivers, for example, could be sentenced to help clear sites of road accidents and to assist with campaigns to reduce drunk driving. Slumlords could be sentenced to assist with nuts and bolts repairs in low-income housing units. In contrast to shaming sentences that aim to humiliate, the goal of such guilt-inducing restorative justice sentences is to prompt offenders to see, first-hand, the potential or actual destructiveness of their infractions, to empathize with their victims, to feel behavior-focused guilt, and importantly to actively involve them in constructive solutions.

Second, the findings have similar implications for policies and practices within our nation's jails and prisons. Facilities may benefit from staff training and supervision to minimize shaming and humiliation of prisoners, while maintaining order and safety.

Third, the findings have direct implications for intervention with offenders already involved in our criminal justice system. The moral emotions are "here-and-now" factors theoretically amenable to intervention. Just as anxiety and depression are effectively treated by a number of social-cognitive, cognitive-behavioral, and interpersonal therapies, it should be possible to utilize such approaches to modify offenders' moral emotional characteristics – specifically, to enhance their capacity for adaptive guilt and to reduce their propensity to experience shame.

Currently, the treatment literature offers only a few explicitly shame-focused, manualized therapies – Gilbert's (in press) Compassion-Focused Therapy (CFT), Rizvi and Linehan's (2005) Shame-Enhanced Dialectical Behavior Therapy (DBT) for the treatment of Borderline Personality Disorder, and Brown's (2009) Connections, a 12-session psychoeducational shame resilience curriculum. In addition, Greenberg's (2010) Emotionally-Focused Therapy (EFT) addresses shame as one of several emotions of particular clinical relevance. Dearing and Tangney (in press) offer another resource to clinicians wishing to develop programs to reduce shame among offenders. This edited volume features chapters written by "master clinicians" describing the strategies that they use to manage and positively transform shame. *Shame in the Therapy Hour* purposely samples a broad range of clinicians in terms of theoretical orientation and clinical population of interest.

The field is in its infancy in terms of empirical validation of shame-focused therapies. A pilot study of 5 women with borderline personality disorder (Rizvi & Linehan, 2005) yielded encouraging support for the manualized Shame-Enhanced DBT. Several non-experimental evaluations have been conducted on Gilbert's (in press) Compassion-Focused Therapy (CFT) with promising results. Brown's (2009) Connections, a psychoeducational shame resilience curriculum, has yet to be empirically evaluated, but is manualized and ready for empirical study. Loeffler, Prelog, Unnithan and Pogrebin (2010) have developed a short-term "shame transformation" group intervention for offenders. In a non-randomized trial, the intervention showed promising effects in terms of offenders' self-esteem and empathic concern. Changes in shame and guilt, however, were not reported, perhaps owing to difficulties in developing a program-relevant measures of shame (Prelog, Unnithan, Loeffler & Pogrebin, 2009). For each of these interventions, what is needed next is much stronger outcome research, utilizing randomized experimental designs.

Reducing offenders' propensity to experience shame is one goal. Perhaps more important is enhancing offenders' capacity to experience "shame-free" guilt about harmful actions past, present, and anticipated future. To this end, restorative justice approaches (e.g., Victim Impact Training programs) seem especially promising. Although not always explicitly addressed, the philosophy inherent in restorative justice interventions seems to us at heart a

“guilt-inducing and shame-reducing” philosophy. Restorative justice approaches emphasize the need to acknowledge and take responsibility for one’s wrongdoings, and act to make amends for the negative consequences of one’s behavior. But the Restorative Justice approaches eschew practices aimed at shaming offenders, ascribing bad behaviors to a bad defective self. Restorative justice interventions are consistent with Reintegrative Shaming Theory (Braithwaite, 1989) and with psychologists’ self vs. behavior distinction (Lewis, 1971; Tangney, 1990) but they often do not refer to the emotions of shame and guilt explicitly. Such interventions may be enhanced by the addition of components aimed explicitly at transforming problematic feelings of shame about the self into adaptive feelings of guilt about behaviors and their negative consequences for others, as described in Dearing and Tangney (in press).

Unlike many other risk factors rooted in offenders’ history (e.g., age at first arrest, parental incarceration), moral emotions are theoretically amenable to intervention. Taking a hard empirical look at how addressing shame and guilt at multiple points in the criminal justice system can improve our policies and practices seems well worth a try.

References

- Ahmed E, Braithwaite V. ‘What, me ashamed?’: Shame management and school bullying. *Journal of Research in Crime and Delinquency*. 2004; 41:269–294.
- Ashby JS, Rice KG, Martin JL. Perfectionism, shame, and depressive symptoms. *Journal of Counseling & Development*. 2006; 84:148–156.
- Baumeister RF, Stillwell AM, Heatherton TF. Guilt: An interpersonal approach. *Psychological Bulletin*. 1994; 115:243–267. [PubMed: 8165271]
- Bear GG, Uribe-Zarain X, Manning MA, Shiomi K. Shame, guilt, blaming, and anger: Differences between children in Japan and the US. *Motivation and Emotion*. 2009; 33:229–238.
- Benedict, R. *The chrysanthemum and the sword*. Houghton Mifflin; Boston: 1946.
- Bennett DS, Sullivan MW, Lewis M. Young children’s adjustment as a function of maltreatment, shame, and anger. *Child Maltreatment: Journal of the American Professional Society on the Abuse of Children*. 2005; 10:311–323.
- Braithwaite, J. *Crime Shame and Reintegration*. Cambridge University Press; Melbourne: 1989.
- Braithwaite J, Mugford S. Conditions of successful reintegration ceremonies: Dealing with juvenile offenders. *British Journal of Criminology*. 1994; 34:139–171.
- Brewin CR, Andrews B, Rose S. Fear, helplessness, and horror in posttraumatic stress disorder: Investigating DSM-IV criterion A2 in victims of violent crime. *Journal of Traumatic Stress*. 2000; 13:499–509. [PubMed: 10948489]
- Brown, B. *Connections: A 12-session psychoeducational shame resilience curriculum*. 2nd ed.. Hazelden; Minneapolis: 2009.
- Bybee J, Zigler E, Berliner D, Merisca R. Guilt, guilt-evoking events, depression, and eating disorders. *Current Psychology*. 1996; 16:113–127.
- Crossley D, Rockett K. The experience of shame in older psychiatric patients: A preliminary enquiry. *Aging and Mental Health*. 2005; 9:368–73. [PubMed: 16019294]
- Dearing RL, Stuewig J, Tangney JP. On the importance of distinguishing shame from guilt: Relations to problematic alcohol and drug use. *Addictive Behaviors*. 2005; 30:1392–1404. [PubMed: 16022935]
- Dearing, RL.; Tangney, JP. Introduction. Shame: An Inevitable Challenge in the Therapy Hour. In: Dearing, RL.; Tangney, JP., editors. *Shame in the Therapy Hour*. APA Books; Washington DC: in press
- de Hoo IE, Breugelmans SM, Zeelenberg M. Not so ugly after all: When shame acts as a commitment device. *Journal of Personality and Social Psychology*. 2008; 95:933–943. [PubMed: 18808269]

- de Hoge IE, Zeelenberg M, Breugelmans SM. Moral sentiments and cooperation: Differential influences of shame and guilt. *Cognition and Emotion*. 2007; 21:1025–1042.
- Farmer E, Andrews B. Shameless yet angry: Shame and its relationship to anger in male young offenders and undergraduate controls. *Journal of Forensic Psychiatry and Psychology*. 2009; 20:48–65.
- Feiring C, Taska L. The persistence of shame following sexual abuse: A longitudinal look at risk and recovery. *Child Maltreatment*. 2005; 10:337–349. [PubMed: 16204736]
- Feiring C, Taska L, Lewis M. Adjustment following sexual abuse discovery: The role of shame and attributional style. *Developmental Psychology*. 2002; 38:79–92. [PubMed: 11806704]
- Ferguson TJ, Stegge H, Eyre HL, Vollmer R, Ashbaker M. Context effects and the (mal)adaptive nature of guilt and shame in children. *Genetic, Social, and General Psychology Monographs*. 2000; 126:319–345.
- Ferguson TJ, Stegge H, Miller ER, Olsen ME. Guilt, shame, and symptoms in children. *Developmental Psychology*. 1999; 35:347–357. [PubMed: 10082006]
- Ferguson, TJ.; Stegge, H. Measuring guilt in children: A rose by any other name still has thorns. In: Bybee, J., editor. *Guilt and children*. Academic Press; San Diego, CA: 1998. p. 19-74.
- Ferguson TJ, Stegge H, Damhuis I. Children's understanding of guilt and shame. *Child Development*. 1991; 62:827–839.
- Fontaine JR, Luyten P, De Boeck P, Corveleyn J, Fernandez M, Herrera D, Ittzes A, Tomcsanyi T. Untying the Gordian knot of guilt and shame: The structure of guilt and shame reactions based on situation and person variation in Belgium, Hungary, and Peru. *Journal of Cross-Cultural Psychology*. 2006; 37:273–292.
- Ghatavi K, Nicolson R, MacDonald C, Osher S, Levitt A. Defining guilt in depression: A comparison of subjects with major depression, chronic medical illness and healthy controls. *Journal of Affective Disorders*. 2002; 68:307–315. [PubMed: 12063158]
- Gilbert, P. *Compassion Focused Therapy: The distinctive features*. Routledge; London: in press
- Gramzow R, Tangney JP. Proneness to shame and the narcissistic personality. *Personality and Social Psychology Bulletin*. 1992; 18:369–376.
- Grasmick HG, Bursik RJ. Conscience, significant others, and rational choice: Extending the deterrence model. *Law & Society Review*. 1990; 24:837–861.
- Greenberg, L. *Emotion-focused therapy*. APA Books; Washington, DC: 2010.
- Hanson, RK.; Tangney, JP. *The Test of Self-Conscious Affect -- Socially Deviant Populations (TOSCA-SD)*. Corrections Research, Department of the Solicitor General of Canada; Ottawa: 1996.
- Harder DW, Cutler L, Rockart L. Assessment of shame and guilt and their relationship to psychopathology. *Journal of Personality Assessment*. 1992; 59:584–604. [PubMed: 1487811]
- Harder, DW.; Lewis, SJ. The assessment of shame and guilt. In: Butcher, JN.; Spielberger, CD., editors. *Advances in personality assessment*. Vol. 6. Erlbaum; Hillsdale NJ: 1987. p. 89-114.
- Harper FWK, Arias I. The role of shame in predicting adult anger and depressive symptoms among victims of child psychological maltreatment. *Journal of Family Violence*. 2004; 19:367–375.
- Harris N. Reassessing the dimensionality of the moral emotions. *British Journal of Psychology*. 2003; 94:457–473. [PubMed: 14687455]
- Harris N. Reintegrative shaming, shame, and criminal justice. *Journal of Social Issues*. 2006; 62:327–346.
- Hart, SD.; Cox, DN.; Hare, RD. *The Hare Psychopathy Checklist: Screening Version*. Multi-Health Systems; Toronto: 1995.
- Hay C. An exploratory test of Braithwaite's reintegrative shaming theory. *Journal of Research in Crime and Delinquency*. 2001; 38:132–153.
- Henderson, L.; Zimbardo, P. Shyness as a clinical condition: The Stanford model. In: Crozier, WR.; Alden, LE., editors. *International handbook of social anxiety: Concepts, research and interventions relating to the self and shyness*. John Wiley & Sons; New York: 2001. p. 431-447.
- Hosser D, Windzio M, Greve W. Guilt and shame as predictors of recidivism: A longitudinal study with young prisoners. *Criminal Justice and Behavior*. 2008; 35:138–152.

- Joireman J. Empathy and the self-absorption paradox II: Self-rumination and self-reflection as mediators between shame, guilt, and empathy. *Self and Identity*. 2004; 3:225–238.
- Keltner D, Buswell BN. Evidence for the distinctness of embarrassment, shame, and guilt: A study of recalled antecedents and facial expressions of emotion. *Cognition and Emotion*. 1996; 10:155–171.
- Ketelaar T, Au WT. The effects of feelings of guilt on the behavior of uncooperative individuals in repeated social bargaining games: An affect-as-information interpretation of the role of emotion in social interaction. *Cognition & Emotion*. 2003; 17:429–453.
- Leith KP, Baumeister RF. Empathy, shame, guilt, and narratives of interpersonal conflicts: Guilt-prone people are better at perspective taking. *Journal of Personality*. 1998; 66:1–37.
- Leskela J, Dieperink M, Thuras P. Shame and posttraumatic stress disorder. *Journal of Traumatic Stress*. 2002; 15:223–226. [PubMed: 12092914]
- Lewis, HB. Shame and guilt in neurosis. International Universities Press; New York: 1971.
- Lindsay-Hartz J. Contrasting experiences of shame and guilt. *American Behavioral Scientist*. 1984; 27:689–704.
- Loeffler CH, Prelog AJ, Unnithan NP, Pogrebin MR. Evaluating shame transformation in group treatment of domestic violence offenders. *International Journal of Offender Therapy and Comparative Criminology*. 2010; 54:517–536. [PubMed: 19520901]
- Lutwak N, Panish JB, Ferrari JR, Razzino BE. Shame and guilt and their relationship to positive expectations and anger expressiveness. *Adolescence*. 2001; 36:641–653. [PubMed: 11928873]
- Luyten P, Fontaine JRJ, Corveleyn J. Does the Test of Self-Conscious Affect (TOSCA) measure maladaptive aspects of guilt and adaptive aspects of shame? An empirical investigation. *Personality and Individual Differences*. 2002; 33:1373–1387.
- Makkai T, Braithwaite J. The dialectics of corporate deterrence. *Journal of Research in Crime and Delinquency*. 1994; 31:347–373.
- Marschall, D.; Sanftner, J.; Tangney, JP. The State Shame and Guilt Scale. George Mason University; Fairfax, VA: 1994.
- Meehan MA, O'Connor LE, Berry JW, Weiss J, Morrison A, Acampora A. Guilt, shame, and depression in clients in recovery from addiction. *Journal of Psychoactive Drugs*. 1996; 28:125–134. [PubMed: 8811581]
- Mills R. Possible antecedents and developmental implications of shame in young girls. *Infant & Child Development*. 2003; 12:29–349.
- Morey, LC. The Personality Assessment Inventory Professional Manual. Psychological Assessment Resources; Odessa, FL: 1991.
- Morrison D, Gilbert P. Social rank, shame and anger in primary and secondary psychopaths. *Journal of Forensic Psychiatry*. 2001; 12:330–356.
- Murphy K, Harris N. Shaming, shame and recidivism: A test of reintegrative shaming theory in the white-collar crime context. *British Journal of Criminology*. 2007; 47:900–917.
- Murray C, Waller G, Legg C. Family dysfunction and bulimic psychopathology: The mediating role of shame. *International Journal of Eating Disorders*. 2000; 28:84–89. [PubMed: 10800017]
- Nagin DS, Paternoster R. Enduring individual differences and rational choice theories of crime. *Law & Society Review*. 1993; 27:467–496.
- O'Connor LE, Berry JW, Inaba D, Weiss J. Shame, guilt, and depression in men and women in recovery from addiction. *Journal of Substance Abuse Treatment*. 1994; 11:503–510. [PubMed: 7884834]
- O'Connor LE, Berry JW, Weiss J, Bush M, Sampson H. Interpersonal guilt: The development of a new measure. *Journal of Clinical Psychology*. 1997; 53:73–89. [PubMed: 9120036]
- Orsillo SM, Heimberg RG, Juster HR, Garret J. Social phobia and PTSD in Vietnam veterans. *Journal of Traumatic Stress*. 1996; 9:235–252. [PubMed: 8731545]
- Paulhus DL, Robins RW, Trzesniewski KH, Tracy JL. Two replicable suppressor situations in personality research. *Multivariate Behavioral Research*. 2004; 39:303–328.
- Prelog AJ, Unnithan NP, Loeffler CH, Pogrebin MR. Building a shame-based typology to guide treatment for offenders. *Journal of Offender Rehabilitation*. 2009; 48:249–270.

- Quiles ZN, Bybee J. Chronic and predispositional guilt: Relations to mental health, prosocial behavior and religiosity. *Journal of Personality Assessment*. 1997; 69:104–126. [PubMed: 9306684]
- Quinsey, VL.; Harris, GT.; Rice, ME.; Cormier, CA. *Violent offenders: Appraising and managing risk*. American Psychological Association; Washington, DC: 1998.
- Rizvi SL, Linehan MM. The treatment of maladaptive shame in borderline personality disorder: A pilot study of “Opposite Action.”. *Cognitive and Behavioral Practice*. 2005; 12:437–447.
- Robinson R, Roberts WL, Strayer J, Koopman R. Empathy and emotional responsiveness in delinquent and non-delinquent adolescents. *Social Development*. 2007; 16:555–579.
- Sabini J, Silver M. In defense of shame: Shame in the context of guilt and embarrassment. *Journal for the Theory of Social Behaviour*. 1997; 27:1–15.
- Scheff, T.; Retzinger, S. *Emotion and violence: Shame/rage spirals in interminable conflicts*. Lexington Books; Lexington: 1991.
- Silfver M, Helkama K, Lonnqvist J, Verkasalo M. The relation between value priorities and proneness to shame, guilt, and empathy. *Motivation and Emotion*. 2008; 32:69–80.
- Smith RH, Webster JM, Parrot WG, Eyre HL. The role of public exposure in moral and nonmoral shame and guilt. *Journal of Personality and Social Psychology*. 2002; 83:138–159. [PubMed: 12088123]
- Stuewig J, McCloskey LA. The relation of child maltreatment to shame and guilt among adolescents: Psychological routes to depression and delinquency. *Child Maltreatment*. 2005; 10:324–336. [PubMed: 16204735]
- Stuewig, J.; Tangney, JP. Shame and guilt in antisocial and risky behaviors. In: Tracy, JL.; Robins, RW.; Tangney, JP., editors. *The self-conscious emotions: Theory and research*. Guilford Press; New York: 2007. p. 371–388.
- Stuewig J, Tangney JP, Heigel C, Harty L, McCloskey L. Shaming, blaming, and maiming: Functional links among the moral emotions, externalization of blame, and aggression. *Journal of Research in Personality*. 2010; 44:91–102. [PubMed: 20369025]
- Tangney JP. Assessing individual differences in proneness to shame and guilt: Development of the self-conscious affect and attribution inventory. *Journal of Personality and Social Psychology*. 1990; 59:102–111. [PubMed: 2213483]
- Tangney JP. Moral affect: The good, the bad, and the ugly. *Journal of Personality and Social Psychology*. 1991; 61:598–607. [PubMed: 1960652]
- Tangney JP. Situational determinants of shame and guilt in young adulthood. *Personality and Social Psychology Bulletin*. 1992; 18:199–206.
- Tangney, JP. Shame and guilt. In: Costello, CG., editor. *Symptoms of depression*. John Wiley; New York: 1993. p. 161–180.
- Tangney JP. Conceptual and methodological issues in the assessment of shame and guilt. *Behaviour Research and Therapy*. 1996; 34:741–754. [PubMed: 8936757]
- Tangney, JP. The self-conscious emotions: Shame, guilt, embarrassment and pride. In: Dalglish, T.; Power, M., editors. *A handbook of cognition and emotion*. Wiley & Sons; New York: 1999. p. 541–568.
- Tangney, JP.; Dearing, R. *Shame and Guilt*. Guilford; New York: 2002.
- Tangney JP, Miller RS, Flicker L, Barlow DH. Are shame, guilt and embarrassment distinct emotions? *Journal of Personality and Social Psychology*. 1996; 70:1256–1269. [PubMed: 8667166]
- Tangney JP, Stuewig J, Mashek D, Hastings M. Feeling bad about the behavior or the self? Assessing jail inmates’ proneness to shame and guilt. *Criminal Justice and Behavior*. in revision.
- Tangney JP, Stuewig J, Mashek DJ. Moral emotions and moral behavior. *Annual Review of Psychology*. 2007; 58:345–372.
- Tangney JP, Wagner PE, Barlow DH, Marschall DE, Gramzow R. The relation of shame and guilt to constructive vs. destructive responses to anger across the lifespan. *Journal of Personality and Social Psychology*. 1996; 70:797–809. [PubMed: 8636899]
- Tangney, JP.; Wagner, P.; Gramzow, R. *The Test of Self-Conscious Affect (TOSCA)*. George Mason University; Fairfax, VA: 1989.

- Tangney JP, Wagner PE, Gramzow R. Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology*. 1992; 103:469–478. [PubMed: 1500604]
- Tangney, JP.; Youman, K.; Stuewig, J. Proneness to shame and proneness to guilt. In: Leary, MR.; Hoyle, RH., editors. *Handbook of individual differences in social behavior*. Guilford Press; New York: 2009. p. 192-209.
- Thomaes F, Bushman BJ, Stegge H, Olthof T. Trumping shame by blasts of noise: Narcissism, self-esteem, shame, and aggression in young adolescents. *Child Development*. 2008; 79:1792–1801. [PubMed: 19037950]
- Tibbetts SG. Shame and rational choice in offending decisions. *Criminal Justice & Behavior*. 1997; 24:234–255.
- Tibbetts SG. Self-conscious emotions and criminal offending. *Psychological Reports*. 2003; 93:101–126. [PubMed: 14563037]
- Tilghman-Osborne C, Cole DA, Felton JW, Ciesla JA. Relation of guilt, shame, behavioral and characterological self-blame to depressive symptoms in adolescents over time. *Journal of Social and Clinical Psychology*. 2008; 27:809–842.
- Tracy JL, Robins RW. Appraisal antecedents of shame and guilt: Support for a theoretical model. *Personality and Social Psychology Bulletin*. 2006; 32:1339–1351. [PubMed: 16963605]
- Wallbott, HG.; Scherer, KR. Cultural determinants in experiencing shame and guilt. In: Tangney, JP.; Fischer, KW., editors. *Self-conscious emotions: The psychology of shame, guilt, embarrassment, and pride*. Guilford Press; New York: 1995. p. 465-487.
- Wicker FW, Payne GC, Morgan RD. Participant descriptions of guilt and shame. *Motivation and Emotion*. 1983; 7:25–39.
- Wolf ST, Cohen TR, Panter AT, Insko CA. Shame proneness and guilt proneness: Toward the further understanding of reactions to public and private transgressions. *Self and Identity*. 2010; 9:337–362.
- Wortley S. Justice for all? Race and perceptions of bias in the Ontario criminal justice system: A Toronto survey. *Canadian Journal of Criminology*. 1996; 38:439–467.
- Wright K, Gudjonsson GH. The development of a scale for measuring offence-related feelings of shame and guilt. *Journal of Forensic Psychiatry and Psychology*. 2007; 18:307–316.
- Wright K, Gudjonsson GH, Young S. An investigation of the relationship between anger and offence-related shame and guilt. *Psychology, Crime & Law*. 2008; 14:415–423.
- Xuereb S, Ireland JL, Davies M. Development and preliminary assessment of a measure of shame, guilt, and denial of offenders. *Journal of Forensic Psychiatry & Psychology*. 2009; 20:640–660.
- Zeelenberg M, Breugelmans SM. The role of interpersonal harm in distinguishing regret from guilt. *Emotion*. 2008; 8:589–596. [PubMed: 18837609]