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**Highlights:**

- Research into moral emotions has become an area of psychiatric interest
- Moral emotions among recently incarcerated prisoners were assessed longitudinally
- Shame correlated positively with somatization symptoms, distraction, and self-blame
- Guilt correlated positively with self-blame, negatively with venting on emotion
- Initial psychological factors did not influence adaptation after four months incarceration

ACCEPTED MANUSCRIPT

**A longitudinal study of adaption to prison after initial incarceration**

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**Abstract**

Much of the psychiatric literature concerning prisoners concerns the associations between psychiatric conditions and criminality. More recently, there has been increased psychiatric interest in the moral emotions (i.e., emotions related to the rightness or wrongness of an individual's actions) and their association with psychological problems and psychopathology. The role of moral emotions has never previously been studied in relation to prison adaptation on initial incarceration. Their impact in adaptation to prison life was studied longitudinally. Immediately after prison incarceration, 316 adult male offenders were assessed in relation to moral emotions, coping strategies, and somatization symptoms. After four months, information relating to their prison adaptation were recorded using official data. Findings showed that (i) offence-related shame correlated positively with somatization symptoms, distraction, and self-blame, and that (ii) offence-related guilt correlated positively with self-blame, and negatively with venting on emotion. The relationship between self-blame and somatization was partly mediated by offence-related shame and guilt. Previous research has demonstrated that moral emotions are associated with increased severity of psychopathology such as depression, suicidal ideation, and psychological problems generally. Therefore, it is

important that psychiatrists are aware of the effect that moral emotions can have on psychological functioning. Implications for prison psychiatrists are discussed.

**Keywords:** moral emotions; self-conscious affect; imprisonment; psychopathology; prison adjustment

## 1. Introduction

Working in a prison environment can be a challenge for psychiatrists (Birmingham, Wilson, & Adshead, 2006) and it has been claimed that “many psychiatrists do not want to work with inmates” due to the potentially stressful nature of the environment and incarcerated individuals within it (Krassner, 2011, p.350). However, mental health is a priority in prisons, partly because mental health conditions are often related to the behaviors that caused the imprisonment in the first place (Moffic, 2010). Much of the psychiatric literature concerning prisoners concerns the associations between psychiatric conditions and criminality. For instance, compared to the general population, prisoners are more likely to self-harm (Vinokur & Levine, 2019), have substance abuse problems (Dellazizzo, Dugré, Berwald et al., 2018; Zhou, Witt, Zhang et al., 2014), have severe mental illness and personality disorders (Dellazizzo et al., 2018; Glaser, 1985; Torrey, Kennard, Eslinger et al., 2010), experience suicidal ideation (Carli, Roy, Bevilacqua, Maggi et al., 2011).

More recently, there has been “[increased] psychiatric interest in the moral emotions, most specifically the emotions of guilt, shame, regret, and remorse” (Kroll & Egan, 2004, p.352) with increasing numbers of studies reporting the association between moral emotions and psychopathological conditions (Tangney, Stuewig, Mashek & Hastings, 2011.). According to Kroll and Egan (2004), moral emotions “are those emotions that arise in the context of life experiences and daily choices that bear upon our perceptions of the rightness or wrongness of particular actions or inactions” (p.352). Empirical research has demonstrated that guilt and shame are associated with increased severity of psychopathology such as depression (Kim, Thibodeau & Jorgensen, 2011), suicidal ideation (Bryan, Morrow, Etienne & Ray-Sannerud, 2013), and psychological problems more generally (O'Connor, Berry & Weiss, 1999). The present study examines the role of offence-related moral emotions during initial incarceration and based on the findings argues that prison psychiatrists need to have knowledge about such moral emotions given the role they can play in the mental health of prisoners.

### 1.1 Prison adaptation and somatization

Imprisonment is a life event that can cause great psychological strain to an individual, and who often needs increased psychological resources in adapting to prison life. Adjustment to the prison environment is called prison adaptation (Toch et al., 1989). The process of adaptation starts at the moment of an individual entering prison, and it continues through the entire time spent in prison. Studies investigating the initial time spent in prison emphasize the heightened distress of first-time prisoners, which shows decreases over the course of time (e.g., Reitzel and Harju, 2000; Edwards and Potter, 2004). Prison adaptation is regarded as successful when behaviour of offenders entirely fulfill the requirements of institution rules (i.e., they do not commit disciplinary infractions), and when their psychological functioning appears stable (e.g., depression, anxiety, insomnia, and somatization symptoms are not present; Cao et al., 1997; Heigel et al., 2010).

Somatization symptoms are somatic symptoms caused by psychological stress whose pathophysiological background is not identifiable (Wickramasakera, 1995). In one model, Wickramasakera (1986) refers to two psychological factors that are independent of incidental somatic illness and that can increase somatization symptoms. These are psychosocial stressors (i.e., major life changes or minor hassles over a short period of time), and deficits in adaptive support systems or coping skills needed to manage the stressors. Both of these can be risk factors in a prison environment, so it is a reasonable assumption to expect different somatization symptoms. Somatic symptom checklists are often used in prison studies in order to assess prisoners' mental functioning (Goncalves et al., 2016; Edwards and Potter, 2004; Ireland et al., 2005; Andersen et al., 2000).

## 1.2. Guilt and shame

*Solving the guilt problem* is a major psychological task during an individual's initial time in prison. Emotions and cognitions related to the offence influence the behavior of offenders. They have to manage their emotions and thoughts about their own crime. Since transgression of society's laws can cause psychological strain among offenders, they try to reduce it in order to maintain their self-image (Adler et al., 1998). Their attitude towards their own guilt (or innocence) can result in one of the following behaviors: confessing their guilt, denying their guilt, and/or neutralizing their guilt through different self-justification techniques (Sykes and Matza, 1957).

Tangney's (1996) 'theory of self-conscious emotions' has been used to study the emotional side of guilt problems in assessing offence-related shame and guilt. Shame and guilt are so-called moral emotions that appear in case of moral acts. Their basic function is to prevent individuals from committing immoral acts. Unlike basic emotions, these emotions evolve after the appearance of self-consciousness, when individuals are able to evaluate social feedback. That is why these are called self-conscious emotions (Tracy and Robins, 2006).

Although shame and guilt are used in a similar context, there are significant differences between these two emotions. Focusing on the act after a wrong action triggers the emotion of guilt. The individual says, "I did something wrong". Guilt helps individuals become motivated to admit their responsibility and to apologize. They turn towards the victim with empathy and make overtures to restore damages. Since their self-image does not get hurt, they feel capable of doing something to make things better. Focusing on the self after a wrong action triggers the emotion of shame. The individual says, "I am a bad individual". Shame is followed by feelings of inferiority and worthlessness, individuals' self-image move in a negative direction. They get the motivation to avoid social feedback and to exit the situation. It is impossible to retrieve after the act, and negative emotions hold up (Tracy and Robins, 2006).

In a study by Stuewig et al. (2010), shame was associated with blaming others, and was also associated with physical and verbal aggression, in the sample of adolescents, undergraduates, and offenders. However, guilt was associated with empathy and perspective-taking, and was negatively associated with aggression. In a study of offenders, guilt correlated with higher empathy and perspective-taking, while shame was negatively associated with these factors (Tangney et al., 2011). At the same time, shame was positively associated with distress and psychological adaptation problems (e.g., alcohol and drug consumption). In this study, guilt correlated negatively with criminal history, previous prison experience, and the prisoner's security level. It is well documented that substance use disorders are highly prevalent among prisoners (Fazel, Yoon, & Hayes, 2017) and that substance users, have different shame and guilt reactions compared to the normal population (Rahim et al, 2015), as well as having more early experiences of shame. Furthermore, substance users differ from the

normal population in their temperament and character dimensions as well (Martinotti et al, 2008). In a sample of prison psychiatric offenders, using Wright and Gudjonsson's (2007) Offence-Related Shame and Guilt Scale (ORSGS), Wright et al. (2008) reported a positive association between offence-related shame and trait anger and anger expression. Offence-related guilt correlated positively with anger control and negatively with anger expression. The authors emphasized that the deficit of anger management and shame may provoke committing crimes, while guilt may be helpful in therapeutic interventions.

In a longitudinal study, Tangney et al. (2014) investigated the influence of shame and guilt on criminal recidivism. As expected, guilt was related to lower recidivism. Shame – depending upon associate motivations – also predicted recidivism and law-abiding behaviour. To date, the effect of offence-related shame and guilt during prison adjustment has not been examined in any previous study. Similarly, the relationship between moral emotions and coping with stress also requires further research.

### *1.3. Coping in prison*

Coping in prison – as well in society – is regarded as an adaptive process that facilitates adjustment and maintaining psychological stability. A study by Zamble and Porporino (1988) reported that prisoners' most often used coping strategy was reactive problem-oriented behaviour, namely dealing immediately with a problem in the hope of a solution, but without being organized or planned. Numerous studies have confirmed the priority of rational coping compared to emotional or avoiding strategies among samples of young adult male prisoners (e.g., Ireland et al., 2006; Xuereb et al., 2009; Pelissier and Jones, 2006; Mohino et al., 2004; Brown and Ireland, 2006).

In another study, Ireland et al. (2006) studied coping in prison, and found that maladaptive coping mediated the relationship between maladaptive personality and psychological distress. In a study by Ireland et al. (2005), young adult male prisoners mostly used detached coping strategies. In their regression model, high emotional coping and low rational coping predicted a high level of general distress. Similarly, the same factors predicted somatization symptoms. Grennan and Woodhams (2007) found that avoidance was the most characteristic coping style in young adult offenders. There were no differences in coping between bullies, victims, and those who were not affected in bullying. Rocheleau (2015) investigated the impact of coping in prison violence. She found that offenders who were less violent received emotional and instrumental support from their family members, other prisoners, and/or from the prison staff. Coping via joking and bravado, and coping by immediate actions predicted higher violence in prisoners.

On the whole, it can be asserted that both moral emotions and coping have a paramount role in prison adjustment. However, it is not known whether offence-related guilt and shame influence prison adaptation (i.e., guilt problems affect overt behavior). To date, the effect of offence-related shame and guilt on prison adjustment have yet to be studied, and similarly, the relationship between moral emotions and coping with stress has been unstudied. Furthermore, it is also unclear, whether psychological factors, such as the number of disciplinary infractions, rewards, and contact with family members have a significant role in adaptation to prison life.

### *1.4. Aims and hypotheses*

The aim of the present study was to analyze the role of offence-related shame and guilt in the process of prison adaptation. The present longitudinal study investigated the relationship between psychological functioning and behaviour over a four-month after entering prison.

The first hypothesis was that offence-related shame would have a positive relationship with somatization symptoms that indicate general discomfort (T1 cross-sectional data analysis).

The second hypothesis was that offence-related guilt would correlate positively with adaptive coping strategies directed towards problem-solving, and that shame would correlate positively with maladaptive coping strategies (T1 cross-sectional data analysis).

The third hypothesis was that initial psychological adaptation skills would determine adaptation in prison. More specifically, it was hypothesized that maladaptive coping strategies and offence-related shame would influence negative behaviour in prison, and that guilt, problem-oriented coping, seeking social support, and acceptance would influence prison behaviour positively (T1 and T2 data analysis).

## 2. Methods

### 2.1. Sample

The study was carried out at a Hungarian prison. In total, 567 adult male offenders were initially involved in the study, and 316 participants (55.7%) were interviewed during the follow-up data collection. Participants were invited to the study during the reception procedure, in the years of 2011 and 2012, and participation was purely voluntary. Three-quarters of the prisoners were imprisoned on remand (76%), with the remainder being sentenced prisoners (24%). The average age was 33.7 years (18-65 years), and had attended a school for an average of 9.6 years. Over half of the prisoners had at least one child (56%). Six-tenths of the offences were for a nonviolent type of crime (59%) and just under half of the participants regarded themselves as innocent of their crime (48%).

### 2.2. Measures

Demographic variables contained age, education, drug use before prison, prior suicide attempts, number of children, and family history of imprisonment. Criminal history variables recorded the type of crime, number of prior sentences, number of years spent in prison, as well as the age of first incarceration. The questionnaire also asked whether participants regarded themselves innocent of their crime. Additionally, it was recorded whether the prisoner had a lawyer (no lawyer, appointed, or paid defender). At the first data collection point (T1) the following psychometric scales were used:

The Coping Strategy Preference Inventory (CSPI; Oláh, 2005) is an 80-item scale that assesses coping with distress across eight subscales; problem-focused reaction, seeking social support, strain control; distraction; emotion-focused, venting on emotions, self-blame, and acceptance. Participants indicate on a 4-point Likert-type scale (ranging from *almost never* to *always*) how characteristic the reactions were in a problem situation. Cronbach's alphas ranged between .68-.82 in the present study.

The Offence-Related Shame and Guilt Scale (ORSGS; Wright, Gudjonsson, 2007) is a 10-item scale assessing how individuals feel about the crime they have committed on an 8-point Likert-type scale (from *not characteristic at all* to *very characteristic*). Shame and guilt scales range between 5 and 35, with higher values indicating stronger presence of guilt and shame. The scale has very good internal reliability (Cronbach's alphas were .87 for shame and .86 for guilt in the present study).

Somatization symptoms: 20 items of the *Symptom Checklist 90 Revised (SCL-90R;* Derogatis, 1977, Urbán et al., 2014) was used to assess somatization symptoms. Participants used a 5-point Likert-type scale to report the extent of how these 20 symptoms disturbed them

in the past few weeks. Scores are summed and the scale ranges from 0 to 80. The internal reliability in the present study was excellent (Cronbach's alpha was .95).

The follow-up data collection (T2) took place four months later. These data derive from official records. Data were collected from 316 participants including their number of disciplinary proceedings, number of rewards received (e.g., praise, an extra visitation, an extra package from contact individuals), number of contact individuals (i.e., those who are allowed to keep contact with the prisoner), number of visitations. One-fifth of the present sample had at least one disciplinary infraction (21.5%), and one-quarter had received some kind of a reward (24.4%). Only 15 prisoners (4.7%) had no outside contact in the first four months (except for appointed defenders). The number of contact individuals ranged from 1 to 24 individuals. One-third of the prisoners in the sample had not been visited in the first four months (32%; excluding their lawyers), the most number of visitors was 16 (the highest number that is allowed by Hungarian law).

### 2.3. Statistical analyses

Spearman correlations and independent sample t-tests were used to assess the relationship between variables. Predictors of offence-related shame and guilt were analyzed using a linear regression model. Longitudinal data were analyzed by linear regression analysis, where the dependent variable was the T2 data, and independent variables contained T1 psychological, demographic and criminal factors. Statistical analyses were computed using SPSS 20.0.

## 3. Results

### 3.1. The relationship between guilt, shame, and coping

Given that offence-related guilt and shame were strongly correlated ( $r=.707$ ,  $p<.001$ ), it was reasonable to use partial correlation (Wright and Gudjonsson, 2007). The symptom checklist score correlated positively with the feeling of shame (partial correlation,  $r=.250$ ,  $p<.001$ ), but had no significant correlation with guilt. This finding confirms the first hypothesis. Analysis of the second hypothesis showed that guilt and shame were strongly associated with coping strategies (see Table 1). Offence-related guilt correlated most strongly with self-blame ( $r=.176$ ,  $p<.01$ ) and venting on emotion ( $r=-.173$ ,  $p<.01$ ). Offence-related shame had significant correlations with self-blame ( $r=.176$ ,  $p<.01$ ) and distraction ( $r=.152$ ,  $p<.05$ ).

Distraction ( $r=.152$ ,  $p<.05$ ) and acceptance ( $r=.131$ ,  $p<.05$ ) coping strategies, like somatization symptoms ( $r=.250$ ,  $p<.001$ ) showed positive associations with the feeling of shame. Self-blame had positive linear association with both moral emotions (shame:  $r=.176$ ,  $p<.01$ , and guilt:  $r=.176$ ,  $p<.01$ ). Venting on emotions had the opposite association after controlling for the shared variance: unhanding emotions associated positively with shame ( $r=.115$ , *n.s.*) and negatively with guilt ( $r=-.173$ ,  $p<.01$ ). Although the aforementioned correlations were significant, they were relatively weak.

Table 1.

### 3.2. Correlations between guilt and shame and socialization background variables and criminal history



Guilt and shame scores did not differ neither between violent and nonviolent offenders ( $t=.591$ ,  $p=.555$ ,  $df=257$ ), nor between first-time and recidivist offenders (guilt:  $t=.328$ ,  $p=.743$ ,  $df=255$ , shame:  $t=-.182$ ,  $p=.856$ ,  $df=255$ ). The participants who had no criminal family members felt stronger guilt and shame (guilt:  $t=3.002$ ,  $p<.01$ ,  $df=253$ , shame:  $t=2.193$ ,  $p<.05$ ,  $df=253$ ). Offenders who regarded themselves as innocent (48% of the sample) scored lower on the guilt scale ( $t=4.350$ ,  $p<.001$ ,  $df=241$ ), and shame scores were lower at a tendency-level ( $t=1.736$ ,  $p<.1$ ,  $df=241$ ). Denial of responsibility was thus confirmed by a psychological test. Emphasizing innocence not only appears to be a strategy in front of the court but a genuine conviction. It was not affected by demographic factors, criminal history or being on remand or sentenced, and was only moderated by psychological factors.

Kovács (2010) showed that self-blame and acceptance strongly predicted the change of somatization symptoms over time. Furthermore, the possibility arose that the relationship was mediated by feelings about the crime. In studying the question (i.e., whether moral emotions mediate the relationship between maladaptive coping and general discomfort), a mediation analysis was computed using the linear regression method of Baron and Kenny (1986). Results confirmed the presence of a partial mediation. Self-blame had a moderate positive correlation with somatization ( $r=.408$ ,  $p<.001$ ), while acceptance had no significant correlation with somatization. It was also found that 17.99% of the relationship between self-blame and general discomfort was mediated by offence-related shame (Sobel=4.301,  $p<.001$ ), and 6.88% of the relationship was mediated by offence-related guilt (Sobel=2.768,  $p=.005$ ). The impact of shame was stronger than guilt in the mediation analysis, and a direct effect was also present.

Figure 1.

### 3.3. Factors determining prison adjustment

The factors that influenced prison adjustment after four months was analyzed. Predictors of disciplinary proceedings were analyzed using a stepwise linear regression analysis. Only 7.5% of the variance was explained by the model, in which disciplinary proceedings were predicted by the age at first incarceration ( $\beta=-.194$ ,  $t=-2.708$ ,  $p=.007$ ), and criminal history in the family ( $\beta=.142$ ,  $t=1.975$ ,  $p=.050$ ). The younger the offender was at first incarceration, and if they had a family member with criminal history, the more likely they had disciplinary infractions. Linear regression analysis of rewards resulted a model that explained 11% of the variance. Two variables were significant in the prediction. These were the type of detention ( $\beta=.286$ ,  $t=4.279$ ,  $p<.001$ ), and level of education ( $\beta=.185$ ,  $t=2.768$ ,  $p=.006$ ). Being a sentenced prisoner and with higher education positively affected the number of rewards in the adaptation time period. In a stepwise linear regression analysis of the prisoner's personal contacts, the predictor variables were the type of detention, the number of children, and criminal history in the family (see Table 2). Offenders were more successful in contacting family members if they were sentenced prisoners, had more children, and had a criminal family member. This model explained 25.1% of the variance.

Table 2.

In the case of prisoners, who had at least one visitation in the first four months ( $n=215$ ), visitation was predicted by the type of detention and the claim of innocence. The model explained 11.9% of the variance (see Table 3). Sentenced prisoners and those who felt they were innocent had more visitations.

Table 3.

#### 4. Discussion

The present study investigated the dynamics of offence-related shame and guilt, and their relationship with coping strategies among prisoners in the first four months of their incarceration. The findings are of interest to mental health practitioners who work within prisons more generally, and to prison psychiatrists more specifically. The criminal history of participants did not cause a difference in crime-related emotions, but prisoners coming from noncriminal families felt stronger guilt and shame when thinking about their crime. Thus, from a psychological point of view, prisoners can only be characterized as 'first-time offenders' if they are the first to be convicted with a serious penal activity from their social milieu. The first hypothesis was confirmed because offence-related shame (after controlling the variance of guilt) had a strong positive relationship with somatization symptoms. Further analysis showed that the emotion of guilt and shame partly mediated the relationship between self-blame and general discomfort. The presence of stress-symptoms in prison was partly due to the strain of offence-related guilt and shame, and the tendency of self-blame in stressful situations. Prison creates an artificial environment that facilitates thinking over the crime, and this can be a difficulty in life outside of prison.

Results were notable concerning coping strategies in the second hypothesis. The strategy of venting on emotions associated negatively with guilt, and positively with shame. This result fits the theory of Tangney et al. (2011) who emphasized the advantageous effect of guilt and the disadvantageous effect of shame on restoring social relationships. Problem-focused coping strategies and emotion-focused coping did not relate to moral emotions, whereas maladaptive coping strategies (i.e., distraction, venting on emotions, self-blame, acceptance) were associated with the feeling of shame. Consequently, the second hypothesis was partly confirmed.

The third hypothesis was that contact with family members and conduct inside the prison relate to feelings of shame and guilt, and coping ability. However, this hypothesis was not confirmed. After getting into prison, one of the prisoners' main tasks is building contact with family members. Support from outside is necessary so the prisoner overcomes initial hardships. Maintaining relationships was supported by the family's 'prison-routine' (criminal family member), outside social ties (presence and support of children), and being a sentenced prisoner (less strict relationship permit).

In Hungarian law, remand prisoners' relationships are permitted by the court authorities, while sentenced prisoners' relationships are permitted by the prison authorities. It is easier to register family members and friends as contact individuals when an individual is a sentenced prisoner. This difference appeared in the statistical analysis. The number of children that a prisoner had indicated a stronger social network. A criminal family member might be predictive of the number of contact individuals because members of the family have previous experience of maintaining contact with an imprisoned relative. Members of the family react routinely to administration and other tasks related to incarceration. Thus it can be said that family members of prisoners go through a socialization process in connection with prison.

Visitation is the most intimate but shortest form of contact with family members. In the first four months, more visitors came to see sentenced prisoners and to those who claimed they were innocent. Sentenced prisoners were allowed to receive more visitors sooner than those on remand because of more relaxed administrative procedures. Presumably, remand prisoners also make an effort to contact family members, but getting permissions can take weeks or months. Explaining the effect of innocence is only a speculation. It is conceivable that emphasizing innocence evokes empathy and care among family members.

Prison rule violations were predicted only by criminal-related variables (i.e., being of young age at first incarceration and having a criminal family history). Both factors indicate that behavioural problems appear to be present via family socialization during early childhood and young adulthood. When imprisoned at a young age, the prison environment becomes a field of adolescent socialization, and criminal peers appear to play a strong role in personality development alongside family relationships. This concurs with findings of Leigey and Hodge (2013). Their study demonstrated that prisoners who had been incarcerated as juveniles and reached adulthood inside the prison are more likely to have behavioural problems.

Rewards were also predicted by nonpsychological factors, namely a higher level of education (which implies general literacy, interest, and self-control) and state of sentencing. While prisoners on remand are likely to be engaged with thoughts of the penal procedure, sentenced prisoners focus on earlier release via parole. Gaining parole can lead to a shorter prison sentence, and one main aspect of adjudication for early release is good behaviour inside the prison.

Although coping and moral emotions were related to each other, neither of them predicted factors of prison adaptation. This result is inconsistent with previous studies (e.g., Kovács, 2010, Schenk and Fremouw, 2012), but underpins the impression that behaviour inside the prison is directed not by psychological factors but by behavioural strategies, which are developed via socialization with other individuals during child and adolescent development (Cao et al., 1997, Trulson et al., 2010, Drury and DeLisi, 2010, DeLisi et al., 2011).

The findings presented here have implications for all mental health practitioners who work with incarcerated individuals including prison psychiatrists. Historically, it has been asserted that prisoners need not regard themselves as mentally ill to benefit from the improved self-knowledge derived from group therapy under an experienced psychiatrist (Ketai, 1974). However, initial incarceration can cause mental health problems among those individuals who had none previously, and the present study demonstrated that moral emotions (i.e., offence-related shame) correlated positively with somatization symptoms. Given that previous research has demonstrated that moral emotions are associated with increased severity of psychopathology such as depression, suicidal ideation, and psychological problems more generally (Bryan, Morrow, Etienne & Ray-Sannerud, 2013; Kim, Thibodeau & Jorgensen, 2011; O'Connor, Berry & Weiss, 1999), it is important that psychiatrists are aware of the effect that moral emotions can have on psychological functioning. It is recommended that those prisoners that are first-time offenders without any previous background of crime within their family particularly need psychiatric monitoring because this group appears to have greater levels of shame and guilt which can lead to increased stress-related conditions and psychopathology.

The main limitation of the present study was that it focused exclusively on adult male offenders. Furthermore, factors of prison adaptation were recorded from the official registry, which does not necessarily reflect the prisoners' own report of their adaptation (Daggett and Camp, 2009). Despite these limitations, the present study confirmed that coping with stress and emotions relating to the criminal offence has a great impact on prisoners' psychological wellbeing. However, it is unclear how exactly these psychological factors influence the offenders' adaptation. Zamble and Porporino (1988) draw attention to the dynamics of stress and coping. Compared to initial exposure, stress-inducing situations become less stressful as time passes. The order of day-to-day prison life offers routine, and prisoners often find their way through stressful situations over time, and they can handle them more effectively using learned and well-practiced reactions. Over time, incarcerated individuals' thoughts focus more on their everyday prison-life, and less on the far future or conflicts of the past. Clear rules about behaviour appears to make many prisoners' overt behaviour very homogenous, and individual psychological differences appear to have less impact on it. Research findings

in the present study and elsewhere suggests that acquiring behaviour rules appears to be directed by socialization factors rather than psychological factors (Trulson et al., 2010).

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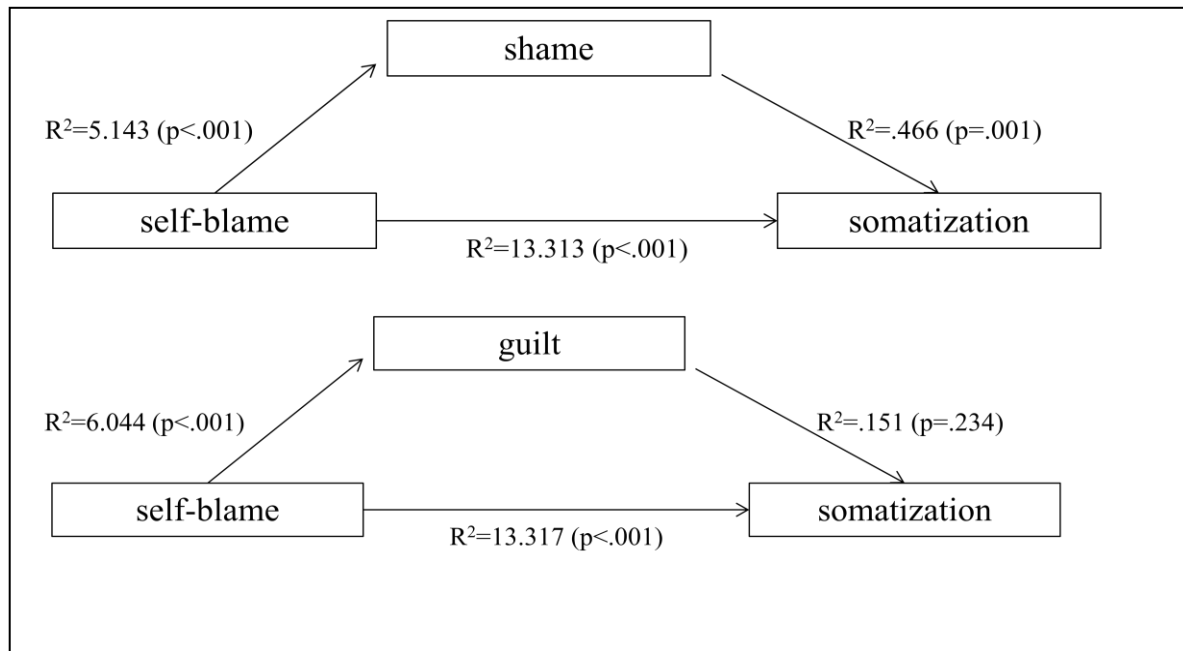
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Figure 1. Results of mediation analyses



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Table 1. Partial correlations between offence-related shame, guilt and coping subscales, and somatization symptoms

<i>Coping strategies and somatization symptoms</i>	<i>Offence-Related Shame and Guilt Scale</i>	
	<i>Guilt</i>	<i>Shame</i>
	Partial correlation (controlling for shame)	Partial correlation (controlling for guilt)
Problem-focused reaction	.090	-.020
Seeking social support	.014	.093
Strain control	-.073	.065
Distraction	-.004	.152*
Emotion-focused	.024	.084
Venting on emotions	-.173**	.115
Self-blame	.176**	.176**
Acceptance	-.036	.131*
Somatization symptoms	-.012	.250**

\* $p < .05$ , \*\* $p < .01$

Table 2. Linear regression analysis, dependent variable: number of contact individuals

	$\beta$	t	p
<b>Type of detention</b>	<b>.307</b>	<b>4.658</b>	<b>.000</b>
<b>Number of children</b>	<b>.175</b>	<b>2.685</b>	<b>.008</b>
<b>Criminal family member</b>	<b>.158</b>	<b>2.438</b>	<b>.016</b>
<i>Further variables included in the analysis:</i>			
Spending time in institutions in childhood	-.111	-1.710	.089
Lawyer: none / appointed / paid	.115	1.546	.124
Shame	-.102	-1.541	.125
Number of prior sentences	.098	1.520	.130
Innocence	.096	1.388	.167
Drug use before imprisonment	.083	1.233	.219
Strain control	.064	.999	.319
Age	-.066	-.899	.370
Type of offence: violent / nonviolent	.057	.853	.395
Emotion-focused coping	-.054	-.820	.413
Seeking social support	.048	.742	.459
Acceptance	.044	.675	.500
Age at first incarceration	-.047	-.662	.509
Distraction	-.036	-.546	.586
Venting on emotion	-.015	-.231	.629
Problem-focused coping	.031	.467	.641
Prior suicide attempt	.026	.403	.688
Years spent in prison	.020	.308	.758
Somatization symptoms	-.021	-.304	.761
Self-blame	-.015	-.231	.818
Guilt	.015	.224	.823
Education	-.006	-.082	.935

Table 3. Linear regression analysis, dependent variable: number of visitors.

	$\beta$	t	p
Type of detention	.305	2.942	.004
Innocence	.252	2.427	.017

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