

# Self-esteem maintenance among incarcerated young males: Stabilisation through accommodative processes<sup>★</sup>

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The change in self-esteem and the stabilising role of accommodative coping resources among incarcerated young male offenders is investigated using a longitudinal approach with three occasions of measurements (beginning of prison term, 2 months later, end of prison term). Data from 211 participants with a complete set of measurements were analysed, employing multilevel modelling. Results show that self-esteem increases during imprisonment. Moreover, this increase in self-esteem depends on the individual competence of accommodative coping: The increase in self-esteem is earlier and faster for high accommodative individuals. These findings are discussed with respect to the development of the self during imprisonment as well as to their implications for the future social behaviour and integration of former prisoners after release.

Prisons are uncomfortable and stressful environments (Bukstel & Kilman, 1980; DeRosia, 1998; Johnson & Toch, 1982a; Kuipers, 1996; Liebling, 1999). Stress is probably the central feature in the experience of prisoners (Johnson & Toch, 1982b). Obviously, prisoners have to deal with this burden in order to “survive” their prison term (Bartollas, 1982; Toch, 1992). The “pains of imprisonment” (Johnson & Toch, 1982a; Sykes, 1958) are to some extent an inevitable consequence of the *concept of punishment*, and thus intended (Johnson & Toch, 1982b), but to some extent they are counterproductive, and thus unintended by society in general and the justice system in particular. Since the early days of research into prisons and their effects, many social scientists have claimed that prisons do more harm than good. From the start of the debate the common denominator of many—if not most—theories on prison stress was to be found in the assumption that the damaging and stigmatising effects of imprisonment operate through processes of the inmate’s self.

In particular, it is assumed that the “pains of imprisonment” (Johnson & Toch, 1982a) impair the inmate’s self-esteem. From the labelling approach (H.S. Becker, 1963; Goffman, 1961, 1963; Lemert, 1967) to stress theories (Zamble & Porporino, 1988), from integrative perspectives (Toch, 1982, 1992) to recent studies (e.g., DeRosia, 1998; Power, 1990), there is a broad consensus that prison stress will deplete the inmate’s self-esteem. The damaging effect of incarceration on self-esteem can be expected to be stronger the younger the inmate is at the time of his or her first imprisonment, because the individual’s self is still “under construction” at earlier stages of development (e.g., Harter, 1990; Harter, Bresnick, Bouchey, & Whitesell, 1997), and thus more vulnerable to threatening and disturbing influences (Greve, 2001).

## Does self-esteem decline during incarceration?

However, the results with respect to the damaging effect of incarceration on self-esteem are, at best, mixed. Despite some empirical studies supporting the claim that the self is impaired by imprisonment (e.g. Hepburn & Stratton, 1977; M. Rosenberg, Schooler, & Schoenbach, 1989; Wormith, 1984), other authors have either been unable to identify any such effect, or have actually found converse effects (Atchley & McCabe, 1968; Bennett, 1974; Bryson & Groves, 1989; Bukstel & Kilmann, 1980; Hannum, Borgen, & Anderson, 1978; Power, 1990; Zamble & Porporino, 1988; see also Evans, Copus, Sullenberger, & Hodgkinson, 1996; Harter, 1990). Additionally, several studies beyond the narrow context of imprisonment demonstrate that stigmatised individuals do not generally experience a decrease in self-esteem (Leary & Baumeister, 2000, p. 36ff.; see also Crocker & Quinn, 2000).

Thus, the only firm conclusion that can currently be drawn is that the development of self-esteem in prison depends to a large degree on individual resources and situational circumstances and thus varies highly between individuals (Bukstel & Kilmann, 1980; Zamble & Porporino, 1988). The inconclusive findings on the impairment of self-esteem by imprisonment suggest, in particular, that the individual consequences of incarceration are moderated by individual differences in coping with the burden of a custodial sentence (Greve, 2001; Toch, 1982). This assumption fits well with the research on self-development and self-stabilisation. The finding that the individual’s self-esteem is actively enhanced and stabilised against threatening experiences by coping processes is one of the few undisputed results of the psychology of the self (e.g., Blaine & Crocker, 1993; Brandtstädter & Greve, 1994; Dunning, 1999; Leary & Baumeister, 2000).

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Unfortunately, we do not know very much about coping processes in prison (Adams, 1992; Greve, 2001), both for methodological and theoretical reasons. With respect to the first aspect, there is still a heavy reliance on cross-sectional designs in self-esteem research conducted in the criminological context (Zamble & Porporino, 1988, p. 11). Thus, in most studies, intra-individual changes in self-esteem are confounded with inter-individual differences. With respect to theoretical deficits of prison research, few of the empirical approaches to ways of coping with prison experiences have been guided by theoretical models. One of the few exceptions is a study conducted by Zamble and Porporino (1988) based on the interactional stress theory proposed by Lazarus and colleagues (Lazarus & Folkman, 1984). Zamble and Porporino conclude that the negative effects of incarceration on self-esteem are particularly significant at the beginning of a prison term. In the long run, however, the majority of prisoners seem to recover from this experience, a development which may best be explained by the central role of coping and adaptation (Zamble & Porporino, 1988, pp. 146ff.).

### Coping with prison: Towards a theoretical framework

The present investigation is based upon the two-process theory of developmental regulation, which combines a developmental perspective and a theoretical framework aiming to explain individual differences in coping responses to burdensome and threatening life circumstances (Brandtstädter, 1999; Brandtstädter & Greve, 1994; Brandtstädter & Renner, 1990; Brandtstädter, Wentura, & Greve, 1993; Brandtstädter, Wentura, & Rothermund, 1999). This model starts from the assumption that burdensome experiences and threats to one's identity can be characterised as a discrepancy between the individual's "is" and "ought" perspectives on him- or herself and his or her personal development. Accordingly, one can differentiate between two basic modes of reaction to these discrepancies. In the first instance, the individual may engage in active efforts to resolve the current problem or alleviate the burden ("assimilative" coping; Brandtstädter & Renner, 1990). However, not all "is"–"ought" discrepancies can be reduced by active problem solving. This is especially true in the context of imprisonment. Prison as an institution is restrictive by its very nature, systematically ruling out the possibility of inmates exerting a relevant influence on the aversive environmental conditions. The fewer options there are to change the threatening or burdensome circumstances the individual has or perceives, the more important adaptive forms of reaction become in order to protect and stabilise subjective wellbeing and self-esteem (Brandtstädter & Greve, 1994). If assimilative strategies are (perceived as) unavailable, the person needs to adapt to surrounding conditions in order to stabilise his/her sense of identity and self-worth. The telling characteristic of reactive adaptation to a context experienced as immutable is that the "ought" values that are under threat (because they deviate from the "is" values, i.e., the perceived situation and circumstances) change in such a way as to reduce or even completely resolve the threatening discrepancy ("accommodative" coping; Brandtstädter & Renner, 1990). Palliative reinterpretations of onerous problem situations, adjustments of one's personal system of values and preferences, changes of perspective and deliberate (downward) comparison are all

typical examples of accommodative processes that help to resolve the "is"–"ought" discrepancy, reducing its detrimental influence on the self (Brandtstädter et al., 1993).

According to this theory, we can expect that the development (change) of self-esteem of incarcerated adolescents varies between individuals and, more specifically, that it is particularly dependent on the individual's accommodative resources. Detrimental effects of incarceration on the individual's self-esteem should be buffered by accommodative reinterpretations. Consequently, individuals who are able to adjust flexibly to restrictive, threatening and burdensome situations and circumstances are expected to show less, if any, changes in self-esteem due to imprisonment.

### Method

The present data were obtained as part of an ongoing longitudinal study conducted in five youth custody institutions in northern Germany (Greve, Hosser, & Pfeiffer, 1997). The prisons were selected according to three criteria: (1) different restrictive forms of execution of prison sentence, (2) several counties (i.e., three "Bundesländer"), (3) reachable distance from the research institute. The subjects were male German prisoners between the ages of 14 and 24 who were serving a custodial sentence for the first time. This group was selected because the experiences of imprisonment can be expected to be especially painful for first-time prisoners (Liebling, 1999, p. 286), and particularly in order to exclude the effects of prior prison experiences (Zamble & Porporino, 1988, p. 11). All inmates fulfilling these criteria were asked to take part as soon as they were admitted to any of the cooperating prisons. The methodological approach was (and is) essentially a longitudinal one: All participants were interviewed three times during their prison term. The first interview ( $t_1$ ) was conducted as soon as possible after the inmates' first day in prison (usually within 5 weeks), the second interview ( $t_2$ ) about 8 weeks after  $t_1$ , and a final interview ( $t_3$ ) as close as possible to the individual date of release. The interval between  $t_1$  and  $t_2$  varied slightly due to organisational difficulties. The interval between  $t_2$  and  $t_3$  depended on the duration of the individual prison term. Thus, these intervals are unevenly spaced and, depending on the sentence, vary individually (additional interviews with fixed intervals were impossible due to institutional restrictions).

Each participant was recruited individually, that is, shortly after the beginning of his *individual* prison term. This resulted in a continuous recruiting strategy extending over a period of several years (starting on 1 January, 1998). Only continuous recruiting ensured that all participants were first interviewed at the same point in their *individual* prison history. The standardised oral interviews were conducted in the prisons by trained interviewers; the average duration was just under 2 hours. Participation was voluntary and anonymous; the interviewees received a payment of DM 20 (approximately \$10) for taking part in each interview. During the first 2½ years of recruitment (January 1998–June 2000) the participation rate was surprisingly high (89%).

### Subjects

The present sample comprises all participants who were recruited between January 1998 and June 2000, were released

by September 2000, and participated in all three interviews ( $N = 212$ )<sup>1</sup>. Whereas the attrition rate at  $t2$  was at an acceptably low level of 13%:  $N(t1) = 592$ ;  $N(t2) = 514$ , only 36% of the initial sample could be interviewed at  $t3$ . There are several reasons for this dropout. First, participation in the study was voluntary. Although the staff in the collaborating youth prisons encouraged the inmates to participate, the prisoners were able to refuse to participate at any occasion of measurement, without any negative repercussions. Second, inmates were frequently moved to other institutions (prisons, clinics, etc.) without the research coordinator being informed. Third, due to the flexibility of the German Juvenile Courts Law (*Jugendgerichtsgesetz—JGG*; Albrecht, 1997), which is applicable to those aged 14 to 21 years at the time of offence, young males incarcerated in youth prisons can be released on probation at any time during their sentence if this is judged to be beneficial for their future development. In many cases, this was also done without the research coordinator being informed. Thus, particularly in the early phases of the project, severe organisational difficulties thwarted the planning of the  $t3$ -interview in many cases. Consequently, an analysis of possible selection bias is required (see the Results section).

The mean age of participants at  $t1$  was 19.7 years (median = 19.4  $SD = 2.1$ ). Participants had been given sentences averaging 15.4 months' detention (self-report; median = 12.0,  $SD = 8.1$ , min. = 5; max. = 39). Due to the flexibility of the *JGG*, the actual duration of imprisonment is usually considerably shorter than the original sentence (mean = 11.2 months, median = 9.9,  $SD = 6.0$  min. = 2.4; max. = 27.6). Moreover, the time of release and, thus, the duration of imprisonment varies greatly between individuals, depending not only on the offence but also on the juveniles' actions and interactions (including self-presentations) in prison.

Thirty-nine per cent of the participants were sentenced because of violent acts (murder, injury, robbery); all other participants were sentenced due to property or drug offences. However, during the interviews 83% of the participants admitted that they had committed violent acts in the past, and most of them (84%) had done so repeatedly. Consequently, the officially recorded violence does not make any statistical difference to either of the following analyses. Ninety-one per cent of the participants reported that they had previously been sentenced to other sanctions of the *JGG* (so-called educational or disciplinary measures), and 74% had already been on probation. As expected, the social risk factors reported throughout the literature (see Enzmann & Greve, 2001), particularly with regard to the offender's family background, recur in the present sample. For example, the parents of more than half of those questioned were separated or divorced (64%), and in 18% of cases at least one of the parents was deceased or not known. Correspondingly, half (50%) of the participants grew up with both their parents (23% with their mother only), and 5% grew up in residential care. In addition, 22% of the juveniles who grew up with at least one of their parents reported that they had spent some time in residential care at least once. In one third (35%) of cases, the juveniles reported alcohol problems of their (step)parents, and in 3% of cases, drug problems were admitted. Twenty per cent

of participants reported that at least one of their parents had a previous conviction.

### Measures

Throughout the questionnaire, numerous and various aspects of the prisoners' social situation, criminal activities, personal wellbeing, social integration, and personality aspects were assessed (e.g., personal goals, self-concept, social and individual coping resources; for details of the questionnaire, see Hosser & Greve, 1999). The present investigation concentrates on the following measures.

*Self-esteem.* Self-esteem was assessed at each occasion of measurement using the Self-Esteem Scale (SE; M. Rosenberg, 1965; German version: Ferring & Filipp, 1996). This 10-item scale (sample items: "I take a positive attitude toward myself", "I feel I do not have much to be proud of") is probably the most widely used instrument for the assessment of self-esteem (for an overview see Ferring & Filipp, 1996). It is particularly used in studies with juveniles, adolescents, and prisoners (see, e.g., F.R. Rosenberg & Rosenberg, 1978; M. Rosenberg et al., 1989), but also in studies taking different theoretical approaches (Scheff, Retzinger, & Ryan, 1989). With respect to the present study, the internal consistency of the questionnaire (using a 4-point Likert scale) is sufficient, with Cronbach's Alpha = .75. The validity of the scale in the present sample is demonstrated by expected positive correlations with depressivity (CES-D, German version: Hautzinger, 1988;  $r = -.53$ ), general wellbeing (single item:  $r = .30$ ), and self-efficacy (Jerusalem & Schwarzer, 1986;  $r = .44$ , for all  $r: p < .01$ )<sup>2</sup>.

*Accommodation.* The individual inclination to adjust to onerous experiences or circumstances was assessed by the Flexibility of Goal-Adjustment questionnaire (FGA; Brandtstädter & Renner, 1990). The scale comprises 15 items (sample items: "After a serious drawback, I soon turn to new tasks"; "I find it easy to see something positive even in a serious mishap") using a 4-point Likert scale. With respect to the conceptual abstraction and, thus, heterogeneity of the accommodation construct, the scale was found to reach a borderline acceptable level of consistency in the present sample (Cronbach's Alpha = .64). The empirical correlations with other variables correspond well with the findings of earlier studies (e.g., Brandtstädter & Greve, 1994; Brandtstädter et al., 1993), thus supporting the validity of the measure. For instance, a high degree of accommodation is accompanied by a low level of depressivity ( $r = -.21$ ), improved wellbeing ( $r = .19$ ), and a higher level of self-efficacy ( $r = .39$ , for all  $r: p < .01$ ). FGA was assessed at  $t2$  only for two main reasons. First, this questionnaire assesses the individual inclination to adapt accommodatively to threatening and restrictive circumstances on a dispositional level (Brandtstädter & Renner, 1990; Brandtstädter et al., 1993). Thus, only long-term developmental changes can be expected (Brandtstädter & Greve, 1994). Second, we do not expect short-term changes in coping tendencies in one and the same setting. For instance, Zamble and Porporino (1988) found a remarkable stability in the coping responses of inmates to the burdens of imprisonment.

<sup>1</sup> Participants sentenced for sexual assault (rape;  $n = 7$ ) were excluded from this study because of their radically different psychological profiles with respect to recidivism, motivation, and strategies of self-presentation, among other aspects (Egg, 2000; Hanson & Bussière, 1998).

<sup>2</sup> These correlations were calculated from the data collected at  $t2$ , because this occasion of measurement neither reflects the immediate impact of being newly incarcerated nor is it influenced by anticipated release and the individual's perspective on this transition.

## Results

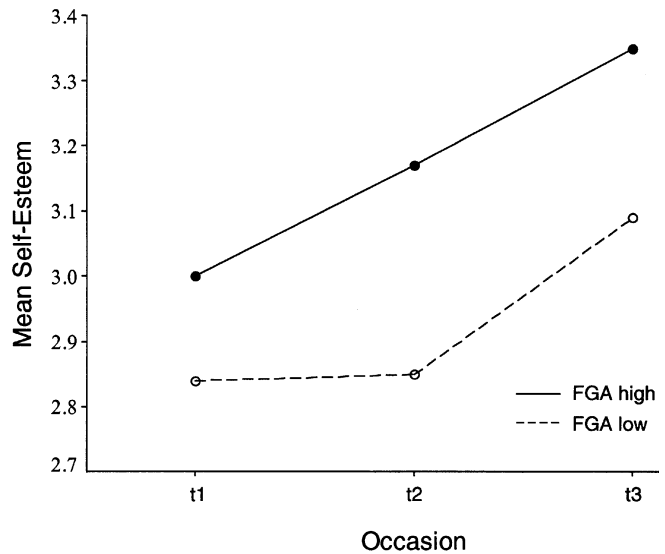
The effect of the quality of the measurement occasion (beginning, middle, and end of the prison term) on self-esteem has to be distinguished from the effect of the duration of imprisonment. The first was tested by employing an ANOVA with repeated measurements, the second by using a multilevel modelling approach.

First, an ANOVA was employed, assessing the mean differences of SE between the occasions of measurement within subjects and the (assumed) main and moderating effect of accommodation between subjects. A 2\*3 ANOVA was calculated, with one between-subjects factor (FGA > MD or ≤ MD = MD) and one within-subjects factor (occasion of measurement: *t*1, *t*2, *t*3). First, a significant main effect of FGA on self-esteem emerged,  $F(1, 209) = 30.84, p < .01$ , replicating the findings of several different study samples (e.g., Brandtstädter et al., 1993) and thus again confirming the validity of the FGA assessment for the present (highly selective) sample. Second, and more interesting with respect to the situational context of prison, an overall increase in self-esteem was found,  $F(2, 418) = 48.73, p < .01$ . Most important from a theoretical point of view, the increase in self-esteem was moderated by accommodation,  $F(2, 418) = 3.48, p < .05$  (see Figure 1), suggesting that the increase in self-esteem occurs earlier and faster for high FGA individuals, and later and slower for low FGA individuals. Because neither main nor interaction effects were observed by using age (age > MD or ≤ MD) instead of FGA, the results can be seen to be unaffected by the age of the participants.

The ANOVA only tests the effects of the quality of the occasions irrespective of the duration. It cannot take into account the considerable variation in duration of imprisonment between the two intervals (*t*2-*t*1: mean = 2.1 months,  $SD = 0.7$ ; *t*3-*t*2: mean = 8.0 months,  $SD = 6.1$ ). If the *t*2/*t*3 interval would be stretched to its real (approximately fourfold) length, the shape of the "trajectories" in both groups would change: The trajectory for low-accommodation individuals would be less steep, and the trajectory for high-accommodation individuals would be more curvilinear, showing a bend at *t*2.

Additionally, there is a methodological shortcoming of the ANOVA. Because the assumption of equality of the variance-covariance matrices for all persons is likely to be violated, the significance test of the ANOVA cannot be trusted. Moreover, as mentioned earlier, the duration of imprisonment varies greatly between subjects (due to different sentences and different behaviour during the term of imprisonment), resulting in a particular inter-individual heterogeneity with respect to the *t*2/*t*3 interval (1 to 101 weeks).

To test for the duration effects on self-esteem, we employed a multilevel analysis<sup>3</sup>. This approach to the analysis of the moderating effect of accommodation on the relationship between self-esteem and duration of incarceration has two important advantages: Growth curves can be modelled taking into account not only unevenly spaced but also individually spaced measurements, and all of the available data can be used because it is not necessary for each individual to have the same number of measurements, thus enhancing efficiency and reducing bias due to panel attrition (see Hox, 2000;



**Figure 1.** Mean self-esteem at the three occasions of measurement for low and high accommodation (FGA).

MacCallum & Kim, 2000). However, one caveat is necessary at this point. Although the effect of the duration is tested explicitly in this analysis, it may also be influenced by the quality of the measurement occasions (beginning, middle, and end of the prison term).

For the results to be comparable with the previous analysis, multilevel modelling was first employed only for those cases with a complete set of measurements (*t*1 to *t*3). Occasions of measurement were considered to be nested within subjects, repeated measurements defining the first, and individuals the second level of the hierarchical structure. The mean incarceration time in months was 1.1, 3.2, and 11.2 and points *t*1, *t*2, and *t*3, respectively. The variable "time", representing duration of incarceration at the respective occasions of measurement, and the covariate "accommodation" (FGA) were centred around their overall means. The centring of time implies that the reference time is 5.2 months, approximately half of the mean incarceration period. Table 1 presents the results of four models with self-esteem as the dependent variable. The regression equations of the final model are:

$$SE_{ij} = b_{0ij} + b_{1j} \text{time}_{ij} + b_2 \text{time}_{ij}^2 + b_3 \text{FGA}_j + b_4 \text{time}_{ij} * \text{FGA}_{ij} + b_5 \text{time}_{ij}^2 * \text{FGA}_{ij} \quad (1)$$

$$b_{0ij} = b_0 + u_{0j} + e_{0ij} \quad (2)$$

$$b_{1j} = b_1 + u_{1j} \quad (3)$$

where *i* represents occasions (level one) and *j* represents individuals (level two)<sup>4</sup>. The models in Table 1 are tested hierarchically in four steps to show the influence of each predictor more clearly.

The intercept-only model (Model 1) estimated the repeated-measures variance to be 0.130 and the person-level variance to be 0.077, yielding an intraclass correlation (proportion of variance accounted for at the person level) of .37. In Model 2 time and time squared were added as predictors, allowing varying linear slope coefficients for different persons. The random part results show that the status of SE at 5.2 months of incarceration and the linear

<sup>3</sup> Using MLwiN 1.10 (Rasbash, Browne, Healy, Cameron, & Charlton, 2000).

<sup>4</sup> Due to convergence problems it was not possible to estimate a model where the coefficient for time squared is random at level two.

**Table 1**

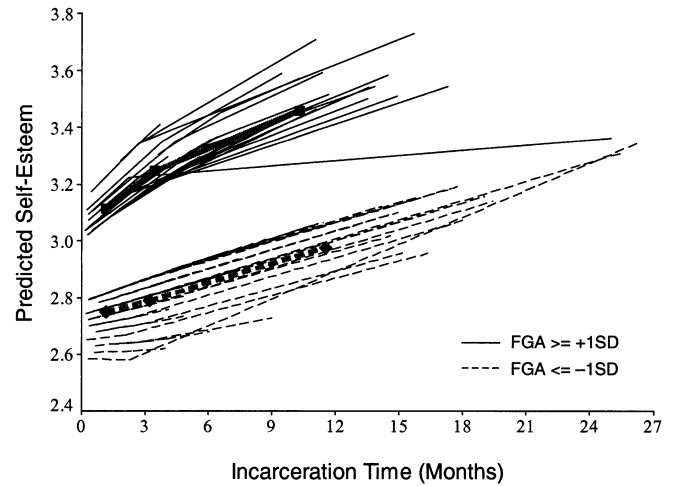
Multilevel results for self-esteem as dependent variable from cases with complete sets of measurements at  $t1$  to  $t3$

Parameter	Intercept	+ Time	Model 3	Model 4
<b>Fixed part</b>				
intercept ( $b_{0ij}$ )	3.05462 (0.02390)	3.09310 (0.02665)	3.08696 (0.02494)	3.08556 (0.02487)
time ( $b_{1j}$ )		0.03512 (0.00423)	0.03376 (0.00249)	0.03336 (0.00405)
time <sup>2</sup> ( $b_2$ )		-0.00124 (0.00036)	-0.00104 (0.00036)	-0.00106 (0.00035)
FGA ( $b_3$ )			0.45638 (0.07453)	0.54042 (0.08242)
FGA *time ( $b_4$ )			0.00191 (0.000837)	0.02733 (0.01351)
FGA *time <sup>2</sup> ( $b_5$ )				-0.00259 (0.00108)
<b>Random part</b>				
$\sigma^2_e$ ( $e_{ij}$ )	0.13007 (0.00895)	0.09366 (0.00730)	0.09241 (0.00721)	0.09223 (0.00716)
$\sigma^2_{intercept}$ ( $u_{0j}$ )	0.07706 (0.01210)	0.09222 (0.01228)	0.07425 (0.01053)	0.07460 (0.01054)
$\sigma^2_{time}$ ( $u_{1j}$ )		0.00017 (0.00010)	0.00019 (0.00011)	0.00016 (0.00010)
$\sigma_{intercept*time}$		-0.00278 (0.00089)	-0.00268 (0.00082)	-0.00271 (0.00081)
$r_{intercept*time}$		-0.706	-0.715	-0.789
Deviance	720.797	606.868	570.333	564.705

$N = 211$ ; standard errors listed in brackets; time = incarceration time in months; FGA = accommodation; time and FGA centred; one outlying case excluded.

growth rates of SE differ between individuals, and that there is a steeper increase at approximately half of the incarceration time for those with less self-esteem (a negative correlation between intercept and slope). The results of the fixed part show a significant increase in self-esteem over time,  $t = 8.52$ ,  $p < .01$ , as well as a significant decrease in growth rate over time,  $t = -3.49$ ,  $p < .01$ . In Model 3, accommodation and the interaction of accommodation with the linear growth term were added. Whereas the direct effect of accommodation on self-esteem is significant,  $t = 6.12$ ,  $p < .01$ , there is no significant interaction with the linear growth term. However, because there is a significant change in growth rate, the interaction of FGA with the quadratic term "time" also has to be tested. This was done in Model 4, showing a significant moderating effect of accommodation on the change in growth rate: negative,  $t = -2.57$ ,  $p = .01$ . In this model, the interaction of FGA with the linear growth term also becomes significant,  $t = 2.11$ ,  $p < .05$ , thus confirming the hypothesis that high- and low-FGA individuals follow different trajectories in the development of self-esteem. At each step, there is a significant difference in the fit indices, based on deviances obtained from the ML (IGLS) estimation method, of the subsequent models, indicating improvements in model fit.

The nature of the main effects and of the interaction of accommodation and incarceration time are illustrated in Figure 2. It shows the inter-individual differences of intra-individual changes explained by the covariates (fixed effects only). The multilevel analysis thus confirms the results of the ANOVA in the previous section: Self-esteem is higher for individuals with more flexibility of goal adjustment, and the



**Figure 2.** Individual growth curves of predicted self-esteem for low and high accommodation (FGA) individuals (predicted self-esteem with fixed effects only; thick lines: mean self-esteem predictions at mean incarceration times).

increase in their self-esteem sets in earlier, with a steeper increase at the beginning.

As mentioned earlier, however, a considerable proportion of participants could not be interviewed at all three occasions, partly because of organisational problems such as transfer to other institutions or unexpectedly early release prior to occasion 3, and partly because of their refusal to continue to participate. The question remains as to whether there is a selection bias that could qualify the generalisability of the results reported so far.

To test whether dropout occurred at random, the means and variances of self-esteem and accommodation measured at  $t$  minus 1 for dropouts and those who remained in the study were compared. The results presented in Table 2 show that, with respect to self-esteem, no significant mean differences or differences in variance can be observed between dropouts and continuing participants. Additionally, an analysis of variance with repeated measures shows that there is no difference in the increase of self-esteem measured between  $t1$  and  $t2$  for dropouts and continuing participants: interaction of participation and occasion of measurement,  $F(1, 510) = 0.92$ ,  $p = .34$ . Thus, with respect to the dependent variable self-esteem we found no evidence of selection bias. Accommodation (FGA;

**Table 2**

Differences in self-esteem and accommodation between dropouts and continuing participants

Participation at	SE $t1$		SE $t2$		FGA	
	Mean	SD	Mean	SD	Mean	SD
1	2.91	0.547	—	—	—	—
1 + 2	2.90	0.515	3.04	0.460	2.70	0.297
1 + 2 + 3	2.92	0.484	3.02	0.447	2.64	0.301
<i>F</i>	0.07 ( $p = .93$ )		0.24 ( $p = .62$ )		5.30 ( $p = .02$ )	
<i>Levene test</i>	0.81 ( $p = .44$ )		0.16 ( $p = .69$ )		0.26 ( $p = .61$ )	

SE = self-esteem; FGA = accommodation (measured at  $t2$  only);  $df$  for SE  $t1 = 2,588$ ;  $df$  for SE  $t2$  and FGA = 1,510; one outlying case excluded.

assessed at  $t_2$ ), however, proves to be significantly higher for dropouts than for participants who remained in the study at  $t_3$ ,  $F(1, 510) = 5.30$ ,  $p < .05$ . Consequently, in the previous analysis (based exclusively on the sample with a complete set of three measurements) the direct effect of accommodation on self-esteem might be overestimated because the dropouts show higher FGA but do not differ with respect to their self-esteem. Thus, it is important to investigate whether the effects obtained so far hold for a sample that also includes dropouts.

To test whether the main results are unaffected by panel attrition, multilevel modelling of all cases with at least two SE measures at  $t_1$  to  $t_3$  was employed. The results of this much larger sample are presented in Table 3. The effects of incarceration time remain significant (Model 2). As expected, in Model 3 the direct effect of accommodation on self-esteem is virtually the same as in the previous analysis,  $b = .470$ ,  $t = 8.51$ ,  $p < .01$  compared to  $b = .456$ ,  $t = 6.12$ ,  $p < .01$ . More important, the interaction of accommodation with growth change (incarceration time squared) remains significant,  $t = -2.05$ ,  $p < .05$ , Model 4. The results indicate that panel attrition does not result in a systematic bias with respect to the change of self-esteem in prison.

## Discussion

The results presented in this paper demonstrate that the development of self-esteem is closely related to the individual's accommodative coping resources. The multilevel analysis shows that the increase in self-esteem is time-dependent, and

**Table 3**

*Multilevel results for self-esteem as dependent variable from cases with at least two sets of measurements at  $t_1$  to  $t_3$*

Parameter	Intercept	+ Time	Model 3	Model 4
Fixed part				
intercept ( $b_{0ij}$ )	3.00809 (0.01785)	3.03993 (0.01882)	3.03844 (0.01773)	3.03948 (0.01774)
time ( $b_{1j}$ )		0.03981 (0.00420)	0.03909 (0.00417)	0.03948 (0.00414)
time <sup>2</sup> ( $b_2$ )		-0.00135 (0.00032)	-0.00120 (0.00032)	-0.00130 (0.00032)
FGA ( $b_3$ )			0.46975 (0.05520)	0.50757 (0.05830)
FGA *time ( $b_4$ )			-0.00282 (0.00763)	0.02001 (0.01353)
FGA *time <sup>2</sup> ( $b_5$ )				-0.00202 (0.00099)
Random part				
$\sigma^2_e$ ( $e_{ij}$ )	0.11406 (0.00599)	0.08762 (0.00499)	0.08713 (0.00497)	0.08688 (0.00494)
$\sigma^2_{\text{intercept}}$ ( $u_{0j}$ )	0.11473 (0.01049)	0.12387 (0.01028)	0.10400 (0.00904)	0.10459 (0.00907)
$\sigma^2_{\text{time}}$ ( $u_{1j}$ )		0.00027 (0.00011)	0.00028 (0.00011)	0.00026 (0.00010)
$\sigma_{\text{intercept*time}}$		-0.00419 (0.00092)	-0.00400 (0.00086)	-0.00398 (0.00085)
$r_{\text{intercept*time}}$		-0.731	-0.739	-0.763
Deviance	1451.303	1292.319	1223.186	1219.058

$N = 513$ ; standard errors listed parenthetically; time = incarceration time in months; FGA = accommodation; time and FGA centred; one outlying case excluded.

that the shape of the slope is dependent on the individual resources of accommodative adaptation. Nevertheless, these results may be sensitive to the special quality of the different occasions of measurement beyond mere duration effects: namely that they are situated at the beginning, at the end, or in the middle of the individual prison term. The analysis of variance may thus suggest that this quality contributes to the level of self-esteem beyond the mere effect of the time in prison. Empirical and theoretical arguments in the tradition of Wheeler (1961; see also Bukstel & Kilman, 1980) support this interpretation.

It is important to note that the results show remarkable parallels with earlier findings from a cross-sectional study (Greve, Enzmann, & Hosser, 2001) with respect to the general increase in self-esteem over the duration of imprisonment and the moderating (buffering) function of accommodative processes. The longitudinal confirmation of cross-sectional data with an equivalent sample (from identical institutions, selected according to identical criteria, and assessed with identical measures) has both methodological and theoretical implications. From a methodological point of view, it responds to the possible objection that the observed increase in self-esteem across occasions of measurement observed in the present study may partly result from retest artifacts (Bukstel & Kilman, 1980, p. 486). From a theoretical point of view, this replication supports the interpretation that neither a cohort effect nor a particular historical effect is responsible for the increase in self-esteem among incarcerated young offenders. The continuous recruitment of participants entails that the present study comprises young males admitted to prison in three different years (1998, 1999, 2000). Thus, any influence of short-time historical changes (e.g., in the prison population or staff) can be excluded.

However, the lack of an appropriate control group means that neither cross-sectional nor longitudinal data can confirm a causal relationship between (duration of) imprisonment and increase in self-esteem. Consequently, the question of whether the relatively low level of self-esteem for less accommodative individuals at the beginning of their prison term represents a decrease of self-esteem *due to* the experience of being incarcerated or, alternatively, depicts the generally lower "entrance" level of these individuals and a subsequent increase-effect of prison, cannot be answered sufficiently with the present data. However, first results from an ongoing study (Greve & Enzmann, 2001b) support the hypothesis that high accommodative individuals are buffered against the "pains of imprisonment" that otherwise occur, particularly at the beginning of the prison term. In that study, a quasi-experimental matched-pair design, young males in youth prisons are compared with young offenders on probation. Results show that the young males *not* sentenced to prison exhibit no change in their self-esteem. Rather, they remain on the same level throughout 1 year. Moreover, this level is reached by the imprisoned offenders at the end of their prison term (as is the case for the present study)<sup>5</sup>.

<sup>5</sup> A 2\*2 ANOVA with one between-subjects factor (parole vs. prison sample;  $N = 32$  and  $N = 50$ , respectively) and one within-subjects factor (occasion of measurement:  $t_1$  = start of parole / start of prison term;  $t_2$  = parole 1 year later / end of prison term 1 year later) yielded significant main effects for sample,  $F(1, 80) = 10.38$ ,  $p < .01$ , and occasion,  $F(1, 80) = 12.41$ ,  $p < .01$ , and a significant interaction of sample and occasion,  $F(1, 80) = 22.30$ ,  $p < .01$ . The means of SE at  $t_1$  were 3.34 (parole) and 2.77 (prison); the means of SE at  $t_2$  were 3.27 (parole) and 3.26 (prison).

Another caveat from a developmental perspective on change in self-esteem during adolescence and early adulthood should be mentioned here. Several studies indicate that adolescent males normally exhibit a positive and stable level of self-esteem, or, as some longitudinal studies indicate, in fact show an *increase* in self-esteem in the developmental period observed here (14 to 24 years; Adamson & Lyxell, 1996; Alsaker & Olweus, 1992; Block & Robins, 1993; McCarthy & Hoge, 1982; O'Malley & Bachmann, 1983). Thus, incarceration may still have a damaging effect on the selves of juveniles, resulting in a decline in the normal rate of development. However, the results from the aforementioned ongoing quasi-experimental study suggest that this does not hold for the highly selective group of young offenders. Moreover, recent results also suggest a high variability of self-esteem and self-esteem changes among adolescents (Deihl, Vicary, & Deike, 1997).

### Theoretical and practical implications and open questions

The findings presented in this paper are of particular significance in two respects. First, they contradict widely held beliefs with regard to the effects of "developmental intervention" of a custodial sentence on late adolescent and early adult development. Even with the caveats mentioned in the previous section in mind, the claim that prison seriously *damages* the self-esteem of inmates is called into question (see also Zamble & Porporino, 1988, p. 148ff.). Actually, these results show parallels with those of some other recent studies that also indicate an increase in self-esteem during the term of imprisonment (e.g., Power, 1990) or a decrease in maladaptive behaviour (Toch & Adams, 1989). These findings mirror empirical evidence from several studies supporting the view that developmental transitions (e.g., from elementary to secondary school) during adolescence do not necessarily have a serious (negative) impact on the adolescent's self-esteem (Nottelmann, 1987; Zimmerman, Copeland, Shope, & Dielman, 1997). Hence, general claims about effects of imprisonment that "spoil" (Goffman, 1963) the inmates' identity and self-esteem are challenged by these results. From a theoretical point of view, they appear to be too simplistic (Greve & Enzmann, 2001a).

Second, and more important from a theoretical point of view, the present study lends support to the theoretical predictions of the two-process model of developmental regulation (Brandtstädter et al., 1993, 1999). The results indicate that the two-process model of developmental regulation is also valid when applied to the highly selective subgroup of delinquent and violent juveniles forced to live in an extremely restrictive social environment, which is essentially both threatening and burdensome, for an extended period of time (Bartollas, 1982). This is important because the developmental tasks of adolescence—differentiating and stabilising an autonomous concept of self and self-esteem, and finding the balance between social autonomy and social integration—mark a phase of development that is in any case difficult, and which places demands on individual coping resources (Compas, 1995; Crockett & Crouter, 1995; Harter, 1998; Harter et al., 1997; see also Greve, 2001). This supports the general finding that the overwhelming majority of adolescents succeed in stabilising their self-esteem (Harter, 1993), even those who are forced to

live under particularly adverse social conditions in a restrictive and hostile environment (Lerner & Galambos, 1998).

However, with respect to the explanation and the prediction of delinquency, a question of high practical importance remains as yet unanswered. We still do not know the *functional consequences* of self-esteem stabilisation among incarcerated males; that is, we do not know how the stabilisation of self-esteem in imprisoned adolescents influences their future development and, in particular, their future criminal "career". Even if incarceration were to bring about a dampening in self-esteem, this need not necessarily be negative for the individual's social behaviour or legal conduct after release. In contrast, or at least in addition, to a body of research indicating that low self-esteem represents an important risk factor for deviance (Kaplan, 1980; F.R. Rosenberg & Rosenberg, 1978; Scheff et al., 1989; Stiles, Liu, & Kaplan, 2000), other studies suggest either a weaker (Bynner, O'Malley, & Bachmann, 1981) or even a reverse relationship (Hughes, Cavell, & Grossman, 1997; Jang & Thornberry, 1998; Wells & Rankin, 1983; Wormith, 1984). In many ways, people with high self-esteem are in greater danger of receiving threatening feedback from others and may therefore be more prone to violence (Heatherton & Ambady, 1993; Jang & Thornberry, 1998). Some evidence suggests that self-esteem predicts recidivism (Gendreau, Grant, & Leipziger, 1979).

Thus, there are both theoretical and empirical reasons to assume that low or high self-esteem is not a risk factor in itself. Baumeister, Smart, and Boden (1996) convincingly argue that an appropriate interpretation ought to address not the current level of self-esteem but its degree of *vulnerability*. In particular, the work of Kernis and colleagues (Kernis, 1993; Kernis, Cornell, Sun, Berry & Harlow, 1993; Kernis, Granneman, & Barclay, 1989) suggests that the stability of self-esteem, rather than its actual level, could well be the crucial predictor of aggressive and hostile reactions. The present data suggest, in turn, that this stability depends to a large degree on the individual coping responses. Accordingly, Kaplan and Peck (1992) have pointed out that the connection between self-esteem and delinquency could itself be moderated by coping reactions. Additionally, Zamble and Porporino have claimed that "eventually the poorest copers among the population of offenders will be those with the longest criminal records" (1988, p. 148). Rather than the current level of self-esteem, its stability and the individuals' access to resources capable of its stabilisation can be expected to moderate the connection between self-esteem and delinquency. In order to address this question and, in particular, to arrive at differential evaluations of the functionality of accommodative coping reactions on (future) delinquent behaviour, we await the longitudinal data that are currently being collected.

This question is of high practical and political importance because the current increase in the numbers of delinquent juveniles in Western societies (Coleman & Nedry, 1999; Pfeiffer, 1998) has been accompanied by an increase in tough reactions. We are faced with a growing number of juveniles and adolescents being sentenced to incarceration (E. Becker & Rickel, 1998; Feld, 1998). For instance, the number of adolescents and young adults (between 14 and 24 years of age) receiving a custodial sentence in Germany rose by over 50% between 1994 and 2000 (Greve & Enzmann, 2001a). This explosion in the prison population, which is also observable in several Western countries, adds the stress of overcrowding (Adams, 1992; Bukstel & Kilmann, 1980;

Ruback & Innes, 1988) to the strains inherent to prisons in general. Reasonable doubts have been raised as to the relevance of psychological research for sentencing and prison policy; in particular. Ruback and Innes pointed to the diverging aims and values of scientists and practitioners. Nevertheless, even politicians and, to an even greater extent, practitioners can learn from developmental research if, in turn, psychologists try to engage in applied developmental science (Lerner, Fisher, & Weinberg, 2000).

It seems worth mentioning explicitly that the results presented in this paper must not be mistaken as supporting prison sentences for juvenile, adolescent, and young adult offenders. Rather we would like to argue for a more differentiated discussion of the effects of incarceration. According to our results, it seems inappropriate to attribute high rates of recidivism among former prisoners (Greve, 2001) simply to effects of prison per se. Rather, a more appropriate explanation of prison effects should take into account individual differences in resources and vulnerabilities. Taking into account the coping reactions of imprisoned juveniles would represent an important step towards a more appropriate understanding of the development of delinquent juveniles in custody. In this way new prospects for alternative developmental interventions can evolve, prospects that have a good chance of success and that avoid the unpleasant attendant phenomena of imprisonment, which are not functional for the future development of the juveniles. In fact, the need for such an approach was already formulated two decades ago, in a seminal work on the pains of imprisonment: “Humane prison environments must be resilient environments—settings orchestrated by line and managerial staff to meet the adjustment needs of prisoners” (Johnson & Toch, 1982b, p. 20).

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