

**Relationship between Trait Anger and Rejection Sensitivity:
The moderating role of the group (inmates and non-inmates)**

Marta Bodecka¹, Krzysztof Grala¹, Karol Szymczak¹, Anna Zajenkowska¹, Joanna Rajchert¹,
Dagmara Kostrzewska¹, Claire Lawrence²

¹The Maria Grzegorzewska University

²University of Nottingham

Authors' note: The studies were funded by National Science Centre (UMO-2017/26/D/HS6/00258).

Data used in this study will be stored at: <http://www.apsycholab.pl>

Corresponding author: Marta Bodecka; Maria Grzegorzewska University; Szczęśliwicka 40, 02-353, Warsaw, Poland; mbsd1@aps.edu.pl

Abstract

The current study tested the differential relationship between Trait Anger (TA), Sensitivity to Provocation (SP) and Rejection Sensitivity (RS) among inmates convicted of violent offenses (N = 123) and community dwelling adults (N = 118). It was hypothesized that inmates would have higher RS and that RS would be more strongly related to TA. We also investigated whether SP would have additional impact on RS, over and above the effect of TA. There were no differences between inmates and non-inmates in RS when other variables were not controlled for. Trait Anger predicted RS in both groups, but the relationship between TA and RS was stronger in inmates. However, when Sensitivity to Provocation was included in the model, SP predicted Rejection Sensitivity and the relation between TA and RS only remained positive in the inmate group. The current study extends the knowledge on RS, demonstrates the importance of TA for this sensitivity, it is also a pioneering work that investigates RS in a group of individuals convicted for violent crimes.

Key words: Rejection sensitivity, trait anger, sensitivity to provocation, inmates

Introduction

Adverse and harsh experiences with parental figures are linked to the development of both sensitivity to rejection (Downey et al., 1998) and trait anger (Bowlby, 1973). Rejection sensitivity (RS) is defined as: “the disposition to anxiously expect, readily perceive, and overreact to rejection” (Downey & Feldman, 1996, p. 1338). The concept of RS derives from attachment theory (Bowlby, 1973) and social cognitive theory (Mischel & Shoda, 1995). The development of RS could be explained by a circular model (Levy, Ayduk & Downey, 2001; see Figure 1), where the source of RS is the experience of prior rejection. The desire to be accepted by other people and to belong to a group is one of the basic human motives (Baumeister & Leary, 1995). This necessity appears very early in a person's life and is satisfied by the caregivers (Bandura 1969). When the need to be accepted is repeatedly unrealized, for example, in families where violence, emotional neglect, conditional parental love or harsh discipline occurs (Romero-Canyas, Downey, Berenson, Ayduk, & Kang, 2010), a permanent expectation of rejection can develop. Importantly, peers, groups and even societies can be the source of this rejection expectation (Levy, Ayduk & Downey, 2001). In situations when rejection is possible, individuals high in RS become particularly sensitive to social rejection cues, they also feel anticipatory distress (Downey et al., 1998; Levy, Ayduk, & Downey, 2001). In addition, they have a low response threshold to rejection signals and react very intensively to them (Romero-Canyas et al., 2010). Perceived rejection can lead to hostility, despondency, withdrawal, jealousy, and maladaptive and aggressive behaviors (Downey & Feldman, 1996; Leary, Twenge & Quinlivan, 2006; Smart Richman & Leary, 2009). Finally, these overreactions in high RS individuals can initiate a self-fulfilling prophecy and create a reinforcing circle of negative experiences, as aggressive behavioral reactions may result in further rejection (Bierman & Wargo, 1995).

Anger in the RS model

In the RS model, usually two emotions play the main role: anxiety and anger (Downey & Feldman, 1996; Levy, Ayduk & Downey, 2001). According to Downey and Feldman (1996), the experiences of rejection in early childhood result in anxiety, which is the base for RS. In later works, there are speculations that the emotional companion of RS could be not only anxiety, but also anger (Levy, Ayduk & Downey, 2001). Both these emotions have a similar function: to defend against further rejection (Downey et al., 1999). The type of expectations (anxious or angry) are proposed to depend on individual temperament and/or the type of the first rejection experience (Levy, Ayduk & Downey, 2001), but also on familial, gender, age and cultural permissions to express anger or anxiety (Downey et.al, 1999). Moreover, the type of expectations differentiates how the person perceiving rejection will react, anxious expectations can lead to social anxiety and withdrawal, angry expectations to aggression (London, Downey, Bonica, & Paltin, 2007; Zimmer-Gembeck & Nesdale, 2013). While the model clearly defines the place of anxiety at the start of the cycle (Downey & Feldman, 1996; Romero-Canyas et al., 2010), anger appears at different stages: both as an effect of the prior experience of rejection (Levy, Ayduk & Downey, 2001) and as an effect of perceived rejection that leads to an aggressive reaction (Downey & Feldman, 1996; Romero-Canyas et al., 2010; Zimmer-Gembeck & Nesdale, 2013).

Anger is a primary emotion that motivates "animals of all kinds" to fight and protect themselves in an emergency (Darwin, 1872). It describes both a temporary emotional and physiological state appearing in response to a trigger (state anger), or a relatively stable individual difference in frequency, intensity, and duration of anger reactions (trait anger: Spielberger et al., 1988). The feeling of anger occurs in emergency situations when a Defensive Motivation System is activated (Lang et.al 1999). For people with high RS, such a situation can be any ambiguous social encounter in which they detect cues of rejection (Downey, Mougios,

Ayduk, London, & Shoda, 2004). In turn, people with an increased trait anger (TA) are generally more sensitive to negative social signals (Smith & Waterman, 2003; but see: Wilkowski et.al, 2007), and tend to interpret ambiguous social encounters as hostile (Crick & Dodge, 1994; Epps & Kendall, 1995). Moreover, individuals with high TA experience more frequent and more intense state anger, have reduced control over their anger, express anger in more maladaptive ways and experience more negative consequences (Deffenbacher, et.al 1996). Importantly, while state anger is a single factor, anger trait consists of two correlated elements: Angry Temperament (TA/T) and Anger Reaction (TA/R) (Spielberger & Reheiser, 2009). The first factor refers to individual differences in the underlying disposition to feel anger without situational triggers, while the second factor refers to angry reactions in response to specific (e.g. frustrating or provocative) situations (Bağ, 2016; Spielberger & Reheiser, 2009). The extent to which people differ in the *types* of situation that elicit aggressive and angry reactions is not considered in the RS model, but is potentially key in understanding reactions to rejection.

Individual differences in situational triggers to aggressive responses: The role of sensitivity to provocation

Situational factors have an important role in the etiology of aggressive behavior (Anderson & Bushman, 2002). To predict and prevent violence, it is necessary to understand not only who becomes aggressive but also under which circumstances (Lawrence & Hutchinson 2012; Lawrence, 2006). The role of individual differences in sensitivity to provocation (SP) helps to answer both these questions, as it is a psychological construct that refers to “*the extent to which different events make individuals feel aggressive*” (Lawrence, 2006, p. 242). People who are sensitive to provocation are prone to react with aggressive feelings in situations when they feel that they are directly goaded or provoked by another person (Lawrence, 2006). In general sensitivity to provocation (SP) entails a heightened vulnerability to behaviors perceived as

provocative (Lawrence & Hutchinson, 2012). This construct is strongly related to physical aggression (Lawrence, 2006) and reactive aggression, which is directed at the perceived source of the provoking trigger (Lawrence & Hutchinson, 2012).

Alongside RS and TA, SP predisposes people to specific encoding of social cues (Zajenkowska & Rajchert, 2020) and shapes the emotional, cognitive and behavioral responses to them (Bondü & Richter, 2016). All three constructs are measures of sensitivity to negative social signals and are positively correlated with each other. Although they all increase the risk of reactive aggression, they impose different effects on the forms and functions of aggression (Bondü & Richter 2016).

The role of offending and the prison environment

Incarceration and criminality have been linked with origins in broken family relationships (Farrington, et al., 2001); insecure attachment (Ogilvie, Newman, Todd & Peck, 2014) and parental incarceration (Murray & Farrington, 2008); all factors that may lead to feelings of rejection. Inmates are particularly sensitive to negative social signals, which are associated with anger and aggression (Bondü & Richter 2016; Novaco, 2011; Schönenberg & Jusyte, 2014; Zajenkowska et al., 2013). Elevated level of anger is not necessary or sufficient for violence to occur (Howells, 1998), however, experiencing anger in the absence of self-control, increases the probability of violent behavior (Novaco, 2011). High trait anger is a risk factor for imprisonment and recidivism (Loza & Loza-Fanous, 1999; Sutter et al., 2002) and prisoners are generally found to have higher levels of anger than individuals in the community (Schönenberg & Jusyte, 2014; Sutter et al., 2002). Importantly, high anger predicts mainly reactive aggression, occurring in response to specific situations (Brown & Howells, 1996). Therefore, it is intuitive to suspect that prisoners will have a higher level of sensitivity to provocation, however, this assumption has not been confirmed empirically (Zajenkowska et al., 2013). Notably, sensitivity to provocation is strongly linked with trait physical aggression as

assessed by the Buss and Perry Aggression Questionnaire (Lawrence, 2006), which is the form of aggression most likely to result in a prison sentence (compared to angry, hostile or verbal aggression). Thus, the role of TA and SP and the relationship between these constructs in a group of inmates, requires further scientific inquiry. Especially as prisoners also have higher levels of neuroticism compared to people who have never been convicted (Laak et al., 2003). Neuroticism is associated with perception of different situations as more threatening than others (e.g. McRae & Costa, 2003). Those high in Neuroticism have an over-sensitive alarm system and see the danger even in situations that do not contain obvious hostile indications (Jonason & Sherman, 2020). Rejection Sensitivity works in a similar way, making people particularly vulnerable to rejection, but to our knowledge the RS has not yet been investigated in a group of prisoners. This appears to be a major gap in knowledge, given that criminal status is associated with fearful attachment style, characterized by avoiding close relationships for fear of rejection (Timmerman & Emmelkamp, 2005). Offenders, more often than people from community, have experienced childhood trauma, including neglect and violence from parents (Foy, Furrow & McManus 2011; McCord, 1979; Ogilvie et al., 2014). Moreover, inmates face many risks to their well-being in prison (Bradford 2006), such as isolation, violence, limited privacy, as well as conflicts with fellow-prisoners, prison staff and prison-services (Bradford 2006; Goldsmith, 1997). Finally, prisoners are isolated from and "rejected" by society (Davis, Bahr & Ward, 2013).

Current study

Given that many prisoners may have grown up in problematic families (Farrington et al., 2001), have experienced rejection by society (Davis, Bahr & Ward, 2013) and are detained in a threatening environment (Bradford, 2006), it was hypothesized that inmates would be characterized by a higher RS compared to a community group (Hypothesis 1). Moreover, higher trait anger is associated with an insecure attachment style (Troisi & D'Argenio, 2004), which

is more likely in incarcerated violent individuals (Ogilvie, et al., 2014). On this basis, it was proposed that the primary experience of rejection and problems in bonding can lead to development of trait anger that later predicts expectations of rejection (Hypothesis 2). Additionally, angry expectations could lead to aggressive reactions in cause of potential rejection (Zimmer-Gembeck & Nesdale, 2013). We suspect that in the case of a strong relationship between anger and sensitivity to rejection there is a high probability of aggressive behavior. That is why, we hypothesize that in the case of persons who have committed an aggressive act, the relationship between TA and RS is stronger than in a group of people from community (Hypothesis 3).

The final objective of the current study is to deepen the knowledge about the mechanism behind the TA and RS relationship. Trait Anger consists of two elements: a temperamental tendency to react with anger and a tendency to feel anger in response to specific circumstances (Bağ, 2016; Spielberger & Reheiser, 2009). We are interested, which of these two elements is essential for RS. Previous research showed that SP, which is a sensitivity to specific situational characteristics (Lawrence, 2006; Zajenkovska & Konopka, 2015) is related to anger. We decided to control sensitivity to situational factors, that causes aggressive feelings, to see the unique contribution of temperamental TA to the RS among both inmates and non-inmates.

Method

Participants

This investigation was linked to our earlier study (Bodecka, Zajenkovska, Bower-Russa, under review), and part of the data was examined there. Sociodemographic characteristics of the studied groups are presented in *Table 1*. There were no age differences between the prisoners and the community sample $t(235) = 1.20, p = 0.23$, the participants were also similar in terms of their place of residence (e.g. town/village) and being in a

relationship, but there were differences in the level of education. The majority of the inmates had primary education as their highest level of education, while the majority of the non-inmates had secondary education.

Researchers received permission to conduct research from the prison board and the procedure of the study was accepted by the university ethics committee. Inmates were selected by prison officers, on the basis of criminal records and only those detained for violent crimes (murder, attempted murder, beatings, robbery) were invited to participate.¹ The population group was purposively matched with inmates on key characteristics such as gender, age. Individuals from the community group were recruited mainly through social media, where the invitation to participate in the study was placed. The study invited participants to take part in an investigation into: “How people perceive different social situations, what they think about themselves and about other people.” Participants from the community group and male prisoners participating in the study received a voucher as a reward (about 7 euros), in the case of female prisoners the prison management did not permit any payment for participation. All responses were anonymous and participants were able to opt out at any time, which was informed before the survey began.

Procedure

In both groups, the research conducted with single individuals, conducted during face-to-face meetings by a trained research assistant, in designated room in the prison or university. Participants completed paper and pencil questionnaires, as well as some additional tasks which were part of a larger project. Participants in both groups completed the surveys independently, but the researcher was in the room at all times to answer potential questions. The session lasted about 40 to 60 minutes. The order of the questionnaires used for this study was as follows: first

¹ The prison service identified individuals who were convicted of violent crimes based on the reason for their conviction; however, the researchers did not have access to inmates' full criminal records due to legal restrictions, therefore, we do not know the specifics of the violent crimes inmates had committed.

the respondents filled in the STAXI to measure Anger Trait, then the STAR scale to measure Sensitivity to Provocation and the ARSQ at the end to assess Rejection Sensitivity.

Measures

Measurement of Trait Anger - The STAXI-2 Scale (The State-Trait Anger Expression Inventory) created by Spielberger (1999) was developed to assess anger state, anger trait, and expression of anger. For the purposes of this study, we used only the Trait Anger subscale, which consists of 10 items. Answers are collected using a 4-point Likert type scale (1 = "almost never" and 4 = "almost always"). We used the Polish adaptation of the scale (Bał, 2016), which had high reliability of $\alpha = 0.80$. In our study, the Trait Anger subscale also exhibited high reliability ($\alpha = .89$).

Measurement of Sensitivity to Provocation - The STAR (The Situational Triggers of Aggressive Responses) scale, developed by Lawrence (2006), was used to measure Sensitivity to Frustrations and the Sensitivity to Provocation. In the present study, we only used Sensitivity to Provocations scale, which consists of 12 items. Each item starts with the phrase: "I feel aggressive when ..." and provides examples of potentially provocative situations, e.g. "Someone makes offensive remarks to me". All items are rated on a 5-point Likert scale (1 = very inaccurate and 5 = very accurate). This instrument has high internal consistency ($\alpha = .84$) and the Polish version has also been used successfully in previous research in Poland (Zajenkowska et al., 2013) and with high reliability ($\alpha = .83$).

Measurement of Sensitivity to Rejection. The ARSQ (*Adult Rejection Sensitivity Questionnaire*) by Downey, Berenson and Kang (2006) presents 9 hypothetical situations, where respondents are potentially threatened with social rejection (e. g.: "You ask your parents or another family member for a loan to help you through a difficult financial time"). For each situation, respondents rate the anxiety they would feel about the outcome (e.g.: "How concerned

or anxious would you be over whether or not your family would want to help you?") and the likelihood that other people (e. g. friends or strangers) would reject them (e. g.: "I would expect that they would agree to help as much as they can"). Answers are collected on two 6 -point Likert type scales, (1 = "very unconcerned" to 6 = "very concerned" and = "very unlikely" to 6 = "very likely"). The scores are first calculated by multiplying the expectation of rejection for each situation by the degree of anxiety, and then averaging these weighted scores across the nine situations. The scale has previously demonstrated good internal consistency (e.g. Berenson et al., 2016; $\alpha = .91$). In our study, the ARSQ scale reliability was also high ($\alpha = .79$).

Results

Due to missing data, analyses were conducted on 215 – 231 (93% – 96%) participants [inmates: TA – 113 (92%), SP – 101 (82%), RS – 115 (94%) and non-inmates: TA – 118 (100%), SP – 114 (97%), RS – 108 (92%)]. Descriptive statistics for the entire sample and specific groups are presented in *Table 2*. In inmates – RS, TA and SP correlated significantly with each other between $r_s = 0.41$, and $r_s = 0.57$, all $p < 0.01$. In non-inmates, only the association between TA and SP was significant ($r_s = 0.56$, $p < 0.01$) (*Table 3*).

There were no differences between the inmates and non-inmates in RS, $t(221) = 0.41$, $p = 0.68$, in TA, $t(229) = -1.74$, $p = 0.08$, or SP, $t(213) = -0.34$, $p = 0.74$.

To examine whether TA predicted RS and whether this relationship was different in inmates and non-inmates groups, we used a linear regression model. In this model TA, group and their interaction predicted RS. This model was statistically significant, $F(3, 210) = 12.08$, $p < 0.001$, and explained 15% of variance in RS. TA was a positive predictor of RS, as was group. RS was lower in inmates (*Table 4*). The interaction between group and TA was also significant. Post hoc tests indicated that, in inmates, the relationship between TA and RS was statistically significant and positive, $B = 0.51$, $t = 5.62$, $SE = 0.09$, $p < 0.001$, 95% *CI* [0.33;

0.69]. This relationship was also positive in the group of non-inmates, $B = 0.16$, $t = 2.11$, $SE = 0.08$, $p < 0.05$, 95% CI [0.01; 0.32], but less strong than in prisoners (*Figure 2*).

Due to differences in the level of education between prisoners and non-prisoners, this variable was added to the model as covariant. This did not change the significant role of TA ($p < 0.05$), group ($p < 0.05$) and the interaction between them ($p < 0.001$) as predictors of RS. The relationship between TA and RS was still stronger in inmates, $B = 0.55$, $t = 5.96$, $SE = 0.09$, $p < 0.001$, 95% CI [0.37; 0.74.] (for comparison in non-inmates: $B = 0.18$, $t = 2.29$, $SE = 0.08$, $p < 0.05$, 95% CI [0.02; 0.33.]). Education (as covariate) did not significantly predict the RS level in this model, $B = 0.74$, $t = 1.57$, $SE = 0.47$, $p = 0.12$, 95% CI [-0.19; 1.68]. This extended model was statistically significant, $F(4, 205) = 10.11$, $p < 0.001$, and explained 16% percent of variance in RS.

Finally, when SP was included as a covariate, TA no longer significantly predicted ($p > 0.05$) RS, but group ($p = 0.01$) and the interaction between TA and group ($p < 0.001$) were still significant predictors of RS. However TA predicted RS only in the inmate sample, $B = 0.46$, $t = 4.14$, $SE = 0.11$, $p < 0.001$, $LLCI(95\%) = 0.24$, $ULCI(95\%) = 0.68$. The extended model with a covariate (SP), was significant, $F(4, 191) = 12.24$; $p < 0.001$, and explained 20% of the RS variance.

Discussion

Results from our study showed that incarcerated participants were not more sensitive to rejection than those who were not in prison. However, inmates in our study had lower levels of formal education than adults in the community and previous work has demonstrated that education level is negatively correlated with anger (Ross & Willigen, 1997; Williams et al., 2002). Specifically, while education is positively associated with the perceived relevance of anger, it is negatively associated with its manifestations: a higher level of education means greater cognitive control and flexibility (Schieman, 2000).

Among inmates convicted of violent offenses, anger was a stronger predictor of sensitivity to rejection than among non-inmates. Although prisoners do not declare higher level of trait of anger than non-prisoners, they may have difficulty in regulating emotions (Laws & Crewe, 2016). Individuals convicted of violent crimes do not stand out for their greater readiness to experience anger, but if the emotion does arise, they may find it more difficult to control it. This seems all the more plausible, given the fact that the ability to self-regulate is acquired in the relationship with the attachment object (Orehek, 2017), which in the case of prisoners is often unsatisfactory, as already discussed.

Perhaps in the case of inmates, in view of their difficulty in regulating emotions, a negative stimulus associated with anger is easily activated in situations of potential rejection. The readiness to react with anger combined with sensitivity to signals of potential rejection can lead to strong reactions. This is significant given that many violent crimes are committed under impulse (Gottfredson & Hirschi, 1990). There is no doubt that RS is significantly associated with aggression, particularly reactive aggression, which appears in response to specific situations (Gao et al., 2019; Romero-Canyas, et al., 2010).

Interestingly, Sensitivity to Provocation predicted Rejection Sensitivity regardless of the Trait Anger, suggesting this characteristic has its own contribution to RS variability. But when the contribution of SP was controlled, the relationship between TA and RS remained positive and significant only in the inmates group. That could suggest that disposition to feel angry feelings, without situational triggers (Angry Temperament) is an important factor in Rejection Sensitivity among inmates.

Among inmates, the role of anger in rejecting sensitivity is very important. Considering also that RS itself is related with anger, it seems that in inmates this mechanism may lead to a malicious circle. Also considering the importance of sensitivity to provocation in feeling rejected, it is crucial to implement programs aimed at developing emotional awareness and the

ability to develop alternative interpretations of other people's behavior. This is especially pertinent for prisoners convicted of violent crimes or those at risk of being imprisoned. Thus, our research has clinical implications and points to important elements in the design of treatment programs targeting prisoners.

Limitations

The research was not free from some restrictions that weaken external validity and require a certain degree of caution in the interpretation of the results. One is that this is a relatively small group of prisoners (123) and a group of non-prisoners (118). However, the results are meaningful and consistent with previous work and predictions made. The non-random selection of the test sample indicates that the obtained results should be approached with caution. In addition, only self-description questionnaires were used in the research, what may pose at least two types of problems. First of all, respondents may experience self-presentation tendencies, as a result of which they will present themselves in a better light. Secondly, it should be remembered that the answers obtained in these studies are subjective, and as Nisbett and Wilson (1977) maintain - people's introspective skills are limited because they are generally unable to adequately describe their mental states and processes. Furthermore, the participants completed the questionnaires in the same order, thus it would be necessary to check in future studies whether the results obtained are related to the order in which the tasks were performed.

It should also be emphasized that our data do not allow for causal interpretation. A more interesting approach, especially for a group of prisoners, would be to use longitudinal or experimental research. Sequential research could better capture the dynamics of the variables analyzed in this study, which develop as a result of long-term interactions of biological and environmental factors, such as executive function deficits and poor attachment. It seems that further research should be developed in this direction.

Nonetheless, this is the first study to examine rejection sensitivity in inmates convicted of violent offenses compared to community samples, and goes some way in understanding the differential relationships between anger, rejection sensitivity and propensity to be triggered by provocations. It includes female as well as male participants and points to a potential for the differential relationships between trait anger, rejection sensitivity and provocation sensitivity for inmates and community samples.

References

- Anderson, C., Bushman, B. (2002). The Effects of Media Violence on Society. *Science*, 295, 2377-2379.
- Bąk, W. (2016). Pomiar stanu, cechy, ekspresji i kontroli złości. Polska adaptacja STAXI-2 [The measurement of state, expression and control of anger Polish adaptation of STAXI-2 questionnaire]. *Polskie Forum Psychologiczne*, 21, 93–122.
- Bandura, A. (1969). *Principles of behavior modification*. Boston: Holt, Rinehart and Winston.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin*, 117, 497-529.
- Berenson, K. R., Gregory, W. E., Glaser, E., Romirowsky, A., Rafaeli, E., Yang, X., et al. (2016). Impulsivity, rejection sensitivity, and reactions to stressors in borderline personality disorder. *Cognitive Therapy and Research*, 40, 510–521.
- Bierman, K. L., & Wargo, J. B. (1995). Predicting the longitudinal course associated with aggressive-rejected, aggressive (nonrejected), and rejected (nonaggressive) status. *Development and Psychopathology*, 7, 669-682.
- Bondü, R., Richter, P. (2016). Interrelations of Justice, Rejection, Provocation, and Moral Disgust Sensitivity and Their Links with the Hostile Attribution Bias, Trait Anger, and Aggression. *Frontiers in Psychology*, 7, 795.
- Bowlby, J. (1973). *Attachment and loss: Volume II: Separation, anxiety and anger*. London: The Hogarth press and the institute of psycho-analysis.
- Bradford, A. R. (2006). *An Examination of the Prison Environment: An Analysis of Inmate Concerns across Eight Environmental Dimensions*. Electronic Theses and Dissertations. Paper 2216.

- Brown, K., & Howells, K. (1996). Violent offenders. In C. R. Hollin (Ed.), *Working with offenders: psychological practice in offender rehabilitation* (pp. 188–210). Chichester: John Wiley and Sons.
- Crick, N., Dodge, K. (1994). *A review and reformulation of social information-processing mechanisms in children's social adjustment*, 115, 74-101.
- Darwin, C. (1965). The expression of the emotions in man and animals (Vol. 526). *Chicago, IL: University of Chicago press*. (Original work published in 1872).
- Davis, C., Bahr, S., Ward, C. (2013). The process of offender reintegration: Perceptions of what helps prisoners reenter society. *Criminology & Criminal Justice*, 13, 446-469.
- Deffenbacher, J. L., Lynch, R. S., Oetting, E. R., & Kemper, C. C. (1996). Anger reduction in early adolescents. *Journal of Counseling Psychology*, 43, 149–157.
- Downey, G., & Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, 70, 1327–1343.
- Downey, G., Berenson, K. R., & Kang, J. (2006). *The adult rejection sensitivity questionnaire (ASRQ)*. Columbia University.
- Downey, G., Bonica, C., & Rincon, C. (1999). Rejection sensitivity and conflict in adolescent romantic relationships. In W. Furman, B. Brown, & C. Feiring (Eds.), *Adolescent romantic relationships*. New York: Cambridge University Press.
- Downey, G., Freitas, A., Michaelis, B., Khouri, H. (1998). The self-fulfilling prophecy in close relationships: Rejection sensitivity and rejection by romantic partners. *Journal of Personality and Social Psychology*, 75, 545-560.
- Downey, G., Mougios, V., Ayduk, O., London, B. E., & Shoda, Y. (2004). Rejection sensitivity and the defensive motivational system: Insights from the startle response to rejection cues. *Psychological Science*, 15, 668-673.

- Epps, J., Kendall, P. (1995). Hostile attributional bias in adults. *Cognitive Therapy and Research, 19*, 159–178.
- Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M., & Kalb, L. M. (2001). The concentration of offenders in families, and family criminality in the prediction of boys' delinquency. *Journal of adolescence, 24*, 579-596.
- Foy, D. W., Furrow, J., McManus, S., Ardino, V. (2011). *Exposure to violence, post-traumatic symptomatology, and criminal behaviors. Post-traumatic syndromes in children and adolescents*. Chichester, UK: Wiley/Blackwell Publishers.
- Gao, S., Assink, M., Liu, T., Chan, K. L., & Ip, P. (2021). Associations between rejection sensitivity, aggression, and victimization: A meta-analytic review. *Trauma, Violence, & Abuse, 22*, 125-135.
- Goldsmith, L. (1997). History from the inside out: Prison life in nineteenth-century Massachusetts. *Journal of Social History, 31*, 109-125.
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press.
- Howells, K. (1998). Cognitive behavioural interventions for anger, aggression and violence. In N. Tarrow, A. Wells, & G. Haddock (Eds.), *Treating complex cases: the cognitive-behavioural approach*. Chichester: Wiley.
- Jonason, P. K., & Sherman, R. A. (2020). Personality and the perception of situations: The Big Five and Dark Triad traits. *Personality and Individual Differences, 163*, 110081.
- Laak, W.H., Bohemen, H.D. (2003). The Influence of Road Infrastructure and Traffic on Soil, Water, and Air Quality. *Environmental Management, 31*, 50–68.

- Lawrence, C. (2006). Measuring individual responses to aggression-triggering events: development of the situational triggers of aggressive responses (STAR) scale. *Aggress. Behav.* 32, 241–252.
- Lawrence, C., and Hutchinson, L. (2012). The influence of individual differences in sensitivity to provocations and provoked aggression. *Aggress. Behav.* 39, 212–221.
- Laws, B., Crewe, B. (2016). Emotion regulation among male prisoners. *Theoretical Criminology*, 20, 529-547.
- Leary, M. R., Twenge, J. M., & Quinlivan, E. (2006). Interpersonal rejection as a determinant of anger and aggression. *Personality and social psychology review*, 10, 111-132.
- Levy, S., Ayduk, O., Downey, G., (2001). The role of rejection sensitivity in people's relationships with significant others and valued social groups. In: M.R. Leary (red.), *Interpersonal Rejection*. Oxford: Oxford University Press.
- London, B., Downey, G., Bonica, C., Paltin, I. (2007). Social Causes and Consequences of Rejection Sensitivity. *Journal of Research on Adolescence*, 17, 481-506.
- Loza, W., Loza-Fanous, A. (1999). The Fallacy of Reducing Rape and Violent Recidivism by Treating Anger. *International Journal of Offender Therapy and Comparative Criminology*, 43, 492-502.
- McCord, J. (1979). Some child-rearing antecedents of criminal behavior in adult men. *Journal of Personality and Social Psychology*, 37, 1477–1486.
- McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood: A Five Factor Theory perspective*. New York: Guilford Press

- Mischel, W., Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, *102*, 246-268.
- Murray, J., Farrington, D. (2008). The Effects of Parental Imprisonment on Children. *Crime and Justice*, *37*, 133-206.
- Nisbett, R. E., Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, *35*, 250–256.
- Novaco, R. W. (2011). Anger dysregulation: Driver of violent offending. *Journal of Forensic Psychiatry & Psychology*, *22*, 650-668.
- Ogilvie, C., Newman, E., Todd, L., Peck, D. (2014). Attachment and violent offending: A meta-analysis. *Aggression and Violent Behaviour*, *19*, 322-339.
- Orehek, E., Vazeou-Nieuwenhuis, A., Quick, E., & Weaverling, G. C. (2017). Attachment and self-regulation. *Personality and Social Psychology Bulletin*, *43*, 365-380.
- Romero-Canyas, R., Downey, G., Berenson, K., Ayduk, O., Kang, N. J., (2010). Rejection Sensitivity and the Rejection–Hostility Link in Romantic Relationships. *Journal of Personality*, *78*, 119-148.
- Ross, C. E., & Willigen, M. V. (1997). Education and the Subjective Quality of Life. *Journal of Health and Social Behavior*, *38*, 275–297
- Schieman, S. (2000). Education and the activation, course, and management of anger. *Journal of Health and Social Behavior*, *41*, 20-39.
- Schönenberg, M., Jusyte, A. (2014). Investigation of the hostile attribution bias toward ambiguous facial cues in antisocial violent offenders. *European Archives of Psychiatry and Clinical Neuroscience*, *264*, 61–69.

- Smart-Ritchamn, L., Leary, M. (2009). Reactions to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: A multimotive model. *Psychological Review*, *116*, 365-383.
- Smith, P., Waterman, M. (2003). Processing bias for aggression words in forensic and nonforensic samples. *Cognition and Emotion*, *17*, 681-701.
- Spielberger, C. D. (1999). *The state-trait anger expression Inventory-2 (STAXI-2): Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Spielberger, C. D., Krasner, S. S., & Solomon, E. P. (1988). The experience, expression, and control of anger. In *Individual differences, stress, and health psychology*. Springer, New York, NY.
- Spielberger, C., Reheiser, E. (2009). Assessment of Emotions: Anxiety, Anger, Depression, and Curiosity. *Health and Well-Being*, *1*, 271-302.
- Sutter, J.M., Byrne, M.K., Byrne, S. et al. (2002) Anger in prisoners: women and different from men. *Personality and Individual Differences*, *32*, 1087- 1100.
- Timmerman, I., Emmelkamp, P. (2005). The Effects of Cognitive-Behavioral Treatment for Forensic Inpatients. *International Journal of Offender Therapy and Comparative Criminology*, *49*, 590-606.
- Troisi, A., D'Argenio, A. (2004). The relationship between anger and depression in a clinical sample of young men: the role of insecure attachment. *Journal of Affective Disorders*, *79*, 269-272.
- Wilkowski, B., Robinson B. (2007). Keeping One's Cool: Trait Anger, Hostile Thoughts, and the Recruitment of Limited Capacity Control. *Personality and Social Psychology Bulletin*, *33*, 1201-1213.
- Williams, J. E., Nieto, F. J., Sanford, C. P., Couper, D. J., & Tyroler, H. A. (2002). The association between trait anger and incident stroke risk. *Stroke*, *33*, 13-19.

- Zajenkowska, A. Konopka, K. (2015). Communion-orientation as an antidote for aggressive behaviour among high provocation sensitive individuals. *Personality and Individual Differences, 76*, 62-67.
- Zajenkowska, A., Rajchert, A. (2020). How sensitivity to provocation shapes encoding and interpretation of ambivalent scenes in an eye tracking study. *Journal Of Cognitive Psychology, 32*, 180-198.
- Zajenkowska, A., Zajenkowski, M., Jankowski, K., Lawrence, C. (2013). Personality and individual differences in responses to aggression triggering events among prisoners and non-prisoner. *Personality and Individual Differences, 55*, 947-951.
- Zimmer-Gembeck, M., Nesdale, D. (2013). Anxious and Angry Rejection Sensitivity, Social Withdrawal, and Retribution in High and Low Ambiguous Situations. *Journal of Personality, 81*, 29-38.

TABLES

Table 1. Participant's characteristic

	Both groups (<i>n</i> = 241; 100 %)	Inmates (<i>n</i> = 123; 51.04 %)	Non-inmates (<i>n</i> = 118; 48.96 %)
Sex (male)	120 (49.79 %)	62 (50.41 %)	58 (49.15 %)
Sex (female)	121 (50.21 %)	61 (49.59 %)	60 (50.85 %)
Age	<i>M</i> = 36.47; <i>SD</i> = 10.99	<i>M</i> = 37.32; <i>SD</i> = 9.76	<i>M</i> = 35.61; <i>SD</i> = 12.07
Living in big city*	114 (47.30 %)	57 (46.34 %)	57 (48.31 %)
Unmarried	104 (43.15 %)	53 (43.09 %)	51 (43.22 %)
Dominant education	Secondary: 145 (60.17 %)	Primary: 48 (39.02 %)	Secondary: 78 (66.10 %)

* with over 100, 000 inhabitants

Table 2. Descriptives for inmates, non-inmates and all participants

	Inmates		Non-Inmates		All participants	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Trait Anger	23.19	6.37	24.78	7.42	24.00	6.95
Sensitivity to Provocation	43.27	11.39	43.75	9.93	43.53	10.62
Rejection Sensitivity	15.69	7.41	15.34	5.20	15.52	6.42

Table 3. Spearman's rank correlations between study variables in inmates group (upper-row) and non-inmates group (lower-row)

	Trait Anger	Sensitivity to Provocation	Rejection Sensitivity
Trait Anger	–	–	–
Sensitivity to Provocation	.57**	–	–
	.56**		
Rejection Sensitivity	.41**	.45**	–
	.13	.18	

* $p < 0,05$, ** $p < 0,01$

Table 4. The group as a moderator of the relationship between trait anger and rejection sensitivity

	<i>Coeff</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>LLCI (95%)</i>	<i>ULCI (95%)</i>
Trait Anger	.16	.08	2.11	.04	.01	.32
Group (ref: Non-Inmates)	-7.51	3.02	-2.48	.01	-13.48	-1.55
Trait Anger x Group	.35	.12	2.91	.00	.11	.59

FIGURES

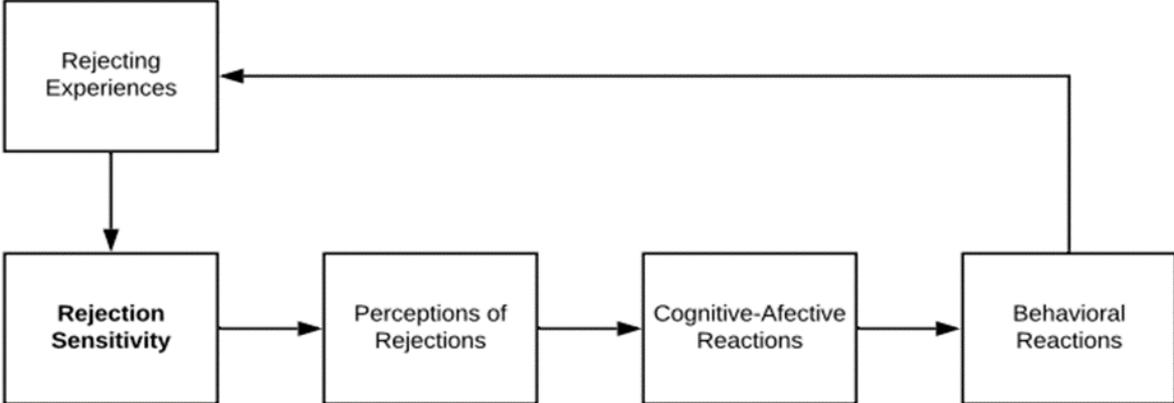


Figure 1. Rejection Sensitivity Model (adapted from: Levy, Ayduk, & Downey, 2001, p. 252)

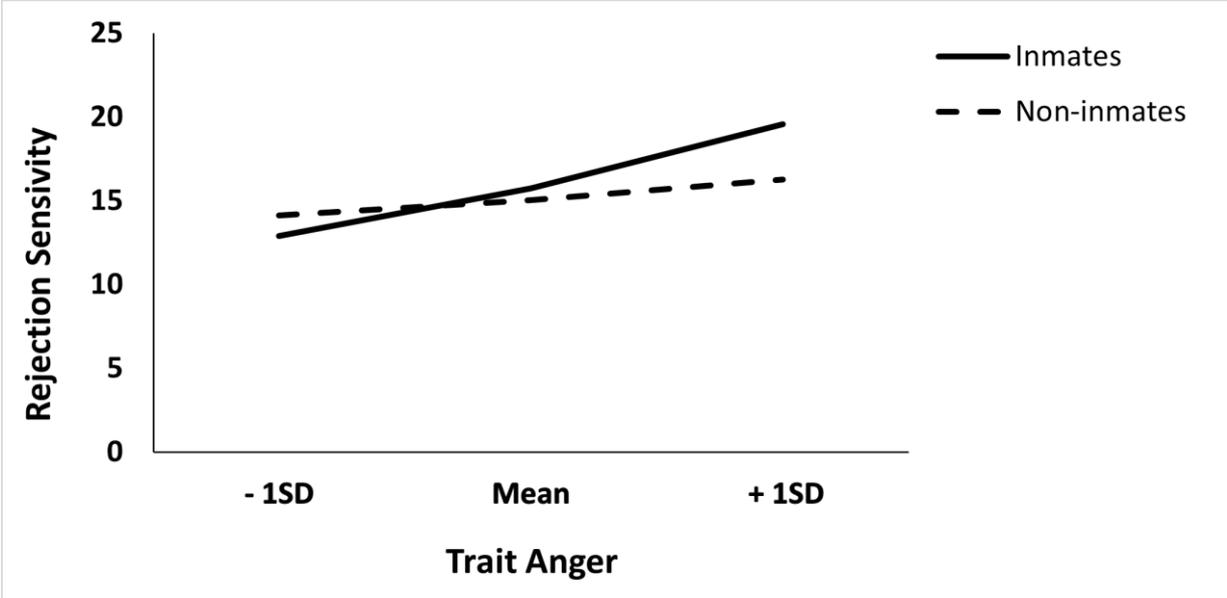


Figure 2. The group as a moderator of the relationship between the trait anger and rejection sensitivity.