Psychopathic traits and empathy: moral decision making and complex affect expression recognition

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Summary

Aim. The issue of specific cognitive deficits in psychopathy is still open for debate. Much evidence points to problems with affective empathy. The current study aims to verify the hypothesis about the correlation between psychopathic traits, difficulties in complex affect expression recognition and making moral decisions without taking into account the aspect of potential harm.

Methods. 58 males were studied (student and inmate groups). Psychopathy was assessed with the *Psychopathy Checklist-Revised* (PCL-R). Recognition of complex emotional expressions was assessed with the *Faces* subset of the *Emotional Intelligence Scale* and moral inclinations to avoid harm ("deontological") and maximize consequences ("utilitarian") were measured via the process dissociation method.

Results. Inmates generally showed deficiencies in correct expression recognition, for both positive and negative stimuli. Inmates with high psychopathy additionally showed high rate of false positive perceptions of negative emotions. High psychopathy inmates showed lower, than low psychopathy inmates and students, inclination to avoid harm. High psychopathy was related to declarations that the presented moral dilemmas were "easy decisions". Group differences in the inclination to maximize consequences in moral decisions were not significant.

Conclusions. Results support the hypothesis that psychopathy is related to a general deficiency in affective processing. Psychopathic traits are related to worse recognition of complex emotional expressions which does not manifest itself as uncertainty, but as high rate of false positives. Inmates with psychopathic traits also declare that the presented moral sacrificial dilemmas require "easy decisions" and show reduced responsivity to harm. An important and problematic element of psychopathy seems to be the dysfunctional affective empathy with a simultaneous unawareness of these dysfunctions.

Key words: psychopathy, moral decision making, empathy

Introduction

Psychopathy is a construct that has a long history and a complex relationship with the classification systems for mental disorders such as the Diagnostic and Statistical Manual of Mental Disorders (DSM) [1]. Originally, the term psychopathy was used to denote any personality disorder, but in the 1940s Cleckley's works [2] clearly moved the meaning of this term into the area of antisocial behavior and narrowed its scope, forming a prototypical definition of psychopathy to which subsequent researchers referred [3]. From this point on there is an ongoing debate on the relationship between antisocial personality disorder, variously defined in subsequent editions of the DSM, and psychopathy, definition of which was also subject to change.

The last edition of this debate, which resonated with the creation of the 5th version of the DSM [4], points to the split of contemporary trends in research on psychopathy. On the one hand, the Hare model, developed, to a large extent, based on research with people detained in prisons, and the measurement tool developed by him: the *Psychopathy Checklist-Revised* (PCL-R), are very popular [5]. This model describes psychopathy as a personality disorder that is a two-factor construct. The first factor refers to the constellation of interpersonal and affective characteristics, such as the pursuit of domination through manipulation, exaggerated self-esteem, deception and superficial personal charm, and a lack of guilt, empathy and responsibility. The second factor describes a chronically unstable, impulsive and antisocial lifestyle, also related to multiple violations of law [6]. In this model, the level of psychopathy is estimated using the information obtained during the structured interview with the examined person, and then supplemented with an analysis of personal files.

On the other hand, there are models in which psychopathy is not treated as a specific disorder of mental processes but as a type of temperament being a combination of features of special intensity. These studies are usually conducted on the general population, using observational measures or questionnaires. For example, the triarchic model of psychopathy captures this construct as a combination of high impulsiveness, high level of instrumental aggressiveness and low level of emotional reactivity [7]. This definition of psychopathy definitely broadens the scope of research. To the extent that research is being conducted on psychopathy models among other species that also show this type of biobehavioral constellation of features [8].

Analyzing this split of research trends: the perspective of psychopathy as an indirect consequence of the constellation of temperamental traits and psychopathy as a result of affective or inhibition deficits, one may get the impression that the key for further research is to determine whether and if so what types of dysfunctions of mental processes are present in psychopathy. The literature on the subject indicates in particular the affective dimension of the first factor from the Hare model: an atypical way of functioning of empathy. In particular, dysfunctions in affective empathy, while maintaining cognitive ability to understand the causes of behavior and mental states of other people [9]. It is suggested that this distinguishes psychopathy from a group of antisocial disorders in which aggressive or impulsive behavior does not coexist with affective empathy disorder. At the same time, this dysfunction seems to be the reverse of the symptoms typical of autism spectrum disorder in which affective responses to distress occur, with simultaneous difficulties in cognitive understanding of the causes of other people's behavior [10].

Studies suggest that psychopathy reveals a reduced physiological response to stimuli suggesting the distress of others, although not in response to neutral or negative stimuli associated with threat [11]. Studies also indicate that dysfunctions in the field of affective empathy occur more frequently in men and that the development of cognitive empathy in people showing features of psychopathy does not take place in a typical way in the period preceding adolescence [12]. Recently, the similarity between patients with ventromedial prefrontal cortex (vmPFC) damage and psychopathy is being analyzed, in particular in relation to moral decision making and affect [13–15].

Koenigs et al. [16] have shown that vmPFC damage leads to specific changes in moral decisions. Patients with such injuries retain the ability to make decisions in accordance with the cultural norms and in most moral situations make similar choices as those without vmPFC damage. An exception is their responses to strongly conflicting dilemmas, in which it is difficult to choose an unambiguously correct answer due to the strong affective component. These dilemmas describe situations in which the desire to protect a group of people is associated with the need to personally cause significant harm to an individual. People with vmPFC damage show a much higher acceptance of such harm compared to the control group. Glenn et al. [17], working with the same method, showed an analogous relationship between the severity of psychopathic traits

and reactions in strongly conflicting moral dilemmas. However, results from other studies show different results. Cima et al. [18] report that psychopathy is not associated with atypical moral decision making. The results of these authors suggest that people with high intensity of psychopathic traits make similar distinctions as healthy people from the control group. For example, they consider it more permissible to cause harm in a situation which does not include direct physical contact with the victim, as compared to a situations requiring direct, personal harm. Kahane et al. [19] also argue that psychopathy is not associated with increased ease in making decisions related to causing harm to others but rather with amoral, anti-social attitude and insensitivity to the general good.

It is worth paying attention to the details of the procedure and the content of moral dilemmas used in the studies described above [16–18], because it may highlight some interpretation problems that this procedure generates. Researchers, analyzing their results, pay special attention to the difference in reactions of study participants to two categories of moral dilemmas, which they define as dilemmas with low and high levels of conflict. Dilemmas with a high level of conflict are dilemmas juxtaposing the possibility of sacrificing the individual for the greater good. Dilemmas with a low level of conflict, in turn, are decisions to sacrifice the individual, in most cases, for a trivially small own profit (e.g., refusing to help an injured person for the fear of getting the car upholstery dirty). This way of manipulating the level of conflict raises some reservations. We receive a mix of two variables: variation in the level of "profit" and in the attribution of responsibility. Someone's harm is combined, in one condition with a significant good of the general public, and in the other with a trivially low own profit. Note that making a profit from someone's harm is related to the suspicion of responsibility for this act. Thus, by purely cognitive inference, the participant of the study may declare a reluctance to cause harm, in the condition of trivial own gain, due to the estimated consequences associated with their own responsibility. However, it is possible to remove this interpretation problem. This requires the introduction of such differentiation of conditions that in the high conflict moral dilemma there is a standard choice between individual harm and greater good, and in the low conflict dilemma there is choice between identical harm to the individual but juxtaposed with a small profit for the general public.

The method that meets the assumptions described above exists and is already successfully used in research on moral decisions, although we are not aware of its use in relation with psychopathy [20]. This method makes it possible to distinguish the strength of inclination to avoid harm and, at the same time, sensitivity to profit resulting from the consequences of an act. The method was previously used in research on the dual-process theories [21] and assumes that the perception of harm is the result of an automatic, empathic affective reaction towards the victim, which can then be modulated by the controlled process of assessing the full consequences of the act. Its application allows determining whether psychopathy is associated with relative insensitivity to the victim's harm, and at the same time, whether it involves insensitivity to the general greater good. Applying this method in the context of psychopathy is one of the two objectives of this study.

The second goal of the study is to take a closer look at potential deficits in the ability to recognize facial expression in psychopathy. Most of the research in this area is devoted to description of the neural patterns associated with the perception of emotional expressions [22–24]. Psychopathic tendencies are associated with specific dysfunctions of the amygdala [25], which would explain the difficulties in conditioning based on aversive stimuli and difficulties in the processing of sadness and fear but not anger or joy [26–29]. Other studies, however, indicate that psychopathy is associated with general difficulties in processing information about emotions, both positive and negative, both on the basis of facial expression and inference from the tone of voice [30]. This is supported by studies using fMRI, suggesting that psychopathy is not associated with problems in processing specific emotions, it is not related to specific dysfunctions of the amygdala, but with difficulties in the general inclusion of affective information in the decision-making [31]. Studies also indicate that the reduced ability to perceive emotions occurs in other psychiatric disorders, such as schizophrenia [32], and that although prisoners have a reduced ability to perceive facial expression, this efficiency does not significantly correlate with the severity of their psychopathological symptoms [33]

It should be noted that the research described above leaves a significant gap in knowledge. Regardless of whether low efficiency in processing information about complex facial expressions is accompanied by atypical neural patterns in the empathic processing of certain types of affect, it is important to answer the

question whether a person has self-awareness of this dysfunction. This has considerable consequences. For example, sexual aggression is associated with incorrect interpretation of non-verbal behavior, overinterpretation of intentions for sexual contact on the side of victims [34]. In the case of psychopathy, it seems important to determine whether there is a reduced ability to perceive complex emotional expressions, like in the case of other inmates [33], or in addition to the reduced efficiency of expression recognition, there is a misconception in the accuracy of attribution of emotions. This can be verified using the specific properties of the *Emotional Intelligence Scale – Faces* (SIE-T) [35]. The test allows for assessment of accuracy of the interpretation of facial expressions but at the same time offers an open cafeteria of responses in each test position. This makes it possible to distinguish a situation in which a research participant indicates incorrect combinations of emotions from a situation in which he/she is not able to guess the right set of emotions and refrains from reactions.

Method

Recruitment of participants

The research was carried out at the turn of 2017 and 2018. 40 prisoners, males (*M* age = 39.8; *SD* = 9.6) were recruited from 6 penitentiaries in Poland. The research took place in the wards for those serving their sentences for the first time and in closed-off and semi-open wards for penitentiary recidivists. In addition, a comparative group of 18 students of the University of Social Sciences and Humanities in Warsaw participated in the study (*M* age = 32.2; *SD* = 10.4)

The study was conducted as part of the diploma thesis, in accordance with the procedure provided in the Regulations of the Commission on Ethics of Scientific Research at the University of Social Sciences and Humanities, taking into account the principles of the Universal Declaration of Ethical Principles of Psychologists and the Helsinki Declaration [36, 37]. The consent to conduct the research was granted by the Directors of the District Prison Services appropriate for the given province. In the written request to the Directors for the possibility of conducting research, the following was included: the subject of the study; form of examination; tools; the need to conduct a direct examination with the inmate without the participation of third parties. The dates

of the tests were carried out in consultation with the Directors of Prison Facilities or by authorized persons. The prisoners, depending on the institution, were informed about the possibility of taking part in the study by penitentiary psychologists or educators. Subjects signed informed consent to participate in the study. The document contained information on confidentiality and voluntary participation in the study, as well as the possibility of withdrawing from the study at any time without giving a reason. Interviews took place in rooms without cameras and without third parties. Data obtained during the study were anonymized and the persons carrying out the analysis were not able to identify the participants' personal data.

Measures

Emotional Intelligence Scale – Faces (SIE-T)

The scale is used to measure the ability to recognize facial expressions, treated as one of components of emotional intelligence [35]. The test includes 18 photographs of faces expressing complex emotions (e.g., resignation, regret, disappointment, sense of danger). For each photo, the participant decides which emotions, from a set of 6 labels, are visible in the photo. The assessment is made on a 3-point scale: the face "expresses" the proposed emotion, "does not express" it or "difficult to say". The scale enables the assessment of the accuracy of perception of facial expression, but its design also allows for an analysis of false positives in perception of emotions. This happens in a situation in which a person declares perception of emotion which was absent in the picture.

Psychopathy Checklist

Psychopathy Checklist-Revised (PCL-R) [6] was used to measure the severity of the individual's psychopathy. The scale consists of 20 items. Diagnosis is based on a partially structured interview. After collecting the necessary information, the participant is assessed on a 3-point scale for each feature: "definitely present", "somehow present", "definitely present."

Measurement of moral inclinations

Moral inclinations, or the tendency to avoid harm (AH) and the tendency to maximize consequences (MC), was measured using a task structured for the process dissociation analysis [38, 39]. This method, originally created to estimate the relative strength of automatic and controlled processes in memory, can also be applied to the area of moral decisions [20]. The participant's task is to assess the acceptability of causing harm in twenty moral dilemmas – based on ten scenarios prepared in two versions (see: Appendix). Each of the dilemmas touches the issue of potential harm, and the versions differ from each other in terms of the consequences of this act. After reading each narration, the participant declares: (a) Would it be okay to make such a decision? (Response on a 2-point scale: YES/NO); (b) How difficult would it be to make this decision? (5-point scale from "very easy" to "very difficult".

In the version of the dilemma described as "*compatible*", harm is not associated with clearly positive consequences. It is assumed that in this version both the affective automatic process and the controlled process of consequence assessment lead to compatible conclusions about the inadmissibility of harm. In the version of the dilemma described as "*incompatible*", harm is associated with unambiguously posi-
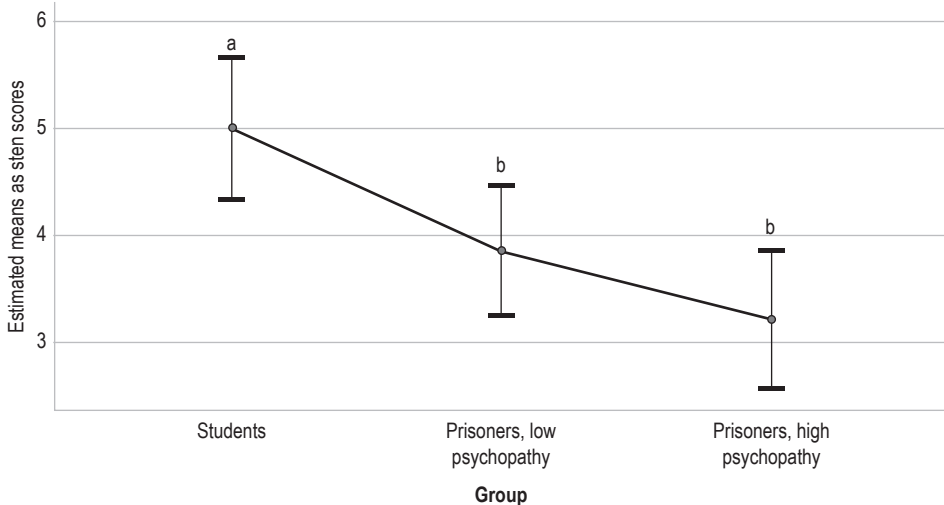
Figure 1. **Effectiveness of facial expression processing**
Error bars: 95% CI. Group "a" is different from "b" at p <0.05

tive consequences. It is assumed that in this version there is a discrepancy between the affective assessment of the act and a controlled assessment of its consequences. In addition to the decision on the admissibility of harm in a given dilemma, the participant is asked to declare how easy the decision is (on a 5-point scale from "very difficult" to "very easy").

The size of the consequence maximization parameter (MC) for a given study participant is calculated by calculating the probability of harm in the scenarios in the incompatible version, minus the probability of harm in compatible versions: MC = p(YES|incompatible) – p(YES|compatible). The MC parameter can take values from +1 to – 1. Positive values mean an increasing inclination to maximize consequences in moral decision-making. Negative values in practice appear extremely rarely, although they may occur in a situation in which the participant shows a systematic tendency to accept harm when the act does not bring any increase in consequences. The size of the AH parameter is calculated as the ratio of probability of disagreement to causing harm in the incompatible versions with the probability of all decisions not motivated by the maximization of consequences: AH = p(NO|incompatible) / (1-MC). The AH parameter can take values from 0 to 1. Higher values mean increasing inclination to avoid harm.
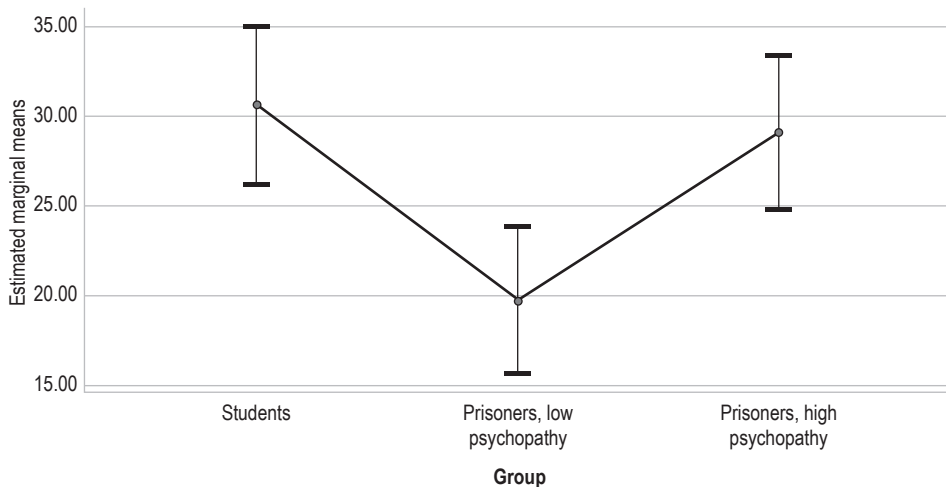

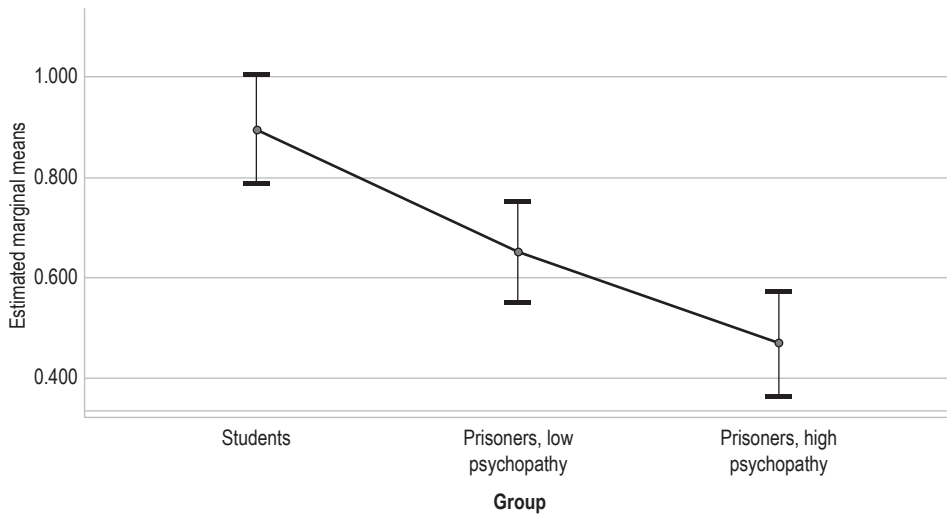Figure 2. **Number of declared negative emotions perceived**

Error bars: 95% CI.

Figure 3. **Inclination to avoid the harm**

Error bars: 95% CI. All groups are different from each other at p <0.05.

Procedure

Research was conducted individually. Interviews were held in a separate room, without the supervision of third parties. After the written consent for participation subjects performed the facial recognition test, then the diagnostic interview was conducted. After the interview, the respondents answered questions about moral inclinations. The whole procedure lasted from about one hour to a couple of hours. The information collected as part of the interview was expanded to include data from personal files and consulted in conversation with penitentiary psychologists and/or educators. Information obtained from prisoners was confidential and was not forwarded to prison administration. The database on the basis of which the analyzes were made contained only anonymized data.

Research in a group of students was carried out individually, in a separate room, without third parties. Participants volunteered on a basis of advertisement on campus, declaring their interest electronically. The advertisement was directed only to male students. Students signed a written consent to participate in the study and there was the same order of measurement methods, as in the inmate group. The whole procedure lasted from an hour to several hours.

Results

The group of prisoners was divided into persons with high (> 25 PCL-R points) and low (<= 25 PCL-R points) occurrence of psychopathic traits. In other studies, it is typical to use 26 points as a criterion for assigning a psychopathic trait [40]. As a result, 3 study groups were obtained (F(2.55) = 208.35; p <0.05) differing in severity of psychopathic characteristics: students (n = 18; PCL-R M = 2.44; SD = 1.89), inmates with low psychopathy index (n = 21; PCL-R M = 11.24; SD = 6.46), inmates with high psychopathy index (n = 19; PCL-R M = 32.26; SD = 3.84).

Statistical analysis was conducted using the IBM SPSS Statistics 24 for Windows [41] with one-way analysis of variance, using intergroup comparisons with Bonferroni correction, assuming a significance level of p >0.05. It should be noted that the analyzes in one-way ANOVA, with a sample size of about 60 people, with power = 0.8, enable the detection of effects conventionally defined as large (Cohen's f >0.4) [42].

The analysis of the efficiency of facial expression recognition began with the conversion of raw results to sten scores relative to norms for the male population [35]. Owing to this, it can be concluded that the surveyed students are characterized by an average level of effectiveness of facial expression recognition compared to the norms for men in Poland. The overall efficiency of facial expression recognition significantly differentiated the groups (F(2.55 = 7.59; p <0.001) and was significantly higher in the student group than in both groups of prisoners (see Figure 1).

Facial expressions were initially divided into positive and negative stimuli, but making such a division did not change the observed scores. Groups of students obtained a significantly higher results than the other groups, which did not differ significantly from each other, both when recognizing the expression of negative emotions (F(2.55) = 8.43; p <0.05; students M = 33.17, SD = 5.84; inmates with low psychopathy M = 27.81, SD = 8.3; inmates with high psychopathy M = 24.58, SD = 4.1) as well as when recognizing the expression of positive emotions (F(2.55) = 3.79; p <0.05; students M = 28.67, SD = 3.48; inmates with low psychopathy M = 24.24, SD = 7.36; inmates with high psychopathy M = 24.53, SD = 4.57).

In the next step, the tendency to show false positives in the recognition of negative emotions in the presented photos was analyzed. For this purpose, the sum of decla-

rations about the perception of specific emotions was calculated, regardless of their actual representation on a given photograph. The following indicators were created: (a) perception of the negative affect associated with the threat directed towards the actor: "sadness/fear" (the sum of the choices of labels: sadness, pain, anxiety, sense of threat, fear); (b) perceiving the negative affect associated with the threat from the actor: "anger" (the sum of the choices of labels: anger, disrespect, sense of superiority, irritability, hatred, contempt); (c) perceived negative affect of other types (the sum of choices: embarrassment, uncertainty, aversion, distrust, resignation, regret, disappoint-ment, shame, indignation, envy, disgust, pity, abashment, leniency). The analysis indi-cated that the pattern of results is very similar for each of the above-mentioned groups of emotions, therefore a summary comparison for all labels of negative emotions is presented. Both students and prisoners with high level of psychopathy perceived nega-tive emotions significantly more often than prisoners with low level of psychopathy ($F(2.55) = 7.85$; $p < 0.05$) (see Figure 2).

In the last step, the diversity of moral inclination indicators between groups was analyzed. Students were not willing to inflict harm in 51.1% of difficult dilemmas and in 93.9% of easy dilemmas. For inmates with low level of psychopathy, the results were: 38.6% and 78.1%, respectively, while for people with high levels of psychopathy: 32.1% and 63.2%. It can be therefore observed that with increased severity of psychopathy, acceptance of harm is increasing, but the relationship between the conditions of dif-ficult and easy dilemmas, which reflects sensitivity to the level of general good, is not changing significantly. As a result no significant difference between the participants in the tendency to maximize consequences was found ($F(2,55) = 2.62$; ns.), however, there was a significant difference in the inclination to avoid harm ($F(2,55) = 16.48$, $p < 0.05$). Students had a significantly ($p < 0.05$) higher score for the AH parameter than prisoners with low level of psychopathy, who in turn had significantly ($p < 0.05$) higher score than prisoners with high level of psychopathy (see Figure 3).

Answers to the questions about how easy it was to make a decision in the dilem-mas significantly differentiated the groups ($F(2.55) = 8.34$; $p < 0.05$). *Post-hoc* tests showed that the student group ($M = 3.29$; $SD = 0.75$) significantly ($p < 0.05$) differs from the group of prisoners with high level of psychopathy ($M = 4.17$; $SD = 0.61$) but not from the group of prisoners with low level of psychopathy ($M = 3.75$; $SD = 0.62$).

Discussion

The study had two primary purposes. The first was to determine whether psychopathy is associated with relative insensitivity to the victim's harm, and regardless of that, whether it involves insensitivity to the general public interest in making moral decisions. The second objective was to determine whether inmates with psychopathic traits show a reduced ability to perceive complex emotional expressions, like other inmates, or whether they are additionally convinced that these misinterpretations are correct.

The results indicate that prisoners with a high level of psychopathy show a weaker inclination to avoid harm in moral dilemmas, compared with other prisoners and the group of students. However, they are not more or less sensitive to the positive consequences of the decisions, compared with the other groups. This means that psychopathy is associated with the standard estimation of the consequences of an act, but the perception of harm done as part of a given act is at a significantly lower level. This result is consistent with the conclusions of other studies (e.g., [17]), but it was obtained using a method that gives more unequivocal results, compared to the typical set of moral dilemmas used in these studies. At the same time, it is possible to comment on the results which suggests that emotional processes are not necessary for making decisions in moral dilemmas, and that in psychopathy there is a typical understanding of the difference between high and low conflict dilemmas [18]. When the difference between high and low conflict dilemmas lies not only in the variability of the amount of "good" for the public but also in the variability of the probability of assigning responsibility for an act, then it is not clear what motivations underlie individual decisions. In the present study, it turned out that psychopathy is associated with an unusual way of resolving moral dilemmas, which is specifically associated with lower sensitivity to harm, and not, as other studies suggest, with insensitivity to the general good [19]. At the same time, it should be noted that those discrepancies might be explained by a different approach to diagnosis of psychopathy. In the abovementioned study [19], it was treated as a trait with a normal variability in the population, which can be measured by self-report.

The second purpose of the study was related to the processing of facial expressions. The results indicate that the psychopathic traits are associated with a reduced

ability to recognize complex affect based on facial expression, however, this reduction is not different from the results of other prisoners. At the same time, prisoners with low and high levels of psychopathy show different styles of response to the test situation. Inmates with low level of psychopathy, when unable to guess the right set of emotions presented in the pictures, refrain from reacting. Inmates with high level of psychopathy indicate incorrect combinations of emotions, obtaining a high rate of false diagnoses. This result suggest an interpretation of other studies in which the effectiveness of recognition of emotion expression did not significantly correlate with the severity of symptoms of psychopathology in prisoners [33]. It may be that although there are no differences in effectiveness of expression recognition between people with different severity of psychopathology (it is generally low), there are differences in the subjective belief that such a deficit exists, which has significant consequences for a person's functioning. Impulsivity is one of the essential features of psychopathy [43], and the results of the present study suggest that it may also be associated with a tendency for impulsive and incorrect decisions regarding perceived affect. This is an important observation because the low level of emotional expression recognition is a general predictor of many mental disorders and at the same time a variable that can be relatively easily intervened on. For example, the effectiveness of expression recognition training was demonstrated in a group of 10-year-old children characterized by upbringing problems, aggression and ruthlessness [44].

Study limitations

One limitation of the study was the use of static facial expressions, i.e., photography. In addition, these photographs depicted the face of the actor, so they were to some extent stylized. One may wonder, therefore, to what extent the accuracy of recognition of expressions is associated, for example, with the lower cultural capital of the inmate group in relation to students. In subsequent studies, it would be worth considering introducing dynamic [45] and non-stylized expressions from real contexts. It seems, however, that the key result is that the psychopathic traits were not only associated with a decrease in affect recognition but also with the perception of negative expressions in the photos in which they were not present. This shows not only the difficulty in distinguishing static expressions but also incorrect interpretation of recognized

expressions. It should also be noted that other studies suggest that vmPFC damage is particularly associated with a lack of activation of affective reactions in response to abstract events that are only inferred, such as the assessment of one's intentions. vmPFC damage is associated with a tendency to evaluate deeds based on their consequences, not on intention. For example, there is relative acceptance of the intention to commit a murder when the intention has not been successfully implemented [46]. This suggests that the deficits observed in this study may be related to the specificity of the stimuli used – both the presented faces and the presented narratives were quite abstract stimuli. Further research should consider introduction of, e.g., visualization in virtual reality, which could make the presented dilemmas more concrete.

Another limitation of the study is the use of a student group as comparison. The assumption that the group of students (both extramural and full-time studies of various ages) is a group of men with an average level of abilities regarding the analyzed variables for the population, may only be supported for the recognition of facial expressions. We are not able to assess whether this group is characterized by an average level of decisions in the moral dilemmas because we do not have standards for the population in this regard. However, it seems that the very low level of consent to harm in the condition of an easy dilemma is consistent with typical social norms and with other studies [16], as well as the 50% rate of consent for harming an individual in difficult dilemmas.

The study is also limited by the fact that only males participated in it. Studies show that when men's and women's moral decisions are compared using the same measurement method as in the current study [47], it can be concluded that both women and men are equally sensitive to cognitive assessment of the consequences of actions, but that women tend to perceive dilemmas as more difficult, due to the significantly stronger inclination to take into account affective reactions associated with avoiding harm, independent of the consequences. This may partly explain the much more frequent diagnosis of psychopathy in men and be the result of evolutionary-biological [48] or socio-cultural processes [49]. In future studies, it would be worth verifying this hypothesis by examining psychopathic traits also in the female population [50].

Conclusions

The study confirms the existence of lower sensitivity to harm in abstract dilemmas in people with high level of psychopathy. At the same time, the method we use suggests that there is no relationship between the level of psychopathy and sensitivity to the amount of profit for the general public. Psychopathy is associated with greater acceptance of harm rather than differences in the analysis of profits.

The study indicates the specificity of processing facial expressions in psychopathy. The processing of social information is generally less effective in inmates than in the compared group of students, however, importantly, people with a diagnosis of psychopathy make many impulsive, wrong decisions regarding the recognition of affect, as evidenced by the number of false alarms. This behavior can cause difficulties in social functioning and, at the same time, seems to be a good candidate for skills training.

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Appendix

Polish version of the Appendix includes translation of Incongruent and Congruent Moral Dilemmas, which are available in the original form in Appendix A of Conway, P. & Gawronski, B. (2013). *Deontological and utilitarian inclinations in moral decision making: A process dissociation approach.* Journal of Personality and Social Psychology, 104(2), 216–235.