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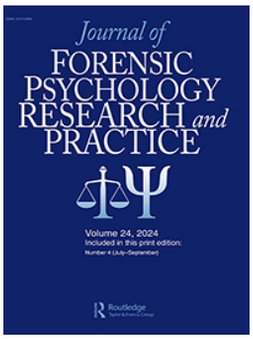

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Conscience and its interrelated constituent aspects: A network and regression analysis in offenders and non-offenders

Marion Verkade[a], Julie Karsten[b], Frans Koenraadt[c], and Frans Schalkwijk[d]

[a]GGZ Drenthe, Assen, RA, The Netherlands; [b]University of Groningen; [c]University Utrecht; [d]University of Amsterdam

ABSTRACT

Conscience can be defined as a dynamic psychological function that regulates our behavior and identity through self-reflection, in an interplay of the constituent functions empathy, self-conscious emotions, and moral reasoning. Functions that are self-contained influences, but which together form the conscience. Compared to non-offenders, offenders have been reported to exhibit lower levels of these aspects . This study aims to provide a more dynamic understanding of how these aspects of conscience interact and constitute its functioning. Contrary to our expectation, network analysis ($N = 281$) revealed no significant differences in the structure or density of conscience networks between offenders ($n = 123$) and non-offenders ($n = 158$). Results of regression analyses suggest that conscience depends strongly on the development of self, on decentralization from self-centeredness to a broadened perspective, and more on capacities for affective than cognitive empathy. Cognitive distortions appeared not to be predictive of lower levels of guilt or shame. Failure of one of the constituent aspects appears to negatively affect the functioning of conscience as a whole. Diagnosing conscience functioning must therefore be aimed at all of those aspects in order to enable targeted interventions.

KEYWORDS

Conscience; empathy; emotions; moral reasoning; offending

Introduction

According to Giublilini's review of the concept of conscience, conscience is a psychological function that motivates and regulates our behavior, and has an epistemic function in that it generates self-knowledge from continuous self-evaluation. It is, however, morally neutral in the sense that, in itself, it has no inherent content. Conscience is like an empty box that can be filled with any type of moral content (Giubilini, 2021). Hill argues that although a clear conscience is no guarantee that one has acted "right" in an objective sense – because the content of conscience, composed of internalized norms, is subjective and because conscience as a function is also not foolproof – it is nonetheless both necessary and sufficient for morally blameless conduct

CONTACT Marion Verkade marion.verkade@ggzdrenthe.nl GGZ Drenthe Assen, RA 9400, The Netherlands

(Hill, 2000). Although indeed necessary, the sufficiency of conscience is debatable, as it is also necessary to have sufficient self-control to be able to determine one's behavior in accordance with one's own wishes, especially when one lives in an environment that is conducive to crime (Wikström, 2009; Wikström & Svensson, 2010; Wikström & Treiber, 2009). The present study focuses on conscience, recognizing that it is a necessary, though not complete, determinant of prosocial or antisocial behavior. The extent to which the conscience can function depends on a large number of capacities, both directly as in interplay, such as self-control and executive functioning (Meijers et al., 2017), but also on the more cognitive Theory of Mind (ToM), the more affectively oriented mentalizing and the regulation of emotions.

The mechanism by which conscience "works" remains unclear, as unambiguous operationalizations of conscience in relation to delinquency are scarce (Le Sage, 2006; Stapert, 2010). Prevailing definitions were until recently mainly uni-dimensional, focusing on individual aspects such as shame and guilt (Spruit et al., 2016), cognitive moral development (Gibbs, 2019), emotional moral development (Eisenberg & Fabes, 1998), or empathic capacity (Hoffman, 2000; Jolliffe & Farrington, 2004). Many authors emphasize the cognitive or affective nature of conscience, and are categorized by Vujošević as rationalists or sentimentalists. This fragmented and sometimes polarized way of thinking about conscience (Vujošević, 2015) has hindered the development of clinically useful diagnostic instruments, as well as subsequent treatment planning and evaluation (Schalkwijk, 2014). Not either, but both, cognitive and affective aspects are necessary for an adaptive conscience that motivates prosocial behavior (Giubilini, 2021; Le Sage, 2005). Existing knowledge regarding these aspects was therefore integrated, to provide a more nuanced and multi-dimensional view of conscience functioning in individuals (Giubilini, 2021; Kochanska & Aksan, 2006; Thagard & Finn, 2011). Though not the first to combine affective and cognitive domains in defining conscience (amongst others: Ellemers et al., 2019; Kochanska & Aksan, 2006; Spenser et al., 2015, 2022; Thagard & Finn, 2011), Schalkwijk (2014, 2018) thus operationalized conscience as a psychological function that monitors the evaluation of the self[1] and regulates one's (c)overt behavior and, based on an interplay of empathy, one's self-conscious emotions and moral reasoning. These aspects are abilities and/or inclinations in their own right that directly influence, motivate and regulate our behavior and choices (Spenser et al.,

[1]Within the early attachment relations, the baby or toddler internalizes self-states and relational states, which together form the implicit self or the "self-as-agent," as non-verbal internal working models stored in implicit memory (Benjamin, 2018; Schore, 2015). With growing symbolizing and verbalizing capacities, the self-as-subject develops, the awareness of being someone and being seen by others. Now, self-conscious emotions such as shame, pride and guilt are experienced. The child comes to experience him/herself as a person that has agency. The self-as-subject has also been called the narrative self, an integrated pattern of multiple characteristics self-aspects (Dings & Newen, 2021). Around the age of 7, the self-as-object develops. Now, the child can reflect upon him/herself from the first-person stance (Stern, 1985). When in this paper we refer to the self, most of the time we implicitly refer to the self-as-subject, that is being evaluated by the self-as-object.

2015), and which in addition in interplay constitute conscience. They have been previously studied, both separately and in association with offending, as we will elaborate on in the following paragraphs.

Constituent aspects: Empathy

Empathy can be conceptualized as the ability to feel and understand another's emotions *as if* one were the other. It is an emotional response, with both affective and cognitive components, which overlap and yet remain distinct, closely related to but not one and the same as processes such as the more cognitively structured Theory of Mind and the more affectively structured mentalizing capacity (Cuff et al., 2016; Decety & Cowell, 2014). The most rudimentary form of empathy is emotional contagion or empathic arousal, which precedes and develops into affective empathy (De Corte et al., 2007; Decety & Cowell, 2014). Affective empathy, the openness to be emotionally affected by observed feelings (Decety & Cowell, 2014), involves experiencing another's emotions while simultaneously maintaining the self/other distinction (Cuff et al., 2016), and empathic concern, the motivational component of empathy (Decety & Cowell, 2014). Cognitive empathy refers to the desire and ability to understand another's emotions and to see things cognitively from another's perspective (Cuff et al., 2016; Jolliffe & Farrington, 2006). Empathy involves both automatically activated and fast-firing bottom-up circuits (affective empathy), and top-down processes (cognitive empathy) in the brain (Nummenmaa et al., 2008; Shamay-Tsoory et al., 2009). It facilitates social interactions, attachment and cohesion. It is related to prosocial and altruistic behavior, but its relation to morality is equivocal, possibly because empathy can also interfere with moral deliberation: it can cause partiality in favor of those with whom we sympathize or whom we resemble the most (Decety & Cowell, 2014; Eisenberg & Eggum, 2009; Ickes, 2009; McMahon et al., 2006).

A lack of empathy has been associated with offending and aggressive behavior in both men and women, with larger effect sizes for cognitive than for affective empathy (Jolliffe & Farrington, 2004, 2006; Van Langen et al., 2014). However, meta-analyses indicated that the strength and direction of the association of offending with cognitive and affective empathy were affected by the questionnaires used, the age of the offender, or the type of offense (Van Langen et al., 2014). Of those committing any offense, male offenders showed lower cognitive and affective, but especially affective, empathy than non-offenders, whereas these differences were not found in women. However, in the group of violent or high-rate offenders, both males and females scored lower on both cognitive and affective, especially affective, empathy than non-offenders (Jolliffe & Farrington, 2007). Also, in their recent longitudinal study, Farrington and Jolliffe (2021) found that only affective empathy was predictive of male convictions, and neither low affective nor cognitive empathy appeared

to be predictive of self-reported offending in men, yet both were predictive of self-reported offending in women. In short, in contrast to the findings of the authors' previous meta-analyses, cognitive empathy was not found to be more strongly related to criminal behavior than affective empathy.

Empathy is regarded as a driving force behind feelings of guilt and shame when internalized norms are transgressed, especially in moral decision making and in interpersonal situations (Schalkwijk, 2014; Trivedi-Bateman, 2021). Low levels of empathy or callous-unemotional traits are related to aberrant left amygdala activation (i.e. hypo-activation) and functional connectivity with other regions, such as the bilateral thalamus and right insula (Cardinale et al., 2018). A lack of empathy has been found to be related to a decreased propensity to self-conscious emotions and lower levels of moral reasoning in the sense of more utilitarian deliberations (Decety & Cowell, 2014).

Constituent aspects: Self-conscious emotions

Self-conscious emotions regulate our self-esteem, behavior, and social relationships (Cohen et al., 2011; Tangney et al., 2007). Higher levels of guilt and shame are found to be associated with less offending (Spruit et al., 2016). However, while guilt-proneness is associated with prosocial and moral behavior (Cohen et al., 2011; Ent & Baumeister, 2015) and with inhibition of transgressive behavior (Tangney et al., 2011), the effect of shame on offending is equivocal (Schalkwijk et al., 2016a). Mild transient shame appears to be adaptive and regulating in positive ways (Deonna et al., 2011); intense and non-mentalized shame is maladaptive (Fonagy et al., 2018), and can increase the likelihood of transgressive or aggressive behavior (Braithwaite, 1989; Stuewig et al., 2010; Tangney et al., 2007), especially when the individual tends toward externalizing coping (Elison et al., 2006; Schalkwijk et al., 2016b; Stuewig et al., 2010; Tangney & Dearing, 2002). Schalkwijk ((2009).) notes that some studies do indicate a relationship between high shame sensitivity and reduced crime, but that this but this seems to be due to the fact that these shame studies operationalize shame in a way that other studies on self-conscious emotions regard as guilt. Guilt focuses on actual or imagined behavior, and is linked to an action tendency toward reparative behavior. Shame, however, focuses on the self, is strongly related to identity (Lewis, 1971; Luyten et al., 2002; Tangney et al., 2011), and mostly stems from a confrontation with our unwanted identity (Lindsay-Hartz, 1984). Guilt is, therefore, seen as more adaptive than shame, as shame can easily lead to negative effects. For example, shame often disrupts the present abilities for empathy (Tangney et al., 2011), is positively related to tendencies to externalize blame and anger (Lewis, 1971; Tangney et al., 2011; Wright et al., 2008), and is associated with for instance, substance-abuse, which may initiate

a feedback loop of externalizing shame, substance abuse, and offending (Ferguson et al., 2000).

When capacities for affective empathy fall short, interpersonal shame and / or guilt may also be hampered (Decety & Cowell, 2014; Trivedi-Bateman, 2021); this may be the case in male offenders, as they appear to exhibit comparable levels of guilt, but lower levels of shame than non-offenders (Verkade et al., 2019). However, in female offenders cognitive empathy appears to compensate for the deficit in affective empathy, with the result that guilt and shame can still function as regulatory emotions (Verkade et al., 2021).

Constituent aspects: Moral reasoning

Moral reasoning is the process of determining what is right or wrong, based on internalized norms (that inform on what is good or bad, what is fair, right, or the ethical thing to do) and the effect that one's behavior has on (the well-being of) others or social implications, thus both cognitively and affectively balancing egocentrism and altruism (Ellemers et al., 2019; Gibbs, 2019). Precursors of this appear as early as around 3–6 months, when children seem to be able to discern prosocial and fair versus antisocial events/characters and prefer the former while tending to avoid the latter (Cowell et al., 2018; Margoni & Surian, 2018; Tan & Hamlin, 2022), although this might be egocentrically/instrumentally motivated (Van de Vondervoort & Hamlin, 2018). Additionally, pre-school children can distinguish violations of social conventions (referring to rules) from moral violations, that refer to the intrinsic wrongness of an act, related to for example, harm, fairness and rights (Lahat et al., 2015). Judgments of the latter however appear to require more complex neurocognitive processing, whilst judgments of the former in fMRI-studies appear faster and more intuitive, but both continue to develop beyond early adolescence (Lahat et al., 2013). High levels of moral reasoning have been found to be negatively associated with offending, regardless of ethnic background, age, or gender, especially for self-reported transgressions (Helmond et al., 2015; Stams et al., 2006).

A lack of moral reasoning is operationalized as a stable style of externalizing behavior, based on primary and secondary self-serving cognitive distortions (Brugman et al., 2011). The primary distortion, self-centeredness, is seen as a stagnated ego-centrism and a driving factor for antisocial and transgressive behavior: moral deliberations are relatively absent, as the balancing between self-centeredness and caring for others is in favor of the first (Brugman et al., 2011; Gibbs, 2019). Secondary distortions or cognitive distortions are thoughts that protect the self from feelings of guilt or shame due to negative self-evaluations based on internalized norms, and thereby facilitate transgressive behavior (Barriga et al., 2001; Brugman et al., 2011; Maruna & Mann, 2006).

However, although these cognitive distortions are associated with transgressive behavior, their predictive value for offending and their explanatory power for more serious antisocial behavior and offending, are weak (Stams et al., 2006). The more hardened criminals may not need such cognitive distortions, possibly because they have internalized the norms of their criminal subcultures and therefore lack negative self-evaluations, and the resulting self-conscious emotions, when transgressing more widely shared social norms (Banse et al., 2013). In their moral reasoning, offenders seem to attribute less importance to general moral values (Beerthuizen, 2012; Beerthuizen & Brugman, 2016).

Another possible explanation is that, although offenders are able to judge behaviors as right or wrong, they have no need for cognitive distortions to protect the self from feeling guilt or shame, as such emotions do not even arise. This may be because offenders tend to weigh their own interests above those of others, or because their knowledge of right and wrong lacks emotional meaning, perhaps due to deficits in affective empathy (Mariano et al., 2017). Immoral behavior in males indeed appeared to be moderated by lower levels of empathy and consequently lower propensities to, and actually experienced, guilt and shame Ward and King (2018). Additionally, in moral situations, men are generally driven more by utilitarian motives, whilst women expect a stronger aversive affect (i.e., guilt and/or shame) when anticipating causing harm to others (Ward & King, 2018).

Integration

The above suggests that for conscience functioning, the capacity for empathy, the tendency to experience self-conscious emotions, and the level of moral reasoning must work together, or in other words, be well integrated (Schalkwijk, 2014, 2018), which is in line with recent findings that all of these are necessary for the regulation of prosocial behavior (Ellemers et al., 2019; K. Spenser et al., 2020).

The integration of the constituent aspects of conscience has been indicated in previous research; correlation matrices have shown that these constituent aspects are weakly associated, suggesting related but distinct aspects, each specifically contributing to the functioning of conscience (Verkade et al., 2021, 2019). However, network analysis in a population of adolescents indicated that the constituent aspects of conscience were less integrated in adolescent offenders than in healthy non-offending adolescents (De Brauw et al., 2022). The authors concluded that conscience functioning is not an "all-or-nothing phenomenon," that is, a function that is either present or not; it is a matter of maturation and integration.

The present study

Previous research (Verkade et al., 2019) has demonstrated both the distinctive character of the constituent aspects of conscience, and their intertwinement. In the current study we investigate the interrelatedness of the constituent aspects of conscience according to the integrative theory of conscience. How are they interrelated? And how do they distinctly contribute to conscience functioning in (non)-offenders?

First, based on findings of De Brauw et al. (2022) that the constituent aspects of conscience were less integrated in offenders than in non-offenders (submitted), we hypothesize that in offenders all aspects will be less, and possibly differently, interrelated in offenders than in non-offenders.

Second, based on the assumption that high levels of self-centeredness indicate stagnated egocentrism (Gibbs, 2019), suggesting that decentralization has not taken place and thus one's own perspective is still the central focus and starting point for making moral judgments (Brugman et al., 2011), we hypothesize that higher levels of self-centeredness will predict lower levels of (cognitive or affective) empathy.

Third, because of the above, and since empathy is regarded as the driving force behind self-evaluation and self-conscious emotions (Schalkwijk, 2014), we hypothesize that high levels of empathy and low levels of self-centeredness will predict higher tendencies to experience self-evaluative guilt and/or shame as a result of negative self-evaluations after or in anticipation of transgressive behavior. Hereby, we expect that affective empathy will have stronger predictive power than cognitive empathy.

Lastly, since secondary cognitive distortions are thought to be used to neutralize guilt and/or shame in anticipation of and/or in reflection on transgressing, we hypothesize that more use of secondary cognitive distortions will predict lower levels of guilt and/or shame(-proneness).

Method

Sample

Our study group (N =281) consisted of 123 adult offenders residing in either a Dutch prison (n = 75) or a forensic treatment institution (n = 48); 85 were male and 38 female. Their ages ranged from 18–70 years, with a mean age of 37.38 (SD =11.58). Participants had been convicted for property offenses (n = 21), violations of the opium act (n = 10), arson (n = 1), theft involving violence or extortion (n = 8), maltreatment (n = 6), (threats of) homicide (n = 14), sex offenses (n = 9), or serious offenses in multiple categories (n = 38); 8 were still awaiting trial, and 8 did not report on this matter. Of the offenders, 107 were Dutch or from another Western European country, 10 were from Suriname or the Netherlands Antilles, and 6 were from other countries. For confidentiality

reasons, data on psychiatric diagnostics were not available. However, based on international systematic reviews, we know that high percentages of offenders suffer from mental disorders and comorbidity: 65% of male prisoners and 42% of female prisoners were diagnosed with one or more personality disorder, mostly antisocial and borderline personality disorders (Fazel & Danesh, 2002; Fazel & Seewald, 2012). Research in the Netherlands showed similar or even higher prevalence rates and comorbidity (Bulten & Nijman, 2009; Matthaei et al., 2002). Aiming for a comparison group fairly comparable in mental health problems, we therefore decided to recruit both community controls and people diagnosed with psychiatric disorders. The latter were recruited at a department for part-time or outpatient treatment of patients suffering from personality disorders with comorbidity (i.e., trauma, mood disorders, substance abuse, and/or neurodevelopmental disorders).

The non-offending controls (n = 158; 44 male and 114 female), were aged between 19 and 80 years, with a mean age of 35.44 (SD = 13.96). They were recruited either from a psychiatric facility (n = 59) or online from the general population (n = 99). Of the non-offenders, 152 were Dutch or from another Western European country, and 6 were from other countries. Excluded were respondents with insufficient command of the Dutch language or who suffered from a psychotic disorder. The study was approved by the Ethics Committee of the Department of Psychology of the University of Groningen.

Procedure

All respondents were recruited upon intake (in detention or treatment) or online, on a voluntary basis. They were informed about the study by means of a folder requesting their participation; this entailed one-time completion of a set of questionnaires. Written informed consent was obtained from all participants prior to participation.

Measures

When possible, the same questionnaires were used as those in the first study by Schalkwijk et al. (2016a), to promote the comparability of different studies into the functioning of conscience according to the integrative theory. However, their instrument for the measurement of moral reasoning was not suitable for adults. For this reason, in the present study the "How I Think questionnaire" (HIT; Brugman et al., 2006; Brugman et al., 2011) was the instrument of choice.

Empathy

The Interpersonal Reactivity Index (IRI: Davis, 1983; Dutch translation: De Corte et al., 2007), consisting of 28 5-point Likert scale items in four subscales,

measures various aspects of empathy. Empathic arousal or contagion is measured by Personal distress (Pd): self-oriented feelings of anxiety and discomfort caused by observing another's negative experience (Decety & Cowell, 2014). Affective empathy is measured by Empathic Concern (Ec): the tendency to experience feelings of warmth, compassion or care for others. Cognitive empathy is measured in Perspective Taking (Pt): the tendency to spontaneously attempt to put oneself cognitively in another's position. The Fantasy scale (Fs), which measures the tendency to empathize with people in fictitious situations, is hard to position on the affective-cognitive dimension (Baron-Cohen & Wheelwright, 2004; Decety & Cowell, 2014). In their second-order factor analysis, Pulos et al. (2004) found two principal factors in the IRI: the first, Empathic Concern, Perspective Taking and Fantasy, together representing the concept of empathy; and second, Personal distress. The latter is seen as a precursor to true empathy (Decety & Cowell, 2014; Schalkwijk et al., 2016a). In the current study, Cronbach's alpha reliabilities were good for Perspective Taking (α = .80), Fantasy (α = .82), and Personal Distress (α = .85), and acceptable for Empathic Concern (α = .77).

Proneness to shame and guilt, and shame coping

"The Test of Self-Conscious Affect" (TOSCA: Tangney et al., 1989; Tangney & Dearing, 2002; Dutch translation for adults: Fontaine et al., 2001) assesses a person's proneness to experience temporary shame and guilt in different situations. On a 5-point Likert scale, respondents scored their reactions to fifteen scenarios involving positive or negative events and their thoughts regarding guilt, shame, externalization and detachment. We used only two scales from the TOSCA, and measured the tendency to experience shame and guilt. In this study, internal consistencies were good for Shame (α = .82), and moderate for Guilt (α = .69).

The Compass of Shame Scale (CoSS) examines the ways in which individuals cope with shame (Elison et al., 2006; Dutch translation: Schalkwijk et al., 2016b). Possible adaptive or maladaptive ways of dealing with shame are called "scripts." Each script can be characterized by different combinations of motivations, feelings, cognitions, and behaviors. In the healthy Adaptive script, the individual recognizes and acknowledges the shameful feeling as coming from within, searches for the source of this shame, and uses this knowledge to evaluate the shame, resulting in an action tendency toward reparatory behavior. Maladaptive scripts are: "Attack self" (inward-directed anger and/or self-blame), "Avoidance" (hiding or withdrawing from the situation), "Denial" (taking emotional distance or trivializing the situation), and "Attack other" (outward-directed anger). Different situations can activate different scripts, and several scripts can be used simultaneously or consecutively. After reading descriptions of a number of potentially shame-inducing situations and/or shame-associated emotions, respondents indicated on a five-point scale

whether they 1 *(never)*, to 5 *(almost always)* act according to several possible scripts (Elison et al., 2006; Schalkwijk et al., 2016b). In the present study, internal consistency reliabilities were excellent for Shame (α = .90) and Attack Self (α = .92), good for Denial (α = .82) and Attack Other (α = .83), and acceptable for Avoidance (α = .79) and Adaptive coping (α = .79).

Moral reasoning

In the "How I Think questionnaire" (HIT; Barriga et al., 2001; Dutch translation: Brugman et al., 2011) the level of moral reasoning is operationalized as the extent to which cognitive distortions are used in the evaluation of behaviors. On the lowest level of moral reasoning, "callous Self-centering," one's own perspective is the central focus and starting point in moral judgments (Brugman et al., 2011). Self-centeredness, also called a primary cognitive distortion because decentralization (i.e., the process of broadening the self-centered perspective to others) did not take place in early development, is thriving antisocial behavior (Gibbs, 2019). In decentralization the perspective broadens, enabling one to weigh the interests of oneself and others in moral dilemmas. However, although many offenders do know that their behavior is morally incorrect, they still experience no guilt or shame. It is assumed that they neutralize these self-conscious emotions by using so-called secondary cognitive distortions to justify their behavior and make it acceptable (Brugman et al., 2011). These distortions are: "Blaming others" (blaming external causes), "Minimizing/Mislabeling" (playing down and justifying their own behavior), and "Assuming the Worst" (attributing hostile intentions to others, and consequently regarding one's own behavior as unavoidable/unchangeable given the circumstances). Respondents scored 54 items on a 6-point Likert scale (Barriga et al., 2001; Brugman et al., 2011). In the current study, internal consistencies (Cronbach's alpha) were good for all scales: Self-Centeredness (α = .83), Blaming Others (α = .85), Minimizing/Mislabeling (α = .84), and Assuming the Worst (α = .85).

Statistical analyses

As this study aimed to study the underlying relation of multiple aspects of conscience, patterns of interrelatedness or cohesion were assessed by means of a network analysis. This method investigates the interrelations between all defined aspects simultaneously and exploratively. We used a network analysis of partial correlations, the most commonly used network analysis in psychological sciences (Epskamp et al., 2012; Epskamp & Fried, 2018). In network analysis, it is assumed that variables directly relate to and influence each other, rather than being caused by an unobserved latent variable. This is in line with the integrative theory's vision on conscience and conscience functioning: several constituent aspects, collaborative and intertwined, shape conscience

functioning. Although they are hard to interpret and do not offer causal inference, networks of partial correlations have several pros, such as the fact that they offer a way to discover unique interactions between variables, and/or that they may highlight the presence of latent variables unexpected or unforeseen in the visualizations of clusters. Also, they allow for the discovery of predictive mediation or indirect relations between variables (e.g., A-B-C indicates that A and C may be correlated, but the predictive effect from A to C or vice versa is mediated by B). Network analysis of partial correlations are highly explorative, a-theoretical and hypothesis generating. The other side of this may be seen as a con: this exploration is also highly intuitive; for further information, we refer the interested reader to Epskamp and Fried (2018). It is actually not yet possible for network analysis to estimate a priori the required sample size. According to Constantin, however, an N between 250 and 300 with <20 nodes is generally enough to observe moderate sensitivity, specificity and stability (http://arno.uvt.nl/show.cgi?fid=149724).

To analyze the correlation structures in different groups and the centrality of the constituent aspects, we used *qgraph* in *R* (Epskamp et al., 2012). In this analysis, (patterns) of controlled correlations between the subscales representing the constituent aspects of conscience, are shown in a Gaussian Graphical Model (GGM).Since in our analysis the number of observations (n = 158 and n = 123) was large in relation to the number of included variables (p = 14), we used a non-regularized model, with a threshold of 0.1 to include correlations into the network (Williams & Rast, 2019). In the appendix we supply Table 2 with medians, interquartile range, and confidence intervals to enable verification of possible floor or ceiling effects, and thereby skewedness in the data. We performed post hoc permutation tests to gain insight into the accuracy and stability of the network parameters, based on the estimated network structures (i.e., centrality indices). After visual comparison of networks we also performed a network comparison test to check for significant differences. We expected the non-offender network to be denser and have thicker edges than the offender network. Finally, because the gender distribution across groups was skewed whilst previous studies indicated gender differences on all constituent aspects, both on self-report measures and on performance based tests, that indicate a need for gender sensitive interventions (Spenser et al., 2022; Verkade et al., submitted), we visually checked for possible gender effects by creating gender-related GGMs instead of adding gender as a covariate.

The following hypotheses, regarding the predictive value of: 2) the level of self-centeredness for the level of empathy, 3) the degree of self-centeredness and empathy for the proneness to experience self-conscious emotions, and 4) the use of secondary cognitive distortions for the degree in which guilt and/or shame are felt, were tested by means of regression analyses in SPSS. In these analyses, the dependent variables were self-

centeredness, empathy and self-centeredness, and the sum of secondary cognitive distortions, respectively.

Results

Prior to analyses, missing values (less than 1%) were imputed using group means. Also, assumptions for correlations, network analysis, and regression analysis were checked. As assumptions for Pearson's correlations were violated for 10 of the 14 scales, we used the non-parametric Spearman's *rho* for all correlations. Table 1 shows, as in earlier studies (Verkade et al., 2019), that most of the scales correlated weakly to moderately with each other, representing slightly related, but still distinguishable, concepts.

Are aspects of conscience less, or differently, related in offenders than in non-offenders?

To test our first hypothesis that the constituent aspects and domains would be less, and possibly differently, integrated in offenders (n = 123) than in non-offenders (n = 158), we first made the GGM of the non-offender group, and then compared this GGM visually to the offender GGM (see, Figure 1 for the GGMs of both groups).

The GGMs consist of nodes and edges, respectively representing subscales and their shared partial correlations. Green edges indicate positive, and red edges negative, correlations. The absence of an edge between two nodes indicates that they are conditionally independent. Each node (i.e., the sum of the partial correlations of that specific node), represents the strength of the given variable in the network, indicating which aspect most "loads" conscience in terms of variance. In addition to strength, two other centrality indices are calculated: Closeness indicates how close a node is to all other nodes in the network, calculated as the average length of the shortest path from the node to every other node; Betweenness indicates the importance of a node in the network. It measures which nodes are "bridges" between other nodes, by identifying all the shortest paths and then counting how many times each node falls on one of these.

In the non-offender GGM, all aspects of conscience were part of an interconnected network, indicating that the constituent aspects were interrelated, but each contributing differently to the functioning of conscience. Within the domain empathy, cognitive and affective empathy showed differentiation as constructs, as indicated by their different relations to the other domains of conscience. Affective empathy (Ec) clearly related positively to experiencing self-conscious emotions, as indicated by a thick green edge. Cognitive empathy (Pt) appeared strongly related to Adaptive coping (Adp). However, the developmentally more rudimentary form of affective empathy, Personal

Table 1. Combined correlation matrix (Spearman's rho), from all scales contributing to the components of conscience.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Perspective Taking		.31**	.39**	.03	−.03	.24**	−.03	−.29**	−.28**	−.34**	−.41**	−.17*	−.26**	.44**
2. Fantasy scale	.05		.38**	.21**	.22**	.27**	.17*	-,14	−.13	−.13	−.11	.10	−.02	.15
3. Empathic Concern	.31**	.25**		.25**	.30**	.53**	.33**	−.28**	−.23**	−.31**	−.21*	.28**	−.20*	.14
4. Personal Distress	.02	.31**	.16		.34**	.28**	.40**	.01	.02	.06	.10	.39**	.19*	−.34**
5. Shame	.06	.24**	.27**	.37**		.60**	.62**	−.14	−.11	−.09	.04	.69**	.07	−.22**
6. Guilt	.27**	.16	.41**	.17	.51**		.43**	−.24**	−.24**	−.21**	−.20*	.39**	−.11	−.03
7. Shame-Proneness	−.06	.30**	.25**	.39**	.61**	.22*		−.06	−.02	−.06	.14	.85**	.14	−.41**
8. Self-Centeredness	−.43	.25**	−.27**	.02	−.00	−.34**	.09		.76**	.75**	.67**	.02	.49**	−.10
9. Blaming Others	−.40**	.19*	−.16	.08	.06	−.30**	.07	.77**		.77**	.75**	.09	.44**	−.15
10. Minimizing/ Mislabel.	−.31**	.15	−.17	−.06	−.06	−.35**	.03	.83**	.83**		.69**	.05	.48**	−.14
11. Assuming the Worst	−.35**	.18*	−.13	.13	.06	−.26**	.14	.76**	.82**	.77**		.26**	.41**	−.27**
12. Internalizing coping	−.17	.35**	.15	.53**	.58**	.08	.79**	.26**	.26**	.21*	.29**		.24**	−.45**
13. Externalizing coping	−.36**	.26**	−.15	.23*	.20*	−.22*	.36**	.64**	.65**	.64**	.60**	.57**		−.14
14. Adaptive coping	.34**	−.06	.09	−.16	−.08	.16	−.12	−.19*	−.21*	−.09	−.22*	−.20*	−.07	

Note: – * $p < .05$, ** $p < .01$ (2-tailed).
! Offenders under the diagonal, Non-offenders above the diagonal.

Table 2. Descriptives: Mdn, IQR and confidence intervals.

	Men (125)								Women (146)							
	Offenders (85)				Non-offenders (40)				Offenders (37)				Non-offenders (109)			
	Mdn	*IQR*	*p25*	*p75*	*Mdn*	*IQR*	*p25*	*p75*	*Mdn*	*IQR*	*p25*	*p75*	*Mdn*	*IQR*	*p25*	*p75*
1. Perspective Taking	18.00	7.00	13.00	20.00	17.00	8.00	13.00	21.00	18.00	6.00	15.00	21.00	18.00	7.50	14.50	22.00
2. Fantasy scale	13.00	9.00	7.00	16.00	13.00	10.00	10.00	20.00	11.00	9.00	8.00	17.00	17.00	9.00	12.00	21.00
3. Empathic Concern	17.00	8.50	13.00	21.50	18.00	6.50	13.50	20.00	16.00	6.00	13.00	19.00	20.00	6.00	17.00	23.00
4. Personal Distress	11.00	8.00	5.00	13.00	11.50	8.50	7.25	15.75	17.00	6.50	13.00	19.50	13.00	7.00	9.00	16.00
5. Shame	2.38	0.97	1.80	2.77	2.60	0.80	2.33	3.13	2.87	0.63	2.63	3.27	3.13	0.93	2.67	3.60
6. Guilt	3.53	0.80	3.07	3.87	3.70	0.72	3.28	4.00	3.67	0.73	3.33	4.07	3.87	0.53	3.60	4.13
7. Shame-Proneness	2.50	1.67	1.58	3.25	3.00	1.69	2.25	3.94	2.75	1.00	2.50	3.50	3.25	1.38	2.63	4.00
8. Self-Centeredness	2.22	1.50	1.50	3.00	1.89	0.72	1.58	2.30	2.11	1.72	1.28	3.00	1.44	0.78	1.22	2.00
9. Blaming Others	2.20	1.30	1.50	2.80	1.70	0.88	1.40	2.78	2.20	1.25	1.50	2.75	1.50	0.75	1.10	1.85
10. Minimizing/Mislabel.	2.11	1.15	1.56	2.71	1.89	0.72	1.58	2.30	1.78	1.50	1.33	2.83	1.56	0.78	1.22	2.00
11. Assuming the Worst	2.18	1.32	1.59	2.91	1.91	0.63	1.55	2.18	2.27	1.18	1.73	2.91	1.55	0.73	1.18	1.91
12. Internalizing coping	3.75	2.17	2.58	4.75	4.50	2.94	3.31	6.25	4.75	2.75	3.63	6.38	5.75	3.63	3.88	7.50
13. Externalizing coping	4.54	1.52	3.81	5.33	4.92	1.31	3.95	5.26	4.96	1.90	3.83	5.73	4.63	1.29	3.75	5.04
14. Adaptive coping	3.63	0.63	3.25	3.88	3.31	0.72	3.00	3.72	3.38	1.13	2.75	3.88	3.50	0.81	3.06	3.88

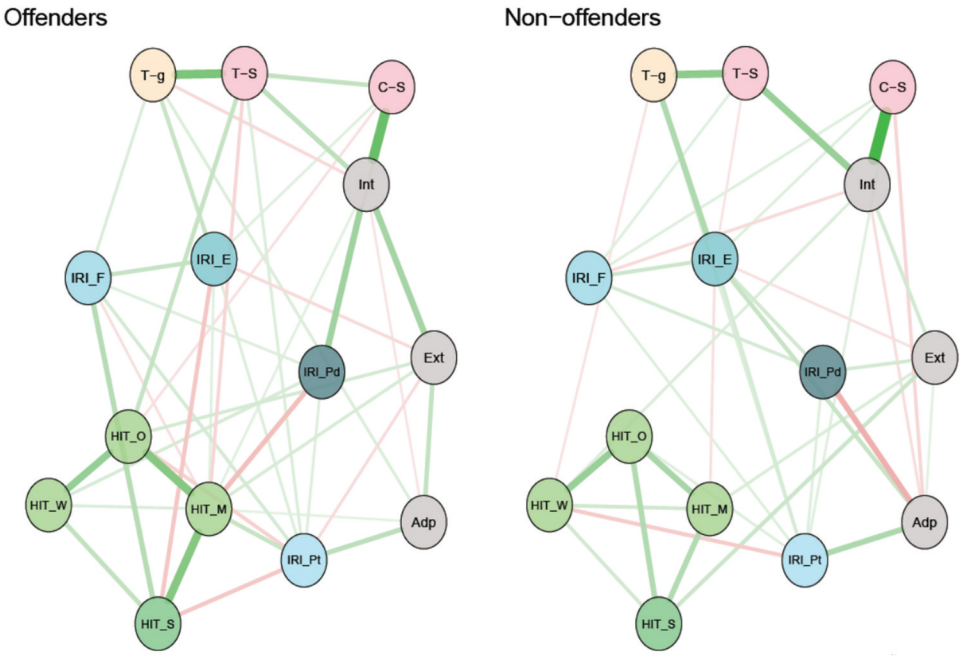

Figure 1. Gaussian Graphical Model (GGM): offenders compared to non-offenders. Note:IRI_Pt = Perspective TakingIRI_F = Fantasy scaleIRI_E = Empathic ConcernIRI_Pd = Personal DistressT-s = ShameT-g = GuiltC-s = Shame-PronenessHIT_S = Self-Centeredness; HIT_O = Blaming OthersHIT_M = Minimizing/MislabelingHIT_W = Assuming the WorstInt = Internalizing copingExt = Externalizing copingAdp = Adaptive coping

distress (Pd), showed a negative relation with Adaptive coping, and a positive relation with maladaptive shame coping style Externalizing (Ext).

In the domain of self-conscious emotions, the tendency to experience shame (T-s and C-s) strongly related to higher inclinations toward Internalizing shame coping (Int), while being independent of maladaptive Externalizing, and negatively related to Adaptive shame coping.

Concerning the domain of moral reasoning, Self-centeredness (HIT_S), Blaming others (HIT_O) and Assuming the worst (HIT_W) were conditionally independent from empathy, as indicated by the absence of edges. Only the aspect Minimizing/Mislabeling (HIT_M) showed a weak (negative) relation with Empathic concern. Self-centeredness was, however, strongly related both to the use of secondary cognitive distortions – as indicated by the green edges with Minimizing/Mislabeling, Blaming Others and Assuming the Worst – and to Externalizing shame coping.

Offenders compared to non-offenders

Contrary to our expectations, neither visual comparison of the GGM of non-offenders with that of offenders, nor the post hoc permutation test, indicated

any significant differences in density or integration. Nevertheless, visual inspection did seem to suggest some substantive differences in the nature of the interrelationships of constituent aspects between the GMMs of offenders and non-offenders. Contrary to the non-offenders, in the network of offenders, empathy and Self-centeredness were not independent: affective empathy (Ec) and cognitive empathy (Pt) both correlated negatively with the primary distortion Self-centeredness, and cognitive empathy (Pt) was negatively related to the secondary distortion Blaming others.

Gender as covariate

We then checked for possible confounding variables. To investigate possible gender

influences, we made GGMs for both female and male non-offenders (Figure 2), and for female and male offenders (Figure 3).

In the group of non-offenders, the GGMs suggested no gender differences in the correlation structures. One exception was for shame and its subsequent reactions: in women shame is associated with internalizing shame-coping,

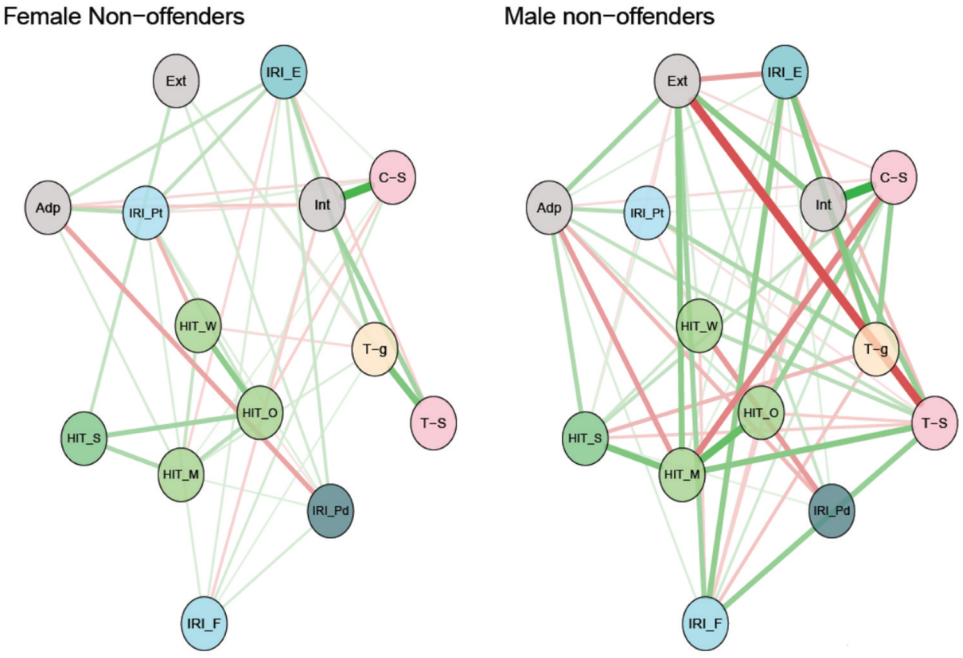

Figure 2. Gaussian Graphical Model (GGM): female and male non-offenders. Note:IRI_Pt = Perspective TakingIRI_F = Fantasy scaleIRI_E = Empathic ConcernIRI_Pd = Personal DistressT-s = ShameT-g = GuiltC-s = Shame-PronenessHIT_S = Self-CenterednessHIT_O = Blaming OthersHIT_M = Minimizing/MislabelingHIT_W = Assuming the WorstInt = Internalizing copingExt = Externalizing copingAdp = Adaptive coping

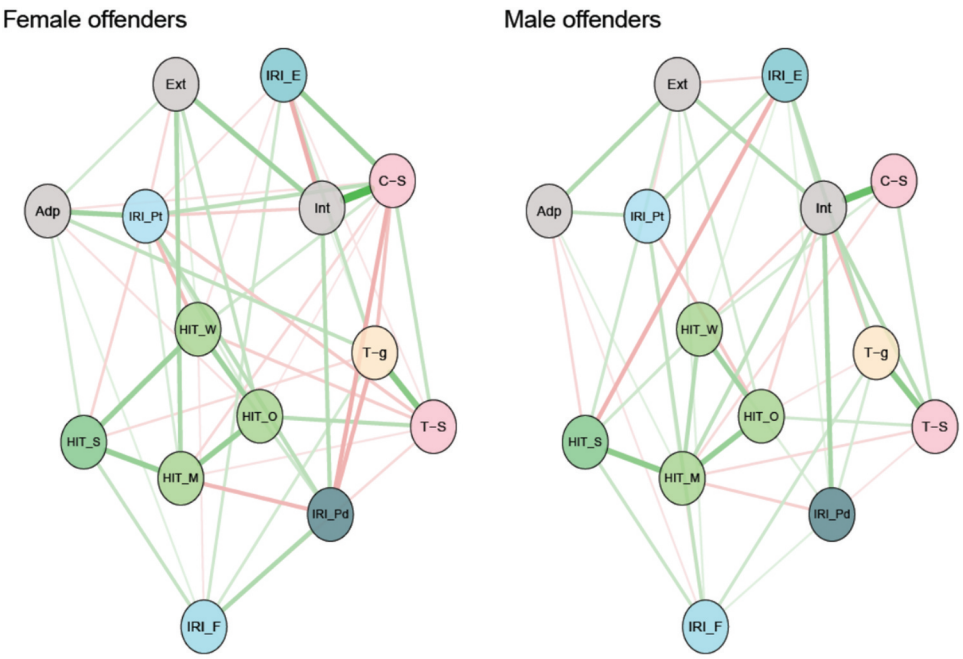

Figure 3. Gaussian Graphical Model (GGM): female and male offenders. Note:IRI_Pt = Perspective TakingIRI_F = Fantasy scaleIRI_E = Empathic ConcernIRI_Pd = Personal DistressT-s = ShameT-g = GuiltC-s = Shame-PronenessHIT_S = Self-CenterednessHIT_O = Blaming OthersHIT_M = Minimizing/MislabelingHIT_W = Assuming the WorstInt = Internalizing copingExt = Externalizing copingAdp = Adaptive coping

whilst in men shame is negatively related to externalizing shame-coping, but also strongly and negatively related to the use of neutralizing cognitive distortions to justify their behavior.

Next, we studied the centrality measures Strength, Closeness, and Betweenness, to investigate the relative importance of the different aspects (nodes) in the total structure of conscience. Post hoc permutation tests revealed no significant differences in the centrality indices between offenders and non-offenders, nor were there any influences of gender as possible confounding variable.

In conclusion, the constituent aspects and domains of conscience are integrated neither less nor differently in offenders than in non-offenders.

Predictive value of self-centeredness, empathy and secondary cognitive distortions

Hypotheses two to four were analyzed by means of regression analyses. First, we expected that high self-centeredness would predict low cognitive and affective empathy. This was largely confirmed. The linear regression

coefficient of self-centeredness on empathy, using the sum of Fantasy, Empathic concern, and Perspective taking (conform Pulos et al., 2004), was −4.33 and significant, $F(1,270) = 24.24$, $p < .001$. About eight percent of the variance in empathy was explained by self-centeredness ($R = 0.287$, $R^2 = 0.082$). When the effects of self-centeredness on cognitive and affective empathy were split, the regression coefficient of self-centeredness on cognitive empathy (Pt) was −2.04 and significant: $F(1,270) = 29.24$, $p = <.001$. Ten percent of the variance in cognitive empathy was explained by self-centeredness ($R = 0.31$, $R^2 = 0,1$), and about eight percent of the variance in affective empathy (Ec) was explained by self-centeredness: $F(1,270) = 24.24$, $p < .001$). Stagnated self-centeredness thus indeed predicts lower (cognitive and affective) empathy.

Second, we expected that high levels of empathy and low levels of self-centeredness would predict higher tendencies to experience self-evaluative emotions as guilt and/or shame; this was also confirmed. Empathy (Pulos et al., 2004) and self-centeredness explained about ten percent of the variance in shame ($F(2,269) = 16,11$, $p = <.001$), and no less than twenty-eight percent of the variance in guilt ($F(2,269) = 51.44$, $p < .001$). When these results were split for cognitive and affective empathy, cognitive empathy appeared to have relatively little influence on guilt. The predictive value of cognitive empathy (Pt) on shame was significant but clinically irrelevant (explaining only 3% of the variance in shame), but sixteen percent of the variance in shame was explained by the combination of cognitive empathy and self-centeredness: $F(2,269) = 25.67$, $p < .001$. However, the predictive value of affective empathy (Ec) with self-centeredness on guilt and shame was stronger. Empathic concern and self-centeredness explained thirteen percent of the variance in shame: $F(2,269) = 19.35$, $p < .001$), and no less than thirty percent of the variance in guilt: $F(2,269) = 55.09$, $p < .001$. In conclusion, high levels of empathy and low levels of self-centeredness predict higher tendencies to experience self-evaluative emotions as guilt and/or shame, as expected.

Third, we expected that the use of secondary cognitive distortions in dealing with self-evaluative emotions would predict lower levels of guilt and/or shame. However, the predictive value for shame was not significant. For guilt, thirteen percent of the variance was explained by the use of secondary cognitive distortions ($\beta = -0.08$, $F(1,270) = 39.24$, $p < .001$). Whilst shame appears not to be neutralized by the use of cognitive distortions, the level of guilt is negatively affected by these self-serving thoughts.

Discussion

This study aimed to provide more understanding of conscience functioning. We found no significant differences between offenders and non-offenders in the integration of conscience. Regression analysis indicated that stagnated

development in self-centeredness comes with low levels of affective and cognitive empathy. Affective and cognitive empathy appear in turn to be crucial for adaptive conscience functioning, as they fuel self-evaluation and self-conscious emotions, and support adaptive shame coping.

Regarding the first finding, based on findings in adolescents (De Brauw et al., 2022) we expected the GGM of offenders to be less dense, or to show less integration than that of non-offenders. Contrary to our expectations, however, in the current adult study we found no differences in density or integration of the domains of conscience. This is in contrast with the clear differences in density and integration found in adolescents by De Brauw et al. (2022), and may substantiate their suggestion that the degree of integration may be a matter of maturation. This suggestion is in line is with findings of K. Spenser et al. (2020), that the relevant capacities seem to increase with advancing age from adolescent to young adulthood and mid adulthood. Further, previous research has indicated that within the network of conscience functioning, offenders exhibit different levels of the constituent aspects. That is, they show lower levels of affective empathy, shame, adaptive shame-coping, and moral reasoning than non-offenders (Verkade et al., 2021, 2019). Based on the codependence of all constituent aspects and their intertwined functioning in all conscience networks, it seems plausible that, even though the networks and integration of the constituent aspects do not differ, failure of one or more constituent aspects of the network would negatively affect the functioning of the conscience as a whole. They appear to relate to offending both directly, and through their contribution to conscience functioning. This is in line with findings of Spenser et al. (2015), that low Theory of Mind, empathic understanding and/or moral reasoning are associated with reduced social functioning and more antisocial or offending behavior.

Additionally, visual inspection of the non-offender network, and regression analyses, seem to indicate that both affective and cognitive empathy play an important role in conscience functioning. Affective empathy indeed fuels self-evaluation and thereby self-conscious emotions, and high propensities for affective empathy show negative relations to the use of self-serving cognitive distortions. This may indicate that people with strong affective empathy, leading to guilt and/or shame resulting from negative self-evaluations, do not need these cognitive distortions to justify their behavior, as they can own their failures and empathize with their subsequent feelings of guilt and/or shame. Cognitive empathy also appears to be important, as it seems to contribute to adaptive shame-coping and inhibit the use of cognitive distortions to shield the self from shame.

Whilst conditionally independent in non-offenders, for offenders being self-centered was inversely related to both cognitive and affective empathy. This seems to indicate that decentralization is associated with more empathy and less use of secondary cognitive distortions. This is in line with the

outcomes of the regression analyses, which affirmed that a person's level of self-centeredness (i.e., the level of decentralization) is indeed predictive of their capacity for (affective and cognitive) empathy.

The findings that non-offenders showed higher levels of affective empathy, and that the relation of affective empathy with self-conscious emotions was stronger for them than for offenders, seem to suggest that a certain threshold of affective empathy may be needed to serve the adaptive function of conscience as a whole.

Regarding shame-coping and its function within conscience: in both offending and non-offending women, high levels of shame seem to be associated with a tendency to internalizing shame-coping. Non-offending men, however, seem to address their shame through internalizing shame-coping, but by using self-justifying cognitive distortions. The fact that both male offenders and non-offenders make use of such cognitive distortions is in line with the findings of Maruna and Mann (2006), who state that post-hoc neutralizations or excuses for offending show no clear association with future crime. They argue that outside of the criminal context, post hoc use of cognitive distortions is widely viewed as normal, healthy, and often socially rewarded behavior. Both internalizing and neutralizing are, however, maladaptive. For adaptive shame-coping, one also appears to need cognitive empathy. At the same time, this adaptiveness seems to be undermined by the more rudimentary form of empathy, emotional contagion, which is instead associated with externalizing coping styles.

In conclusion, as expected, higher levels of self-centeredness indeed predict lower levels of (affective and cognitive) empathy, and both high levels of empathy and low levels of self-centeredness predict higher tendencies to experience self-evaluative guilt and/or shame. Also, affective empathy has a stronger predictive power on self-evaluative guilt and/or shame than cognitive empathy. These findings argue for the developmental theory of conscience: first, decentralization from self-centeredness to a broadened and social perspective needs to take place, followed by the development of affective empathy. Subsequently, feelings of shame, and later guilt, arise in reaction to negative self-evaluations. These emotions are followed by the development of cognitive empathy. Interestingly, secondary cognitive distortions, supposed to neutralize guilt and/or shame before or after transgressing, do not seem to predict lower levels of shame. However, they do seem to suppress feelings of guilt.

Limitations

The following limitations must be taken into account. The most important limitation seems to be that the day-to-day functioning of conscience varies over time due to circumstances, the amount of one's (inter)personal stress at

the time, and other dynamic risk factors. Conscience functioning cannot be dichotomized as an on-or-off-phenomenon. However, in some it may appear to be more vulnerable to faltering than in others, perhaps due to biological and/or developmental vulnerability or the presence of psychopathology, which may directly or indirectly influence one or more of the constituent aspects.

Another limitation is related to this possible relatedness of psychopathology to the constituent aspects, either directly or indirectly through a shared underlying vulnerability (such as attachment problems, deficient mentalizing abilities, etc.). The fact that psychiatric diagnostics could not be collected at an individual level may negatively affect the generalizability of our outcomes. We have, however, tried to account for this by recruiting controls not only from the general population, but also among subjects with psychiatric problems which were as comparable as possible to those common among offenders, according to prevalence research.

Another limitation is that respondents were recruited on a voluntary basis (and, unfortunately, the percentage of participants among the people approached is unknown); this involves a risk that results may be biased by including more motivated, and possibly less sensitive or personally involved, offenders (i.e., volunteer bias: Salkind, 2010).

Additionally, only self-report measures were used to investigate empathic capacities, shame-coping, and moral reasoning, without possibilities for verification through direct measures or observations. For further research we therefore recommend the use of other sources of information on the constituent aspects; these could include staff observations or observations by close relatives on these aspects; or performance-based measures of the constituent aspects of conscience functioning, such as – among others – the "Reading the Mind in the Eyes Test" which identifies emotions or mental state in another's eyes (Baron - Cohen et al., 2001), the "Emotional Attribution task" (Blair, 2000), the "Emotional Intelligence Test" (Mayer et al., 2002), or the use of Virtual Reality (Rueda & Lara, 2020). Also, choices were made among self-report measures, while other measures are also available. For instance, critics of the IRI argue that its definitions of empathy were flawed, implying that the measure has inadequate validity. It would not measure affective empathy, for example, but aspects related to affective empathy, such as empathic concern, which according to the critics equates sympathy with affective empathy (Jolliffe & Farrington, 2006; Vossen et al., 2015). Although, for the sake of comparability of research results, the current authors chose to use the same measures as in the original study by Schalkwijk et al. (2016a), the findings on all scales should indeed be interpreted with caution, bearing such considerations in mind.

A lack of collateral information on (the history of) offending for all groups can compromise the comparison of offender and non-offender GGMs. After all, despite self-reported differences in offending, it is possible that the control

group includes respondents who have had a history of offending without reporting it. The possible overlap resulting from this could challenge our finding that networks of conscience do not differ between offenders and non-offenders. However, this possible limitation would have no implications for our findings from regression analysis.

Furthermore, the comparison of groups in our network analysis may be somewhat contrived. Offending can include both severe offenses warranting detention, and less severe offenses, as two ends of a continuum. The offenders in our study group were recruited in a detention center, and therefore probably reflect the higher part of the continuum, while the consciences of individuals on the lower part of the continuum may actually be more similar to those of the non-offending control group. Moreover, countries may differ in what they legally define as criminal acts (Koenraadt, 2010). The state of their investigation and prosecution services, their selected priorities, resources and possibilities, and their potential biases also affect who they ultimately consider to be offenders. Therefore, although the respondents in our study were representative of the Dutch offending population, our findings may not apply in general to offenders at an international level.

Although outside the context of null hypothesis testing, the term power is less relevant, also for network analyses, accuracy is of great importance to determine with how much certainty the correlations, or interrelations (i.e., edge weights) can be estimated. The accuracy of this estimate is determined by the sample size. Findings from small studies (in network analysis or other statistical tests) are often not replicated in other (larger) studies because their parameter estimates are not accurate, and therefore not easily repeatable. In the method section, we describe our assumptions regarding this issue, as this is an ongoing research question for the relatively new use of network analysis in psychological sciences (Epskamp et al., 2018). Based on what is known, our sample size of 281 (123 and 158) by 14 nodes should suffice. However, due to the relatively limited sample size, the networks may not be an accurate representation of reality, and may therefore not be replicable (as is the case for any outcome of any statistical test). Taking this into account, we chose a conservative approach for our network analysis. In reality, more differences may exist between the groups than were shown in the current study. A less conservative approach involving different choices regarding thresholds and/or pruning, for instance, by showing only significant correlations in the GGMs, may have led to different outcomes with greater differences. Further research with larger sample sizes, and perhaps a less conservative approach, is recommended.

Implications for treatment

It is important to note that while this study aims for a better understanding of the functioning of conscience, there are many other explanatory or risk factors for offending. These include social factors, like (the stress of) financial or social marginalization (Heilbrun et al., 2008; Joosen & Slotboom, 2015; Savolainen et al., 2010), and more individual or psychological factors, such as addiction (among many others, Vaughn et al., 2016) or the lack of executive functioning or self-control (among many others, Meijers et al., 2017). These factors must certainly be assessed in individual cases and diagnostics, and when relevant, addressed in treatment indications. After all, not all offending comes from a lack of conscience, although the aforementioned factors may lead to a (temporary) lack in one or more of the constituent aspects and thereby to a (temporary) lack in conscience functioning.

Although we found no differences between offenders and controls in the integration of conscience, our findings on the importance of affective empathy correspond with those of Mariano et al., who found that it is not a lack of cognitive empathy, but merely a lack of affective empathy, that hampers offenders in their regulation of self, behavior, and social position (2017). As a certain threshold of affective empathy seems to be needed to serve adaptive conscience functioning, it seems appropriate to invest in promoting affective empathy in offenders, in order to improve their conscience functioning. Without affective empathy, empathic functioning is incomplete, and mentalizing abilities are comprised or imbalanced (Bateman & Fonagy, 2016; Bateman et al., 2016). However, capacities for cognitive empathy also appear to be vital, as their lack seems to hamper adaptive shame-coping, making the individual vulnerable to temporary loss of normally available mentalizing abilities and possible acting-out in moments of interpersonal stress.

Further, the integrated findings seem to suggest the value of targeting treatment to broaden the self-and-other perspective of offenders, helping them to decentralize. To accomplish this, guidance for offenders should focus not on imposing different perspectives on them, but on promoting self-empathy rather than self-centeredness (Maruna and Mann, 2006), and at broadening the scope of the self-centered individual to the world and others, through validating their self-experience, and through attuned but marked responses. Treatment should also focus on improving their awareness that another person has his/her own inner world, with thoughts and feelings with which one can empathize both cognitively and affectively, without contagion or being swept up. Aiming for these improvements, practitioners need to offer a specific kind of relation, without the complementary dynamics that often prevail in the field of (forensic) psychiatry and psychology; a relation in which the individual (maybe for the first time) can discover that not just one way of experiencing can be true; a relation wherein not only one person can "win,"

and wherein it is possible to broaden one's perspective to that of another without sacrificing one's own. This kind of relation, which is hard work and a constant dance of attunement, misattunement and repair, is called inter-subjective (Benjamin, 2018).

The finding that personal distress, the rudimentary form of affective empathy, seems to hamper adaptive coping with shame, implies that those who show high levels of emotional contagion or arousal may need to learn to differentiate the self from another and to self-regulate, to avoid emotional flooding, and to truly empathize (Nichols et al., 2009). Since in this group cognitive empathy is associated with adaptive coping with shame, it is possible that those showing high levels of personal distress may experience low cognitive empathy. However, this should be further investigated.

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