



## Interpretation Biases in Youth with Callous-Unemotional Traits

Mia Johnson\*

Master's Student and Graduate Teaching Assistant, University of Maryland, USA

### Abstract

Callous-unemotional (CU) traits are described as individuals having a shallow affective style characterized by a lack of moral emotions such as guilt or remorse. CU traits can be further broken down into two variants; the primary described as an inborn emotional processing deficit and the secondary described as an adaptive response to the individual's environment. Youth with CU traits may have different interpretation biases and levels of emotion recognition accuracy depending on the individual's variant. Future research should examine differences in interpretation biases in those with CU traits of different genders, at younger ages, and in the presence of co-occurring disorders.

**Keywords:** Callous-unemotional traits; CU traits gender differences; Primary and secondary CU traits; Emotion recognition accuracy; Interpretation biases in CU youth

### Introduction

Children and adolescents with callous-unemotional (CU) traits are described as having a shallow affective style characterized by a lack of moral emotions such as guilt or remorse [1-4]. Those with CU traits have also been described as having an interpersonal style highlighted by deficits in empathy, manipulative and aggressive behavior, and a lack of performance concern [2-7]. Children with CU traits are considered by many to be a subgroup of children with conduct disorder as CU traits are included as the specifier "limited prosocial emotions" within the DSM-5-TR [2,7]. However, CU traits can exist outside of a conduct disorder diagnosis and can be broken down even further into two variants.

Karpman (1941) describes two distinct variants of those with CU traits [8,9]. The primary variant is influenced by genetic factors, resulting in an inborn emotional processing deficit. Conversely, the secondary variant is characterized by environmental factors such as maltreatment or trauma leading to the development of CU traits as a learned, adaptive response to said environment. Children with the secondary variant of CU traits may have a bias towards identifying threatening or negative stimuli as a response to their trauma at the expense of being able to identify non-threatening emotions [8,9]. Furthermore, these variants differ in anxiety and sensitivity to distressing stimuli with the former having less trait anxiety and a reduced sensitivity while the latter has more trait anxiety and enhanced sensitivity [7,9]. Considering that these variants differ significantly, it stands to reason that they may differ in their use of cognitive mechanisms and interpretation biases [10].

### Interpretation Biases

Crick and Dodge's 1996 social information processing model states that social information is processed in 5 steps: encoding social cues, interpretation of social cues, clarification of goals, response generation, and enactment. Failure to process steps one or two can potentially lead to interpreting other's intentions as aggressive or hostile, resulting in a person behaving aggressively in return [11]. This recurrent misinterpretation of others intentions is known as a hostile interpretation bias. An interpretation bias stems from distortions in interpreting cues from the environment. These biases are known to persist in ambiguous situations, including non-provoking situations [11,12].

In a longitudinal study of CU traits in infants, Bedford et al. (2015) found that reduced preference for a direct gaze versus a non-social object at 5 weeks old was associated with higher CU traits at 2.5 years of age. This suggests that a basic perceptual bias can influence future social-cognitive processing. Additionally, young children are especially likely to exhibit a hostile interpretation bias as they have a limited understanding of others' perspectives emotionally and cognitively, with this bias typically being corrected by preschool age. Hostile interpretation biases have been linked to externalizing problems (e.g. conduct problems) while negative, threatening interpretation biases have been linked to internalizing problems (e.g. social anxiety). Dapprich et al. 2023 found CU traits were not related to a threatening interpretation bias but suggest that this may differ depending on the variants of CU traits, as those with the secondary variant have higher trait level anxiety. Contrarily, Payot et al. (2023) found that, in a sample of Belgian children, anxiety moderated the association between CU traits and a hostile attribution bias such that the two are only associated at high levels of anxiety. However, Payot et al. (2023) did not examine the possibility of a threatening interpretation bias.

### Emotion Recognition Accuracy

Ciucci et al. (2024) found CU traits were negatively related to emotion recognition accuracy across different emotions in a sample of Italian middle schoolers. This distinction was found even after controlling for conduct problems, suggesting that CU traits uniquely account for this difference. Additionally, CU traits were associated with interpreting fearful faces as angry. This emotion recognition problem, specifically for fear, in youth with conduct problems and high CU traits skewed in the direction of overinterpreting fear cues in others, prompting the authors to suggest that fearful cues in others could signal a vulnerability to attack instead of responding empathetically.

\*Corresponding author: Mia Johnson, Master's Student and Graduate Teaching Assistant, University of Maryland, USA

**Received:** 21-Aug-2024, Manuscript No: jcalb-24-146030, **Editor Assigned:** 26-Aug-2024, pre QC No jcalb-24-146030 (PQ), **Reviewed:** 09-Sep-2024, QC No: jcalb-24-146030, **Revised:** 13-Sep-2024, Manuscript No jcalb-24-146030 (R), **Published:** 24-Sep-2024, DOI: 10.4172/2375-4494.1000673

**Citation:** Mia J (2024) Interpretation Biases in Youth with Callous-Unemotional Traits. J Child Adolesc Behav 12: 673.

**Copyright:** © 2024 Mia J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Some suggest that aggressiveness in those with CU traits is a result of the individual's inability to recognize fearfulness in another's expression and inhibit their own aggression. This lines up with a core impairment in those with CU traits being their lack of recognition or response to emotional distress cues from others. This may be due to a reduced amount of attention given to emotionally salient parts of the face, such as the eyes. This impairment in recognition, however, is not limited to facial features, whose evidence has been documented across various emotional cues and presentation modes, but is also observable for vocal tone and body posture.

Interestingly, Leno et al. (2022) found that in adolescents from the United Kingdom, CU traits were associated with reduced emotion recognition accuracy in an uncued condition but actually showed better fear recognition in a condition where the children were cued to look at eyes; suggesting that those with CU traits do not naturally prioritize attention towards the eyes. However when controlling for conduct problems, the uncued effect fell below significance. In general higher CU traits were associated with lower emotion recognition accuracy across emotion types. This finding supports previous research that CU traits are negatively correlated with an attentional bias towards the eyes. When comparing these results to adolescents with autistic traits they found the opposite effect- emotion recognition accuracy decreased when cued to look at eyes. It is suggested that this is due to adolescents with autistic traits having different strategies for processing facial expressions, such as looking at the mouth, and that cueing limited use of their usual strategy.

Expanding on this Kahn et al. (2017) found that in US male adolescents, CU traits were positively associated with perspective taking on a theory of mind task and with recognizing fearful expressions but only at low levels of anxiety. These results support the idea that the two variants have different cognitive mechanisms and biases, as they differ based on the individual's anxiety level.

### Aggression and Delinquency

As stated previously, CU traits are associated with aggressive behavior. Furthermore, CU traits may only be related to a reduction in attention to negative stimuli for youth with high levels of aggression. There is a significant relationship between hostile interpretation bias and reactive aggression, that is aggression in response to threat or provocation. Proactive aggression, on the other hand, is not in response to provocation but is used as a means to reach a certain goal. In other words, reactive aggression is impulsive while proactive is instrumental. Proactive aggression is negatively related to a hostile attribution bias but positively related to psychopathic traits [11].

CU traits have a strong association with conduct disorders with an estimated 50% of those with conduct problems having high levels of CU traits. Consequently, much of the research on CU traits has focused on children and adolescents with conduct disorders and / or recruited participants from juvenile detention facilities. Children with conduct problems and CU traits differ from children with only conduct problems in that they have a higher heritability of antisocial behavior and a reduced responsiveness to punishment [12]. In a study of German children and adolescents, Hartman et al. 2020 found those with conduct problems and CU traits had a significantly higher hostile attribution bias than the control group, with boys with conduct problems and CU traits having significantly higher bias than girls with these traits [13].

Cima et al.'s 2014 study of Dutch adolescent boys found that proactive aggression was related to a negative interpretation bias but

only for ambiguous social situations and only within a delinquent group, not with controls. Additionally, CU traits are especially relevant to a negative interpretation bias when combined with delinquency, as controls with high CU traits exhibited this bias but it did not reach significance. When they repeated the study with a new measure of bias (the Aggressive Interpretation Task) they found that, in the delinquent group, an aggressive interpretation bias was related to proactive aggression while a negative interpretation bias was related to reactive aggression. Building off of the previous research, Cima et al. found a relationship between a negative interpretation bias and psychopathic traits in these delinquent juveniles. Similarly, Szabo et al. (2019) found that in Hungarian adolescent boys, high levels of conduct problems significantly moderated the relationship between CU traits and emotional deficit by exhibiting reduced responsiveness to distress cues as CU traits increased.

On a separate note, Kokkinos & Voulgaridou (2018) found that relational peer victimization was positively correlated with CU traits and that relational victimization itself was positively correlated with a hostile attribution bias in Greek children. Considering that CU traits are associated with aggressive behavior, it is unclear whether these children were aggressors in their own right or only victims as aggression measures were not completed in this study.

### Discussion

The current body of research has several directions for future research to progress. To begin with, there is limited research into toddlers with CU traits. Only one of the studies included here examined children under the age of three. This begs the question of how does a hostile interpretation bias materialize across the lifespan? Bedford et al. (2015) found that a perception bias already existed at 5 months and, as previously mentioned, young children tend to have a hostile attribution bias but outgrow it by preschool age. It is unclear what factors lead to some children keeping this bias throughout their lifetime and if CU traits are uniquely related to this bias.

Another direction for further research is examining the gender difference in interpretation bias across the two variants. As CU traits are more common in boys, girls with CU traits are relatively understudied. Gender differences have been found with boys tending to have higher hostile interpretation biases. Girls may have a more threatening instead of hostile interpretation bias as girls with CU traits are more likely to have anxiety than boys with CU traits. Additionally, examining different interpretation biases could yield surprising results as Payot et al. (2023) did not find a relationship between a hostile interpretation bias and the primary variant of CU traits, only the secondary variant. Therefore, investigating the association between gender, CU variants, and interpretation bias would increase interpretability of the literature.

Finally, future research should look into how youth with CU traits have differing biases depending on the presence of co-occurring disorders or similar symptoms. Leno et al. (2022) found that children with autistic traits also avoid looking at the eyes when assessing emotion recognition and had worse results when cued to look at eyes; contrary to children with CU traits, who also are characterized by avoiding looking at eyes but had better results when cued. This begs the question of how would children with both CU and autistic traits fare on the same task? More generally, how would interpretation biases differ for other co-occurring disorders besides conduct disorders, such as ADHD, depression, or anxiety disorders? A couple studies examine trait level anxiety in relation to CU traits but not clinical anxiety disorders, leaving a gap in the research.

## References

1. Cima M, Vancleef LMG, Lobbestael J, Meesters C, Korebrits A (2014) Don't you dare look at me, or else: Negative and aggressive interpretation bias, callous unemotional traits and type of aggression. *Journal of Child and Adolescent Behavior* 2.
2. Ciucci E, Baroncelli A, Facci C, Righi S, Frick PJ (2024) Callous-unemotional traits and emotion perception accuracy and bias in youths. *Children* 11.
3. Dapprich AL, Becker ES, Derks LM, Legenbauer T, Lange WG (2023) Specific interpretation biases as a function of social anxiety and callous-unemotional traits in a community and a clinical adolescent sample. *Child and Adolescent Psychiatry and Mental Health* 17.
4. Hartman D, Ueno K, Schwenck C (2020) Attributional and attentional bias in children with conduct problems and callous-unemotional traits: A case-control study. *Child and Adolescent Psychiatry and Mental Health* 14.
5. Kokkinos CM, Voulgaridou I (2018) Relational victimization, callous-unemotional traits, and hostile attribution bias among preadolescents. *Journal of School Violence* 17.
6. Leno VC, Pickard H, Cybulska L, Smith T, Munafo M, et al. (2022) Associations between emotion recognition and autistic and callous-unemotional traits: Differential effects of cueing to the eyes. *Journal of Child Psychology and Psychiatry* 64.
7. Szabo E, Halasz J, Morgan A, Demetrovics Z, Kokonyei G (2019) Callous-unemotional traits and the attentional bias towards emotional stimuli: Testing the moderating role of emotional and behavioral problems among high-risk adolescents. *Clinical Child Psychology and Psychiatry*, 25.
8. Kahn RE, Frick PJ, Golmaryami FN, Marsee MA (2017) The moderating role of anxiety in the associations of callous-unemotional traits with self-report and laboratory measures of affective and cognitive empathy. *Journal of Abnormal Child Psychology* 45.
9. Payot M, Monseur C, Stievenart M (2023) Variants of callous-unemotional traits in childhood: Investigation of attachment profile and hostile attribution bias. *Attachment & Human Development*, 5.
10. Dapprich AL, Becker ES, Derks LM, Legenbauer T, Lange WG (2023) Specific interpretation biases as a function of social anxiety and callous-unemotional traits in a community and a clinical adolescent sample. *Child and Adolescent Psychiatry and Mental Health* 17.
11. Cima M, Vancleef LMG, Lobbestael J, Meesters C, Korebrits A (2014) Don't you dare look at me, or else: Negative and aggressive interpretation bias, callous unemotional traits and type of aggression. *Journal of Child and Adolescent Behavior* 2.
12. Hartman D, Ueno K, Schwenck C (2020) Attributional and attentional bias in children with conduct problems and callous-unemotional traits: A case-control study. *Child and Adolescent Psychiatry and Mental Health* 14.
13. Bedford R, Pickles A, Sharp H, Wright N, Hill J (2015) Reduced face preference in infancy: A developmental precursor to callous-unemotional traits? *Biological Psychiatry* 78.