The Relationship Between Social withdrawal and Callous Unemotional traits: Influences

of Sex and Age

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Abstract

Literary research between social withdrawal and CU-traits in youth is limited. This study investigated the relationship between social withdrawal and CU-traits and if this is moderated by sex and age. 559 Dutch children and adolescents between the age of 16 and 25 years old were recruited through convenience sampling and completed two online questionnaires. The Personality Inventory for DSM-5 (PID-5) was used to test the level of social withdrawal and the Inventory of Callous-unemotional traits (ICU) was used to test the level of CU-traits. To answer the research question, a multiple regression analysis was used. The expectation was that participants who were more socially withdrawn showed more callous-unemotional traits, but no relationship was found. Second, this relationship was expected to be stronger for men. However, the results showed an equally strong relationship for men and women Third, the expectation was a stronger relationship between men than women in CU-traits. In contrast, women scored higher than men in this relationship. Fourth, it was expected that more social withdrawal showed more callous-unemotional traits in age group 16-17 than 24-25. The results confirmed this expectation. Last, the relationship between age groups on CU-traits was expected to be higher in the age group 16-17 than the age group 24-25. However, the results showed that this relationship was not higher in age group 16-17 than 24-25. Through the focus of personality traits, the present study will help detect youth and adolescents with CU-traits to prevent (more) psychopathological problems in adulthood.

Keywords: callous-unemotional traits, detachment, social withdrawal, age, sex, moderation, multiple regression analysis

The Relationship Between Social withdrawal and Callous-Unemotional traits: Influences of Sex and Age

Callous-unemotional (CU-)traits are the core of psychopathical traits in youth and adolescents (Cleckley, 1976) and are characterized by a lack of guilt or empathy and lack of emotion (Miller et al., 2018). More chronic and aggressive antisocial and delinquent behavior is shown by antisocial children and adolescents with high CU-traits than those without CU-traits (Decuyper et al., 2014; Frick et al., 2014). A high score on CU-traits showed more problematic externalizing behavior in youth, than individuals with low CUtraits (Frick et al., 2014; Habersaat et al., 2018). Children and adolescents with CU-traits are less stressed by the consequences of their behavior (Forsman et al., 2010) and are more difficult to treat (Haas et al., 2011). CU-traits are believed to be the developmental precursor to psychopathy in adulthood (Cleckley, 1976).

Specifically, CU-traits were introduced as a psychopathy specifier of the clinical antisocial personality disorder as part of Section 3 in the DSM-5. When describing personality pathology, including psychopathy, there is a difference between the fourth (DSM-4; American Psychiatric Association, 1994) and fifth edition (DSM-5; American Psychiatric Association, 2013) of the Diagnostic and Statistical Manual of Mental Disorders. This section established a new alternative model of personality disorders (PD's) that requires information about personality dysfunction in self and/or interpersonal domains (Criterion A) and the presence of one of more pathological personality traits (Criterion B). Within criterion B there are 25 personality traits, are covered by five broad domains which include negative affectivity, detachment, psychoticism, antagonism and disinhibition (Miller et al., 2018). These domains are corresponding to Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness, from the Five Factor model used in the dimensional approach in the DSM-5 (Krueger et al., 2012). Since the release of the DSM-5 a fast elevation in research on the structure of psychometric properties of the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012) have been observed (De Caluwé et al., 2019). One of these domains is Detachment. Durkheim defines detachment as, "*a feeling in individuals who can no longer find a meaning for their lives in collective life and so search inside themselves for it*" (Durkheim, 1951, p. 209). Within the PID-5 domain is detachment defined as a maladaptive psychological trait with pathologically low levels of extraversion. It is characterized by social isolation and anhedonia (Holden et al., 2015). Detachment is often seen in youth with persistent delinquent behaviors (Allwood et al., 2011). The effect of detachment is understudied, while detachment can be detrimental for mental health (Domènech-Abella et al., 2021).

The level of detachment can be affected by multiple influences. When looking at environmental factors, the study by Jager et al. (2015) showed that lower detachment and attenuated relations between detachment and higher adolescent internalizing and externalizing problems were associated with positive peer relationships. Separation of children from their parents was unrelated to adolescent internalizing or externalizing problems. Additionally, the study by Allwood et al. (2011) emphasized the importance of life experiences and socialization in the development of diminished emotions, callousness and detachment.

The domain detachment consists of the facets anhedonia, intimacy avoidance, restricted affectivity, depressivity and withdrawal. This study will focus on the facet withdrawal and the relationship with CU-traits. Coplan et al. (2004) defines social withdrawal as: "*a failure to engage in social interaction*" (Coplan et al., 2004). Social contact in general, and thus social withdrawal as a facet within detachment, is related to several aspects of children's lives. When looking at environmental factors, the study by

Jager et al. (2015) showed that adolescents with positive peer relationships had lower detachment. Due to a lower detachment, less internalizing and externalizing problems are caused in comparison to their peers with negative peer relationships. Additionally, the study by Allwood et al. (2011) emphasized the importance of life experiences and socialization in the development of demised emotions, callousness and detachment. Therefore, the relationship between detachment, including social withdrawal, and CU-traits is evident.

The relationship between social withdrawal and CU-traits in youth can be essential for a better understanding and early identification of psychopathy in adulthood. Given that CU-traits can be a precursor to psychopathy. CU-traits have to be identified as soon as possible to prevent the development of psychopathy. Research has shown that social withdrawal is a risk factor for psychopathy. For instance, a prison study showed that the combination of psychopathy and social withdrawal results in a greater hazard for both outgoing and withdrawn psychopathy (Heilbrun et al., 1985). However, no research has been conducted into the relationship between CU-traits and social withdrawal. There are also a small number of studies that studied the relationship between detachment, including social withdrawal, and CU-traits in youth (Decuyper et al., 2011; Decuyper et al., 2014; Essau et al., 2006).

The study by De Caluwé et al. (2019) specifically examined the combination of the PID-5 and the Inventory of Callous-Unemotional Traits (ICU) in psychiatric adolescents and adults. First, the results showed that empirically related PID-5 facets were predicted by self-rated CU-traits through age, sex, restricted affectivity and callousness. Second, the strongest associations were observed between CU-traits and the PID-5 facets, which are callousness, restricted affectivity, irresponsibility and distractibility. Third, the detachment domain intimacy avoidance was positively associated with callousness, which is in line with the study by Decuyper et al. (2014). This illustrates a relationship between CU-traits and a facet

of detachment. Therefore, the possible effects of multiple facets of detachment on CU-traits should be studied.

The study by Doey et al. (2014) argued that social withdrawal may be more strongly related to psychopathological symptoms which are determined by the societal norms in Western cultures. For example, Western society expects that boys show more socially dominant or assertive behavior than girls (Doey et al., 2014). In addition, boys are on average more prone to externalizing symptoms than girls (Leadbeater et al., 1999). Therefore, boys may be more likely to act frustrated over their social exclusion. Given the increased importance of peer acceptance and inclusion in later childhood, a lack of that could result in anger, aggression or other externalizing problems (Leadbeater et al., 1999). Especially, for boys who are already more likely to show externalizing symptoms. In addition, the study of Kopala-Sibley and Klein (2017) suggested that social withdrawal is a more potent risk factor for psychopathology in boys, compared to girls. Research into sex differences in the longitudinal relationships between internalizing and externalizing symptoms is needed (Kopala-Sibley & Klein, 2017).

Aside from sex, age can also influence CU-traits. Essau et al. (2006) found significantly higher ICU scores in the age group 15–16-year-olds than 13–14-year-olds and 17–18-year-olds. Rydell and Brocki (2019) supported the focus on the age group 15–16year-olds, mainly because this entails the active transition from childhood to adulthood and is pertinent for cognitive and emotional functioning and the links to CU-traits and disruptive behavior (Rydell & Brocki, 2019). Additionally, the Pittsburgh Youth Study by Loeber and Hay (1997) showed curvilinear trends in aggression among boys that peaked at the ages of 15 and 16 years old and then declines (Loeber & Hay, 1997). The study by Lindeman et al. (1997) also showed that aggression is curvilinear and that both pro-sociality and social withdrawal decrease with age (Lindeman et al., 1997). Developmental research suggests that a level of rebelliousness and antisocial attitudes begins to decline in late adolescence (Moffitt, 1993).

In sum, social withdrawal seems to play a key role in the development of psychopathy through callous-unemotional traits. Previous research also shows that CU-traits are influenced by age and sex (Ciucci & Baroncelli, 2012; Essau et al., 2006). Additionally, sex also influences detachment (de Caluwé et al., 2019). Hence, age and sex were investigated as potential moderators. In this study detachment was measured through the facet social withdrawal and CU-traits will be examined through the ICU. Only the selfreport version of the ICU was used to measure CU-traits and not the parent or teacher report. A sample was used from children and adolescents ranging from the ages of 16 to 25. Age groups were formed into 16-17 and 24-25 to investigate age differences.

Based on the literature above, the following research question was phrased: "Was the relationship between social withdrawal and callous-unemotional traits moderated by sex and age?".

- The first expectation was that a higher score on social withdrawal will lead to a higher score on CU-traits.

- The second expectation was that the positive effect of social withdrawal on CU-traits will be greater for men than for women. This means the increase in CU-traits for an increase in social withdrawal is greater for man then women.

- The third expectation was that the main effect of sex on CU-traits will be higher in 16-17 than 24-25.

- The fourth expectation was that the main effect of social withdrawal on CU-traits will be higher in the age group 16-17 than 24-25, controlled for all other predictors.

Method

Participants

The sample included 559 Dutch adolescents and adults. Only participants between 16-25 years old were included in this study. Demographic data about age (M = 21.5 years old, SD = 2.5) and sex (26.8% male, 73.2% female) were collected.

Procedures

The Ethics Review Board from Tilburg University approved this study on the 14th of January 2022. . The reference number of this application is EC-2019.EX141t. Master students from Tilburg University recruited participants through convenience sampling. Social media platforms were used for spreading questionnaires among their social network. The online questionnaires took approximately 15-20 minutes and were entered by Qualtrics (https://www.qualtrics.com). Participation was voluntary and anonymous. No compensation was given to the participants. An informed consent was presented prior to the questionnaires. Furthermore, at the end of the questionnaire a message could be send in case participants needed mental health services, such as the Kindertelefoon (till 18 years) or a student psychologist.

Measures

Social withdrawal

The PID-5 was used to measure social withdrawal and is part of the domain detachment (Krueger et al., 2012). Social withdrawal was used to examine detachment due to lack of data in the other facets of detachment. The social withdrawal facet consists of ten items, including reversed coded items. This study used the data of a larger study and only questioned seven pathological personality traits from ASPD. No cutoff scores of social withdrawal were available. The scales were answered on a 4-point Likert scale, ranging from 0 to 3, 0= "very false or often false" to 3= "very true of often true. No Cronbach's alpha coefficients of social withdrawal were available. The results of this study showed a Cronbachs alpha of .903 in the social withdrawal facet of the PID-5.

Callous Unemotional traits

The ICU has been developed to examine the CU-traits in children and adolescents (Frick et al., 2014). The self-report questionnaire consists of 24 items which are divided into three broader domains: unemotional (11 items concerning the lack of guilt and empathy), uncaring (8 items concerning the lack of care for someone's performance and wellbeing of others) and callous (5 items concerning the lack of emotional expression) (Frick et al., 2014). This four-point Likert scale has a range from 0 = "Not at all true" to 3 = "Definitely true". The total score was calculated. The cutoff score for females is 32 and for men 37 (Kemp et al., 2021). Twelve positively worded items required reverse scoring. A higher score on the ICU reflects a higher degree of the callous-unemotional traits. The factor structure in the study of Essau et al. (2006) showed that all items lean on three different factors and one general factor, which results in the encouragement to use subscales or the total ICU scale. In this study, the total score was used. Furthermore, the total ICU scale showed an adequate internal consistency, except the unemotional subscale which had a moderate internal consistency (Essau et al., 2006). Deng et al. (2019) found a Cronbach's reliability of $\alpha = .81$. The Cronbach's alpha reliability in the self-report version was ($\alpha = .64$) and the alpha estimates of scores were not affected by whether the sample was currently imprisoned ($\alpha =$.86) or not ($\alpha = .82$). The results of this study showed a Cronbach's alpha of 0.453 in the selfreport ICU.

Statistical analysis

A cross-sectional research design was used. This study uses the social withdrawal domain as an independent continue variable and CU-traits as a dependent continue variable. Both, the dichotomic variable sex and the categorical variable age served as moderators. First, a priori power analysis was performed in G*Power (Faul et al., 2007) to predict the desired sample size. With a minimum effect size of 0.15, a significance level of $\alpha = .05$ and a desired power of 0.80 and three predictors, this study required a total sample size of N \geq 77. Statistical analyses were performed by SPSS version 26 (Pallant, 2020). Second, using descriptive-and frequency analysis the raw data was analyzed and checked for missing-and impossible values. An impossible value is a contradiction between answers before and after the reversal of answer options in the PID-5 and ICU. Outliers were tracked down by making a scatterplot. In total, 296 participants were removed before analyzing the data.

Two t-tests were used to measure if there is a sex difference in CU-traits and withdrawal. First, three assumptions had to be met. First, the dependent variable was measured on an interval or ratio level and this assumption was met. Second, the persons in two groups are independent from each other and this assumption was also met. Last, if the sample contains less than 30 observations, the dependent variable has to be normally distributed. Also, this assumption was met. One t-test was used to test whether there is a sex difference in CU-traits and the second t-test was used to test a sex difference in social withdrawal.

This study contained multiple regression analyses where sex and age serve as moderators. Age groups was a dummy variable where 16-17 was computed as 0 and 24-15 as 1. Several assumptions had to be met to execute the multiple regression analysis. The first assumption was that the independent variables; social withdrawal, sex and age, must be continuous or dichotomous and the dependent variable; CU-traits, must be continuous or borderless. This assumption was met. The second assumption was that the relationship between CU-traits and sex, CU-traits and age are linear. This assumption was violated. The third assumption, a normal distribution is needed. This assumption was also violated. Both assumptions had been checked through using of plots. The fourth assumption is the independency of error terms. In this study a random sample was collected. This assumption was met. The fifth assumption is that there was no perfect multicollinearity, which implies that no high correlation may be found between CU-traits, sex and age. This assumption was met. The sixth assumption, the homogeneity of variances (homoscedasticity), where the highest standard deviation (SD) needs to be smaller than 2x the smallest SD. The last assumption was met.

The differences in mean scores of men and women in CU-traits and social withdrawal are considered through two independent samples t-tests. The first hypothesis, that social withdrawal has a positive effect on CU-traits, was measured by testing a multiple regression analysis. This model consists of CU-traits as a dependent variable and social withdrawal as an independent variable. The second hypothesis, that the main effect of social withdrawal on CU traits will be smaller for woman than for men was measured by adding a second model in the multiple regression table. This model consisted of sex and the interaction CU-traits*sex. The third hypothesis, that the main effect of sex on CU-traits will be higher in men than in women, was also measured in the second model. The fourth hypothesis, that the main effect of social withdrawal on CU-traits will be higher in the age group 16-17 than 24-25, was explained by a third model in the multiple analysis. This model consisted of age groups and the interaction social withdrawal*age groups. The fifth hypothesis, that the main effect of age groups on CUtraits will be higher in the age group 16-17 than the age group 24-25, was also measured through model 3. If the interactions are significant, main effects can not be interpreted. If the interaction effect is not significant, the main effects can be interpreted if there is a significant effect.

Results

The results showed no missing data. Outliers were deleted for multiple reasons. One hundred and sixty-tree participants only filled in the descriptive questions, 76 participants only filled in the ICU and 57 participants did not finish the PID-5. In total, 296 participants were removed before analyzing the data. Eventually, 559 participants were part of the analysis.

Descriptive statistics

First, descriptive statistics were collected. The mean of score on CU-traits was M = 28.63, SD = 4.65 and the mean of score on social withdrawal was M = 6.34, SD = 5.65. See table 1 for the descriptive statistics about CU-traits, social withdrawal, sex, the specific age groups 16-17 and 24-25 and all ages.

Table 1

Descriptive statistics in youth and adolescents sample

Table 1

Descriptive statistics

Variable	М	SD	S.E.
CU-traits	28.63	4.65	0.20
Withdrawal	6.35	5.65	0.24
Age	21.68	2.52	0.11
Age group 16-17 ^a	16.58	0.49	0.05
Age group 24-25 ^b	24.43	0.50	0.40

Note. CU-traits = Callous-unemotional traits. M = Mean difference. SD = Standard deviation.

^a Mean difference between men and women

^b Number of participants in age group 16-17 years old, n = 122

^c Number of participants in age group 24-25 years old, n = 156.

Independent samples t-test

Two independent samples t-tests were conducted to compare men and women in social withdrawal and CU-traits. No significant sex difference in the CU-trait scores for men (M = 28.920, SD = 5.459) and women (M = 28.535, SD = 4.321) samples were found; t(221.065) = 0.778, p = 0.437, d = 0.338. Moreover, a significant sex difference in the age group 24-25 on social withdrawal was found; t(557) = -2.129, p = 0.043, d = 5.899. See table 2 for the results of the independent sample t-tests.

Table 2

Variable	М	SD	<i>S.E</i> .	t	р
CU-traits ^b	0.385 ^a			0.778	0.437
Men	28.920	5.459	28.535		
Women	28.540	4.320	0.500		
Social withdrawal	1.018 ^a			1.892	0.059*
Men	7.093	5.815	6.075		
Women	6.076	5.567	0.275		

Independent samples t-tests

Note. CU-traits = Callous-unemotional traits. M = Mean difference. SE = Standard Error of the mean. SD = Standard deviation. t = t-value. p = p-vaue.

^a The mean difference between men and women.

^b CU-traits in men n = 150, CU-traits in women n = 409.

*p < 0.05 (two-sided), **p < 0.01 (one-sided)

Multiple regression analysis

A multiple regression analysis was used to assess if the relationship between callousunemotional traits and social withdrawal was moderated by sex and age. Social withdrawal had no significant effect on CU-traits; F(556) = 0.14, p = 0.97, $R^2 = 0.00$. Moreover, the main effect between sex and CU-traits was not significant; F(554), p = 0.98, $R^2 = 0.03$. Also, the interaction effect of social withdrawal and sex on CU-traits was not significant; F(554) =0.12, p = 0.73, $R^2 = 0.03$. Furthermore, the main effect of age groups on CU-was not significant F(552) = 2.02, p = 0.16, $R^2 = 0.13$. However, the interaction between age groups and social withdrawal on CU-traits was statistical significant; F(552) = 4.24, p = 0.445, $R^2 =$ 0.126. See table 3 for the multiple regression analyses.

Table 3

Multiple regression analysis with CU-traits as a dependent variable

Models	B, CI	\mathbb{R}^2	t	р
Model 1		0.00		
Social withdrawal	-0.00 (-0.11, 0.06)		0.38	0.97
Model 2		0.03		
Social withdrawal	-0.06 (-0.41, 0.29)		-0.33	0.74
Sex ^a	0.27 (-1.74, 1.80)		0.03	0.98
Sex*Social withdrawal ^a	-0.17 (-0.17, 0.24)		0.35	0.73
Model 3		0.13		
Social withdrawal	0.07 (-0.30, 0.44)		0.37	0.72
Sex ^a	0.04 (-1.72, 1.79)		0.04	0.97
Sex*Social withdrawal ^a	0.03 (-0.17, 0.23)		0.30	0.77
Age groups ^b	1.176 (-0.46, 2.81)		1.42	0.16
Age groups*Social	-0.20 (-0.39, -0.01)		-2.06	0.04*
withdrawal ^b				

Note. *p < 0.05, **p < 0.001. Unstandardized regression coefficient, confidence interval of 95% (alfa

of 0.05)

^a Man is computed as 0 and women as 1.

^b Age group 16-17 is computed as 0 and age group 24-25 as 1.

Discussion

The aim of this study was to investigate the relationship between social withdrawal and CU-traits, and whether or not age or sex moderates this relationship. First, this study expected that participants who were more socially withdrawn would show more callous-unemotional traits. However, no relationship between social withdrawal and CU-traits was found. Second, it was expected that this relationship would be stronger for men than women. The results showed that the relationship between sex and CU-traits will be stronger for men than women. The results showed that women scored higher than men in this relationship. Fourth, it was expected that more social withdrawal showed more callous-unemotional traits in the age group 16-17 than 24-25. The results showed that the relationship between the age groups and CU-traits will be higher in the age group 16-17 than 24-25. However, the results showed that this relationship was not higher in the age group 16-17 than 24-25.

In this study, socially withdrawn participants did not have more callous-unemotional traits. This was surprising since previous research does show a relationship. For example, Decuyper et al. (2014) found that socially withdrawn people reported more unemotional traits. There is research that points to the opposite concerning anti-social behavior. This behavior is common for youth with CU-traits (Decuyper et al., 2014; Frick et al., 2014), therefore you expect that youth who are socially withdrawn, would also show more anti-social behavior since it has previously been shown to have more CU-traits. However, a study of Miller et al. (2018) found that youth who are social withdrawn report less, not more, antisocial behavior. A possible explanation for not finding a relationship between social withdrawal and callous-unemotional traits can be that the relationship in another facet of detachment is more

apparent. For example, the facet of detachment intimacy avoidance could have a stronger association, in accordance with De Caluwé et al. (2019) and Decuyper et al. (2014).

Against expectations, this study showed that the relationship between social withdrawal and CU-traits was not greater for men than women. A possible explanation for this could be that the relationship of social withdrawal and CU-traits is not apparent. The results in this study showed a very small effect in this relationship. Surprisingly, when using CU-traits as a dependent variable, social withdrawal and CU-traits caused a difference in how men and women scored. Additionally, men scored higher on social withdrawal than women, in contrast to the studies by Doey al. (2014) and Leadbeater et al. (1999). This could indicate that the relationship between social withdrawal and sex could be different.

The results showed no relationship of sex on CU-traits, which entails that sex is not a predictor of CU-traits in this sample. This hypothesis was based on the studies of De Caluwé et al. (2019) and Ciucci and Baroncelli (2012) where sex differences in CU-traits were observed. How can it be explained that no differences were found in this study? A possible explanation could be the ratio between men and women. The number of female (n = 409) and male (n = 105) participants were unequal. This might influence the results in sex differences because men showed more CU-traits than women in this study. When these studies used more male participants, the effect of sex on CU-traits would be more evident.

Furthermore, the results showed that the relationship between age groups and CUtraits will be higher in the age group 16-17 than 24-25. This means that the effect of social withdrawal on CU-traits depends on age. 16–17-year-old adolescents who were more socially withdrawn also showed more CU-traits. However, 24–25-year-old participants who were more socially withdrawn showed less CU-traits. This study did not find a significant main effect of withdrawal on CU-traits. A possible explanation could be that the age group samples on its own show a main effect of social withdrawal on CU-traits, but the effect was averaged out in one sample.

Moreover, no main effect of age on CU-traits was detected. A reason why this was not expected could be because developmental research suggests that a level of rebelliousness and antisocial attitudes begins to decline in late adolescence (Moffitt, 1993) and social withdrawal decreases with age (Lindeman et al., 1997). The study of Essau et al. (2006) was used to look into this difference. Higher ICU scores were found in age group 15–16-year-olds than age groups 13-14 and 17-18. The findings of Lindeman et al. (1997) showed that aggression develops curvilinearly and the study of Loeber and Hay (1997) showed that aggression among boys peaked between the age of 15 and 16 years old and then declines (Moffitt, 1993). This study only investigated the result from the age of 16-17 instead of the age group 15-16, which may indicate that the peak already started to decline at 15 years old. This may have resulted in finding no significant result.

Certain limitations of this study could be addressed in future research. First, the crosssectional design limits inferences of causality. For instance, do children and adolescents with CU-traits become more aggressive and does this result in showing delinquent behavior? Or did the children or adolescents grow up in a family where they develop higher CU-traits as a reaction to their social environment? Prospective designs would give more insight in causal relations, because it is closer to a realistic environment. Second, the assumption of a multiple regression was not fulfilled. Both the relationships between CU-traits and sex and CU-traits and age are not linear. This can imply a limited reliability of the analysis. Third, the external validity is low because convenience sampling was used to recruit participants. Convenience sampling can heighten the risk on volunteer bias, which entails only youth and adolescents who want to participate. This results in a study which is not representative for the entire Dutch population. Random sampling would solve this issue and increases the generalizability to other youth and adolescents. Fourth, this study only used self-report questionnaires, which also brings disadvantages such as inconsistent motivations and fatigue effects occurring in participants. Since the ICU and PID-5 were questioned one after the other, the questionnaires are a longer fill-in process. Threats of self-report questionnaires are response styles, including socially desirable responses, acquiescent responding and extreme responding. To counter socially desirable answers, both questionnaires did not include neutral answers. Also, the current PID-5 scale is unable to detect an acquiescent response style (McGee Ng et al., 2016; Quilty et al., 2018). This results in lower scores on the PID-5 in those exceeding underreporting and higher scores in those exceeding overreporting. This could influence the reliability of the self-report questionnaire, because some individuals might answer in one direction and then answer conceptually similar items in a different direction as a result of a lack of concentration and/or motivation (Keeley et al., 2016). Fifth, this study found a reliability threat in the ICU, because the Cronbach's alpha of the ICU was very low. This could be solved using observer report of CU-traits, which included the parent-reports and teacher-reports. In accordance with Deng et al. (2019), observer report version had a higher reliability than the self-report version, which indicates more accurate information about CUtraits. Despite the limitations, this study has the advantages of a relatively large sample size of 559 youth and adolescents. Moreover, validity the ICU and PID-5 were moderate, as well as the reliability of social withdrawal. This study is a good direction towards a focus on internalized problems in CU-traits.

Overall, social withdrawal's influence on CU-traits is understudied while the relationship between social withdrawal and CU-traits could be helpful in early identification of psychopathy. This indicates that there is a gap in psychological literature of which the results will demarcate knowledge about the relationship between CU-traits and detachment. This study comprises big, practical relevance because CU-traits are the precursor to

psychopathy (Cleckley, 1976) and the hazard in combination with social withdrawal were confirmed in the study by Heilbrun et al. (1985). In addition, youth with a high level of CU-traits are more difficult to treat (Haas et al., 2011). If the literature gains more insight in the internalizing behavior, such as social withdrawal, in youth with CU-traits, treatments can be adjusted to their needs.

The results of this study has implications for the field of Forensic psychology. If someone with a high score on psychopathy shows social social withdrawal, they can be a great danger for society because they are harder to track down. Also, working in a preventive manner would be beneficial. By analyzing the effect social withdrawal has on CU-traits and how these factors interact, signs for anti-social behavior could be identified sooner. When identified sooner, treatment could start before extreme antisocial or psychopathic behavior is shown thus preventing harm to society.

Based on this study, two suggestions for future research are established. First, future research should focus more on internalizing factors such as detachment, instead of externalizing factors to fill this literature gap in psychology. To achieve this, the Youth Self Report (YSR) and the Child Behavioral Checklist (CBCL) could be used. These reports provide more insight in internalizing factors in CU-traits, which helps with choosing the best treatment for youth with social withdrawal and CU-traits. Second, future research should investigate the relationship between CU-traits and detachment in youth, with more complete facets of both variables with the multi-informant approach through observer reports. This approach will enhance the reliability of results regarding CU-traits as well as detachment in youth.

Little research has been done about the relationship of CU-traits and social withdrawal. For that reason, replication research is needed to investigate if the relationship

exists. Through the focus of personality traits, the present study will help detect youth and adolescents with CU-traits to prevent (more) psychopathological problems in adulthood.

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