


The Contribution of Personality and Refugee Camp Experience to Callous and Unemotional Traits Among Immigrant Adolescents in the United States: Implications for the *DSM-5* “Limited Prosocial Emotions” Specifier

Robert D. Latzman¹  · Mariya V. Malikina¹ · Lisa K. Hecht¹ · Scott O. Lilienfeld² · Wing Yi Chan¹

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Abstract Callous and Unemotional (C&U) traits characterize a group of adolescents who engage and persist in especially severe antisocial behaviors. These traits have been included in *DSM-5* within a “Limited Prosocial Emotions” (LPE) specifier for Conduct Disorder. To investigate the generalizability of this specifier to non-Western cultures, we examined associations among Big Five personality, refugee camp experience, and C&U traits among 81 immigrant adolescents from non-Western cultures. Adolescents with refugee camp history endorsed higher levels of Uncaring than other adolescents. Personality traits explained 6 (Unemotional) to 18 % (Callousness) of the variance in C&U traits. The association between Neuroticism and Callousness held only for adolescents with a refugee camp history. Our results corroborate the importance of considering personality to understand C&U traits and the LPE specifier. Results also raise questions regarding the applicability of C&U traits to non-Western adolescents with varying pre-immigration experiences, and raise the possibility that the LPE specifier is vulnerable to false-positive identifications among such individuals.

Keywords Callous and Unemotional traits · Big Five personality · Conduct Disorder · *DSM-5* · Immigrant adolescents

An extensive body of research focused on identifying the causes and consequences of conduct problems confirms that youth engaging in aggressive and antisocial behaviors are a broad and heterogeneous group (e.g., [1, 2]). As such, considerable efforts have been made to identify youth most likely to persist in such behaviors into adulthood. In service of this goal, and in an effort to downwardly extend the construct of psychopathy to youth [3], recent attention has been paid to characterizing affective and interpersonal traits, specifically Callous and Unemotional (C&U) traits, which consistently emerge as robust and incremental predictors of antisocial behavior [4, 5]. As a result of this converging literature, these traits have recently been included in the new edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, [6] as a specifier for Conduct Disorder (CD) under the rubric of “Limited Prosocial Emotions” (LPE). To better characterize the facets subsumed by the C&U construct, recent studies have investigated how C&U traits fit within well-established trait models of personality (e.g., [7, 8]). However, the overwhelming majority of the studies of C&U traits to date have examined youth from Western cultures (e.g., North America, Western Europe, Australia). As such, very little is known regarding C&U traits and trait personality in youth from non-Western backgrounds. The current study aimed to address the applicability of the CD specifier by investigating C&U traits in a non-Western immigrant adolescent sample, and the way in which various C&U traits correlate with Big Five personality.

✉ Robert D. Latzman
rlatzman@gsu.edu

¹ Department of Psychology, Georgia State University,
PO Box 5010, Atlanta, GA 30302-5010, USA

² Department of Psychology, Emory University, Atlanta, GA,
USA

Callous & Unemotional (C&U) Traits

Although historically conceptualized as an adult condition, psychopathy has recently been extended downward to youth through examinations of C&U traits [3], central to the

conceptualization of psychopathy [9] and characterized by lack of empathy and guilt, shallow or constricted affect, and manipulation of others [1]. Importantly, research indicates that C&U traits consistently predict aggressive, antisocial, and delinquent behaviors, and also serve as indicators of severity [1, 10]. In the service of assessing these traits, Frick et al. [11] developed a conceptualization of C&U traits, along with a companion assessment instrument (Inventory of Callous–Unemotional Traits [ICU]; [11]). The covariation among the ICU items is best explained by a higher-order factor with three correlated, yet distinct, dimensions: Callousness, Uncaring, and Unemotional. Callousness assesses a lack of empathy, guilt and remorse; Uncaring assesses a lack of caring about one’s performance and the feelings of others; and Unemotional assesses an absence of emotional expression. Frick and colleagues have proposed that C & U traits are precursors of the affective deficits comprising adolescent and adult psychopathy [11, 12].

Although most commonly investigated as a single score, the utility of this approach has been questioned for a number of reasons, including strong evidence that the three C&U dimensions sometimes evidence markedly differential associations with external correlates [7, 13, 14]. Indeed, although Callousness and Uncaring appear to be associated with similar external correlates, the Unemotional dimension appears to be less related to antisocial behaviors and other self-reports of related-constructs (i.e., psychopathy) than are Callousness and Uncaring [15], and more related to internalizing-related traits. This distinction is obscured when the dimensions are combined into a single score [7]. Furthermore, the Unemotional dimension appears to be assessing overt emotion rather than the internal experience of emotion, which can be problematic with youth who have experienced maltreatment and trauma, and who may tend to conceal their emotions [13, 16]. Given these differences, recent research suggests that it may be more accurate to use the acronym “C&U” than the more commonly used “CU”, to denote the multifaceted nature of the construct [7, 13]. Regardless of how one conceptualizes C&U traits, researchers have consistently demonstrated that these traits are associated with a host of negative outcomes including a range of antisocial behaviors [1] and distinguish a group of youth who are at higher risk for severe and persistent antisocial outcomes [12].

As noted earlier, as a result of relatively large literature confirming the negative outcomes associated with C&U traits (for a review, see [12]), C&U traits have recently been included in *DSM-5* as a specifier for CD labeled LPE [6]. This specifier is intended to denote a more severe subgroup of youth, within the heterogeneous group of youth diagnosed with CD, who are also less responsive to treatment [17]. Nonetheless, the inclusion of this specifier may not help solve the heterogeneity problem it was meant to address. For example, when meeting criteria for the CD

specifier, a child or adolescent may exhibit either callousness *or* unemotionality, potentially resulting in a single diagnosis consisting of various presentations, etiologies, and/or treatment responses. Thus, to more fully elucidate the multiple facets encompassed by C&U traits, recent studies have examined how C&U traits fit within the framework of established models of trait personality.

Associations Between C&U Traits and Big Five Personality

Although researchers have examined associations between personality trait scales and youth psychopathy (e.g., [18]), including unidimensional C&U traits within these broader measures (e.g., [19, 20]), fewer investigations of associations with multidimensional C&U traits exist (for exceptions, see [7, 8, 14, 19]). As noted earlier, this gap in the literature is concerning as studies that investigate individual C&U dimensions consistently find that these dimensions differentially predict various personality dimensions, suggesting that examining C&U traits as a single dimension can obscure findings. Studies that have investigated C&U traits, unidimensionally as well as multidimensionally, and trait personality have most commonly considered associations with the Big Five personality traits (Neuroticism, Extraversion, Openness, Agreeableness, Conscientiousness), the most commonly used approach to the organization of personality and the most widely studied around the world [21, 22].

Taken together, studies on the association between Big Five personality and C&U traits have consistently found Callousness and Uncaring to be negatively associated with Agreeableness and Conscientiousness [8, 14, 19], with Uncaring uniquely and negatively associated with Openness [8]. In contrast to Callousness and Uncaring, the most prominent predictor of Unemotional is low Extraversion [14, 19]. Unemotional is also associated with low Neuroticism [8, 14], a finding echoed in studies of associations with other conceptualizations of personality, where the most prominent correlate of Unemotional was Detachment, a trait allied to reversed Extraversion (e.g., [7]). Although findings converge on a similar set of convergent and divergent associations between C&U traits and trait personality, all of the samples used in these studies reflect populations from traditionally Western countries, resulting in a significant gap in knowledge regarding C&U traits among non-Western youth.

Generalizability of C&U Traits

Underscoring the need for cross-cultural examinations is *DSM-5*’s [6] LPE CD specifier. As in previous editions, *DSM-5* notes that signs and symptoms must “deviate

markedly from the expectations of the individual's culture" ([6], p. 645) to be regarded as pathological, highlighting the need for cultural sensitivity and awareness in the cross-cultural assessment and diagnosis of mental disorders. Although personality typically appears to be consistent across cultural groups and has been found to be extractable from almost all natural languages [23, 24], manifestations or level of expressions of various personality traits may reflect cultural differences [21, 22, 25], suggesting that the experience of various contexts may have an effect on personality.

Disorders associated with personality, such as the LPE specifier, are thought to be among the most culturally dependent diagnoses [26], further underscoring the need for cross-cultural investigations [27]. Further, there is evidence that C&U traits are associated with high-risk environmental context, such as poor household circumstances, familial stress [28], exposure to violence [15], and trauma [29]. Nevertheless, although some researchers have examined the measurement invariance of C&U and related traits across racial groups in the United States (i.e., [30]) as well as in non-Western cultures (i.e., [31]) the vast majority of studies have investigated contextual and racial/ethnic factors using Western samples. As a consequence, no data are available concerning how stressful environmental factors outside the family may affect these associations within more diverse samples. Taken together, this literature suggests that more research is needed on C&U traits among individuals from different cultural and experiential backgrounds. One potential avenue for extending C&U trait generalizability is to examine immigrant adolescents from non-Western cultures with a variety of pre-immigration experiences.

Immigrant youth are often exposed to high-risk factors by virtue of experience in both their country of origin and country of settlement. Although immigrant youth are typically resilient, they often experience a high occurrence of migration stress and acculturation stress due to displacement. Furthermore, refugee youth in particular are often exposed to environmental instability, violence, loss of family, and other trauma, and are at increased risk for emotional and behavioral problems [32] including aggression [33]. Indeed, approximately forty percent of refugee youth in the US may have psychiatric disorders [34]. It is thus important that diagnostic criteria are widely applicable to immigrant populations. More importantly, research needs to address whether the association between C&U traits and personality is different for immigrant adolescents who have lived in refugee camp—and who have presumably experienced high levels of stress—in comparison with those who have not. Experiences such as exposure to high stress contexts are associated with elevated C&U traits [29, 35, 36]. For example, early deprivation, negative life

events, and posttraumatic stress symptoms are all positively associated with C&U traits [37, 38]. Kerig and Becker [29] referred to this phenomenon as "acquired callousness," and suggested that youth who are exposed to a highly stressful environment shut down their emotions and detach, a coping mechanism that may become generalized into an emotionally blunted interpersonal style [39]. Indeed, emotional numbing (e.g., numbing of fear and sadness) has been found to mediate the association between experience of high stress context and C&U traits [16]. Taken together, experiencing high stress contexts may exert an important influence on the development and expression of overall and specific C&U traits, further underscoring the importance of examining C&U traits among youth from diverse backgrounds. As such, it is critical to consider the applicability of the *DSM-5* trait specifier by examining how C&U traits relate to trait personality within individuals exposed to higher levels of risk, such as immigrant adolescents and particularly among those who have lived in refugee camp.

Current Study

Previous studies investigating C&U traits have focused entirely on samples of youth living in Western societies [40–42], with no known studies explicitly investigating C&U traits in youth from non-Western cultures. Given the recent inclusion of the LPE specifier for CD, and the heterogeneous nature of the population to which the *DSM* CD diagnosis is applied, it is crucial to investigate C&U traits and their correlates within diverse populations. As such, the current study addressed the generalizability of C&U traits in an ethnically diverse sample of non-Western immigrant adolescents living in the United States, as well as through the consideration of individual history of having lived in a refugee camp. This experience is often characterized by increased exposure to trauma [32] and has been found to play a potential role in the development of C&U traits [28, 29, 37, 40]. Specifically, we investigated the association between having lived in a refugee camp and C&U traits as well as associations between C&U traits and dimensions of Big Five personality. Finally, we investigated whether associations between C&U traits and Big Five personality vary as a function of refugee camp history.

Given findings of increased levels of C&U traits among individuals who have experienced stressful and traumatic situations (e.g., [16, 43]), we hypothesized that adolescents who have lived in a refugee camp will endorse higher levels of C&U traits. Nevertheless, we put forth no a priori hypotheses regarding specific C&U trait dimensions. Furthermore, we hypothesized that the associations between Big Five dimensions and C&U traits would be consistent

with previous findings. Specifically, we expected that Callousness and Uncaring would be negatively associated with Agreeableness and Conscientiousness, with Uncaring uniquely negatively associated with Openness and Unemotional negatively associated with Extraversion [8, 14, 19].

Lastly, in a set of more exploratory analyses, we examined the statistical interaction between Big Five traits and refugee camp history in predicting C&U traits. Specifically, we expected that the associations between Big Five and C&U trait dimensions would vary as a function of having the experience of previously living in a refugee camp. Because these analyses are exploratory, we advanced no a priori hypotheses regarding specific Big Five and C&U trait associations as a function of refugee camp history.

Methods

Participants

Participants included 81 immigrant adolescents, aged 12–20 years ($M_{age} = 15.44$, $SD = 1.91$) who participated in a larger study on immigrant adolescents. The sample was diverse in terms of gender (54 % female) and ethnicity. Participants were asked to write in their ethnicity as a free response item, resulting in >20 different self-identified ethnicities, with participants largely reporting being from East and Southeast Asia and East Africa, which is consistent with the refugee statistics from the United States Office of Refugee Resettlement [44]. As described later, 39.5 % of participants reported that they had lived in a refugee camp prior to moving to the United States. Seven participants did not report on their refugee camp status, resulting in unequal sample sizes across analyses. Participants lived in the metropolitan area of a large urban city in the Southeastern United States at the time of data collection.

Procedure

The University Institutional Review Board approved all study procedures. Participants were recruited in partnership with a local community-based organization. Staff members from the afterschool program serving these families initiated recruitment by sending consent forms to parents of students in the program. Parents had the option of receiving consent forms in either English or their native language (i.e., Vietnamese, Nepali, Spanish, and Chinese). Parents of adolescents under age 18 gave written consent for their child to participate, and these adolescents, all conversationally fluent in English, then provided their own assent in

English. Participants aged 18 years and older gave written consent, also in English, prior to participation. All measures were administered during regularly scheduled afterschool program period, lasting approximately 2 h. Although data on exact participation rates were not collected, with the exception of those few students for whom parental consent forms were not returned, the overwhelming majority of students present during data collection visits chose to participate.

Measures

Refugee Status

Participants self-reported on their refugee status by indicating whether they had ever lived in a refugee camp in a “yes/no” format prior to coming to the United States

Callous & Unemotional Traits

The *Inventory of Callous–Unemotional Traits* (ICU; [11]) is a 24-item instrument designed to assess CU traits. The response format is a four-point Likert-type scale ranging from “Not at all True” to “Definitely True.” The measure consists of three factor analytically derived scales: Callousness, Uncaring, and Unemotional. Broadly, the ICU demonstrates adequate internal consistencies [8]. Moreover, the ICU’s construct validity has been supported in large community [8, 19] and clinical [42] studies of adolescents, as evidenced by expected associations with such constructs as aggression, delinquency, and Conduct Disorder. In the current sample, internal consistencies (Cronbach’s alphas) across the three subscales were .71, .44, and .83 for Callousness, Unemotional, and Uncaring, respectively. When individual items were examined, item 2 on the Callousness scale and item 6 on the Unemotional scale were problematic, with item-total correlations with their respective scales approaching zero ($r_s = .08$ and $-.001$, respectively). These items were therefore removed, resulting in Cronbach’s alphas for the new Callousness and Unemotional scales increasing to .73 and .54, respectively. The low alpha for Unemotional is consistent with previous findings (e.g., [42, 45]). Cronbach’s alpha for the ICU Total score was .74.

Big Five Personality

The *Big Five Inventory, Adolescent Version* (BFI-A; [46]) is a 46-item, self-report measure, designed to assess the Big Five personality traits: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Participants rate the extent to which various statements describe them on a 5-point Likert-type scale ranging from *Agree Strongly*

to *Disagree Strongly*. Previous research has confirmed that the BFI-A possesses strong construct validity [46]. In the current sample, Cronbach alphas ranged from .48 (Agreeableness) to .68 (Neuroticism). Upon examining items within the Agreeableness scale, it was found that item 2 evidenced a problematic item-total correlation ($r = .06$) and, as such, was removed from the scale. The new Cronbach's alpha for Agreeableness was .50.

Analyses

Missing data were imputed at the item level using the EM Estimation provided by SPSS 20. EM Estimation first imputes data using conditional expectation and then verifies imputed values using maximum likelihood estimation [47]. As noted earlier, missing refugee camp status data were not imputed, resulting in unequal sample sizes across analyses. Zero-order correlations were then performed to examine bivariate associations between C&U traits and Big Five personality. The potential effect of living in a refugee camp status on self-reported C&U traits was first investigated through a series of *t* tests comparing levels of self-reported C&U traits between adolescents who had previously lived in a refugee camp to those that had not. Then, to examine unique associations between Big Five personality and C&U traits, a series of three hierarchical multiple regression analyses were performed predicting each of the C&U traits. In preparation, all variables were standardized using *z*-scores. Associations between the demographic and the dependent variables were examined to assess which variables to include as covariates in Step 1 when appropriate. Further, refugee camp status was included in Step 1 to examine the incremental contribution of Big Five personality above and beyond such status. Additionally, refugee status by personality product terms were computed and entered in a third step of the model to examine whether the associations between Big Five personality and C&U traits varied by (interacted with) refugee camp history. To keep the number of model predictors to a minimum, interaction terms were entered in the final step of the model separately. To examine the specific form of any significant

interaction, the slope of the final equation was computed at points that corresponded to high and low levels (± 1.0 SD) of the personality variable and for those adolescents reporting having lived in a refugee camp and those that did not (see [48]).

Results

Preliminary Analyses

Surprisingly, the three C&U traits were largely uncorrelated ($r = .19$ for Callousness–Uncaring and $r = .001$ for Callousness–Unemotional, $ps > .10$), with the only significant correlation for Uncaring and Unemotional ($r = .29$, $p < .01$). With regard to bivariate correlations between C&U traits and Big Five personality (see Table 1), both Callousness and Uncaring were significantly negatively associated with Openness and Agreeableness, with the magnitudes being slightly higher for Uncaring. Unemotional was not significantly associated with any Big Five personality traits (*Mdn* $r = .131$, all $ps > .12$). Like the Callousness and Uncaring subscales, the ICU Total score also evidenced significant negative associations with Openness and Agreeableness. With regard to demographics, gender (*Mdn* $r = -.13$, all $ps > .07$) and age (*Mdn* $r = -.06$, all $ps > .06$) were not significantly associated with any C&U traits nor ICU Total score and hence were excluded from subsequent multivariate analyses.

As shown in Fig. 1, there were significant differences in self-reported Uncaring between those adolescents who had lived in a refugee camp ($M = 11.62$, $SD = 6.23$) and those who had not ($M = 6.76$, $SD = 4.47$), ($t(72) = -3.74$, $p < .001$). The effect size for this difference was large in magnitude (Cohen's $d = .90$). In contrast, although the effect sizes for the difference between groups on Callousness ($M = 10.34$, $SD = 4.63$ and $M = 8.38$, $SD = 4.95$, for those having lived in a refugee camp and those that have not) was moderate (Cohen's $d = .41$), the groups did not differ significantly ($t(72) = -1.56$, $p > .12$). Groups did not differ for Unemotional (Cohen's $d = .08$; $t(72) = .33$,

Table 1 Bivariate correlations between C&U traits and Big Five personality

	Callousness	Uncaring	Unemotional	Total
Big Five personality				
Neuroticism (N)	-.16	-.01	.14	-.08
Extraversion (E)	-.09	-.01	-.09	-.07
Openness (O)	-.36**	-.39**	-.18	-.46**
Agreeableness (A)	-.34*	-.37**	-.12	-.42**
Conscientiousness (C)	-.06	-.11	-.13	-.11

$N = 81$

* $p < .05$, ** $p < .01$

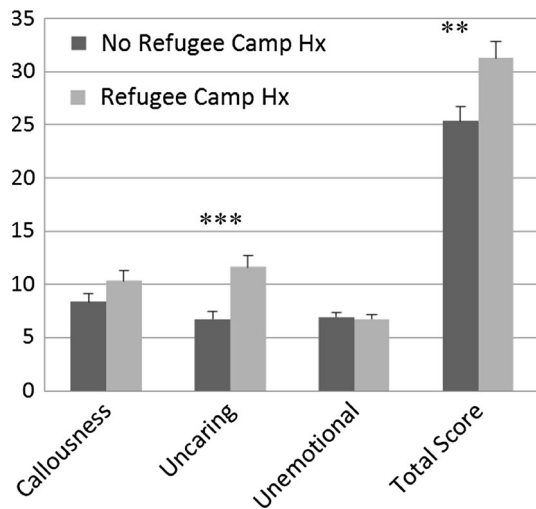


Fig. 1 Mean level differences for Callous & Unemotional traits (\pm SEM) based on refugee camp history. Note ** $p < .01$. *** $p < .01$. No refugee camp history, $N = 42$; Refugee camp history, $N = 32$. Hx = History

$ps > .70$). With regard to the ICU Total score, significant and medium to large group differences emerged between those adolescents who had lived in a refugee camp ($M = 31.28$, $SD = 8.65$) and those who had not ($M = 25.38$, $SD = 8.77$), ($t(72) = -2.89$, $p < .01$; Cohen's $d = .68$). Refugee camp status was included in subsequent multivariate analyses, both as a covariate and in interaction with personality, in statistically predicting the individual C&U traits.

Statistically Predicting C&U Traits from Big Five Personality

As shown in Table 2, three hierarchical regression models were performed to examine the unique contribution of Big Five personality and refugee camp history in the statistical prediction of the three C&U trait dimensions and the Total score. Having lived in a refugee camp evidenced a significant main effect in the explanation of Uncaring and Total score (but not Callousness or Unemotional), accounting for a significant 17.5 and 10.4 % of the variance, respectively. Big Five personality traits accounted for an additional 16 % of the variance in Uncaring and 23 % of the variance in Total score. Big Five personality traits accounted for 17.6 % of the variance in Callousness. In contrast, Big Five personality traits did not account for a significant amount of variance in Unemotional scores. After accounting for refugee camp history, only Agreeableness ($\beta = -.26$, $t = -2.32$, $p < .05$) emerged as a significant main effect for Uncaring, with lower levels of Agreeableness associated with higher levels of Uncaring. With regard to Big Five personality trait main effects, after

accounting for refugee camp history, Agreeableness ($\beta = -.24$, $t = -1.95$, $p = .056$) evidenced a marginally significant negative associations with Callousness, with no personality traits emerging as significantly uniquely associated with Unemotional at the $p < .05$ level. Further, both Openness ($\beta = -.27$, $t = -2.13$, $p < .05$) and Agreeableness ($\beta = -.31$, $t = -2.78$, $p < .01$) were significantly negatively associated with ICU Total scores at the multivariate level.

In addition to main effects, the association between personality and Callousness was moderated by refugee camp status. Specifically, Neuroticism interacted statistically with refugee camp status in the explanation of Callousness ($\beta = -.26$, $t = -2.02$, $p < .05$), accounting for an additional 4.6 % of the variance, with 25.6 % of variance explained by the full model. As shown in Fig. 2, a negative association between Neuroticism and Callousness emerged only for those youth reporting having lived in a refugee camp. For youth reporting having never lived in a refugee camp, however, there was no significant association between Neuroticism and Callousness. Furthermore, Neuroticism interacted statistically with refugee camp status in the explanation of Uncaring at a trend level ($\beta = .22$, $t = 1.88$, $p = .065$), accounting for an additional 3.3 % of the variance. When the nature of this interaction was probed, a similar pattern to that found in the explanation of Callousness emerged; a negative association between Neuroticism and Uncaring emerged only for youth who had lived in a refugee camp.

Discussion

The current investigation is the first to examine associations between Big Five personality and C&U traits among immigrant adolescents from non-Western backgrounds. As such, our results extend the generalizability of previous findings among Western adolescents to non-Western youth. Moreover, the current study considered individual refugee camp history as a contextual variable that may impact the presentation of various C&U traits. Specifically, we considered the association between refugee camp history and C&U traits, as well as the potential moderating role of refugee camp history on associations between Big Five personality and C&U traits. By examining these traits, in addition to the influence of refugee camp status, our results bear significant implications for the study of C&U traits in diverse populations as well as the inclusion and applicability of the new LPE specifier in DSM-5.

Overall, analyses revealed significant associations between refugee camp status and C&U traits, such that adolescents who reported to have lived in a refugee camp scored significantly higher on Uncaring as well as the Total score. Further, significant unique associations between Big

Table 2 Predicting callous–unemotional traits from youth personality

Predictors	Callousness		Uncaring		Unemotional		Total	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Step 1: Demographics								
R^2	.03		.18 [‡]		.00		.10 [‡]	
Refugee camp status (1 = Yes)	.18	.1.59	.42	3.91**	-.04	-.33	.32	2.89**
Step 2: Big five personality								
ΔR^2	.18 [‡]		.16 [‡]		.06		.23 [‡]	
Neuroticism (N)	-.22	-1.66	.04	.31	.07	.51	-.10	-.86
Extraversion (E)	-.06	-.47	.17	1.44	-.08	-.56	.05	.42
Openness (O)	-.24	-1.76	-.17	-1.32	-.12	-.81	-.27	-2.13*
Agreeableness (A)	-.24	-1.95 [±]	-.26	-2.32*	-.14	-1.02	-.31	-2.78*
Conscientiousness (C)	-.04	-.30	-.15	-1.22	-.03	-.22	-.10	-.79
Step 3: Interaction terms								
Refugee*N	-.26	-2.02*	.22	1.88 ^{±±}	.20	1.38	.04	.34
Refugee*E	-.08	-.58	-.05	-.40	.12	.80	-.23	.82
Refugee*O	-.09	-.59	-.01	-.06	-.26	-1.54	-.14	-.97
Refugee*A	-.06	-.34	.06	.34	-.02	-.12	-.06	-.35
Refugee*C	-.10	-.71	.11	.87	-.04	-.24	-.05	-.36

Only those demographic variables with significant bivariate associations were included in regression models as described in the text

$N = 81$ except for Step 3 where $N = 74$, as described in the text

[±] $p = .056$, ^{±±} $p = .065$, * $p < .05$, ** $p < .01$

[‡] F or F_{change} significant $p < .05$

Five personality and C&U traits emerged. Although accounting for less of the variance in C&U traits than expected, normal range personality dimensions accounted for 6–18 % of the variance in the statistical prediction of C&U traits after accounting for refugee camp history. As discussed in more detail later, Callousness and Uncaring appear to be adequately represented within this traditional model of normal-range personality, but Unemotional does not. Further, the association between Big Five Neuroticism and Callousness varied significantly by reported refugee camp history, as did the association between Neuroticism and Uncaring at a trend level.

Refugee Camp Status and C&U Traits

As noted earlier, preliminary analyses revealed a significant association between refugee camp history and C&U traits (i.e., Total score), and specifically the Uncaring dimension, which underscores the importance of considering C&U trait dimensions separately rather than as a single unitary score [7]. This specificity is partially consistent with previous findings that C&U traits are positively associated with high-risk environmental contexts [28], especially traumatic/stressful life experiences [15, 29]. Previous research suggests that these associations between traumatic/stressful life experiences and C&U traits may be explained by the continued use of coping mechanisms due

to prolonged exposure to high-stress situations [16, 29, 49]. Results of the current study, as well as previous findings (e.g., [16, 29, 36, 37]), are potentially consistent with Porter's (1996) proposal that individuals may present with increased levels of C&U traits as a result of engaging in emotional de-activation or dissociation from emotions as a coping mechanism following trauma (but see [50], for contrary findings). This emotional numbing process may serve as an adaptive function to cope with experience of trauma in the short term. Over time, this process of emotional numbing may become generalized into an emotionally detached affective and interpersonal style, which may be a consequence of the need to function in a perpetual state of increased stress [29]. For example, Kerig et al. (2012) reported that although general emotional numbing mediated the association between trauma and all three C&U dimensions, numbing of sadness specifically mediated the association between trauma and both Callousness and Uncaring. Indeed, previous studies have found that refugee children and adolescents report a high level of post-traumatic stress symptoms as a result of their exposure to persistent trauma in their country of origin (e.g., war-related trauma, persecution; [51, 52]). The prolonged exposure to persistent high levels of stress during the resettlement process (e.g., refugee camps, environmental instability, violence, loss of family; [32]) may contribute to the response becoming generalized and

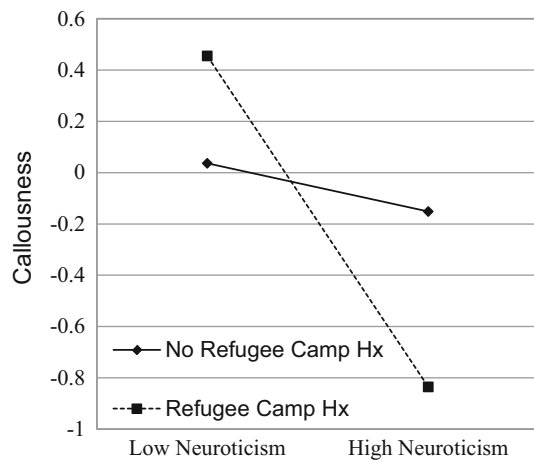


Fig. 2 Interaction between refugee camp history and Neuroticism: associations with Callousness. *Note* As described in text, no refugee camp hx, $N = 42$; Refugee camp history, $N = 32$. Hx = History. High and low values correspond to ± 1 SD from the mean

manifesting as increased levels of uncaring, conceptualized as the lack of caring about the feelings of others and of one's performance.

Big Five Personality and C&U Traits

Our results buttress the importance of considering trait models of personality to better understand the heterogeneity of C&U traits. Specifically, our findings are partially consistent with those suggesting the C&U dimensions of Callousness and Uncaring fit within traditional models of normal-range personality, potentially representing two aspects of a single dimension [7, 8, 14, 19]. At both the bivariate and multivariate levels, Callousness and Uncaring were associated with low Agreeableness, and at similar magnitudes, albeit at a trend level in the multivariate regression analyses for the former. Consistent with hypotheses and with previous findings, Callousness and Uncaring were significantly and negatively, but not uniquely, associated with Openness, (see also [8, 19]). Verbeke and De Clercq (2014) suggested that the higher-order personality factor of Oddity, which may capture the maladaptive features of Openness, explains additional variance in the explanation of psychopathology [53]. In contrast to previous findings [7, 8, 14, 19], we did not find Unemotional to be significantly associated with trait personality; it will be important to replicate these negative results in larger immigrant samples.

These results suggest that the addition of the LPE specifier in DSM-5 may not fully mitigate the heterogeneity problem it was intended to address. For example, underscoring the fact that C&U traits reflect different underlying processes is our finding that although Callousness was explained by trait personality, Unemotional was

largely unrelated. Under the specifier, however, a patient may meet criteria by exhibiting high levels of either callousness or unemotionality, potentially leading to the same diagnosis with various presentations, etiologies, and perhaps treatment responses. Such an outcome may contribute to the “jingle-jangle” problem [54–56]: different traits referred to by the same name (“jingle”) or the same trait referred to by different names (“jangle”).

Our results suggest that the association between Big Five Neuroticism and Callousness varies significantly by refugee camp history. Indeed, whereas Neuroticism was unrelated to Callousness for adolescents who did not report having lived in a refugee camp, Neuroticism was negatively associated with Callousness for those adolescents who had lived in a refugee camp. For adolescents who had lived in a refugee camp, lower self-reported Neuroticism was associated with higher Callousness. Similarly, the interaction between Neuroticism and refugee camp history evidenced a borderline significant association with Uncaring. Nevertheless, no significant interactions were found for Unemotional. This finding is surprising given that previous studies have found Unemotional, but not Callousness and Uncaring, to be associated with low Neuroticism [8, 14]. One potential explanation for this finding is the emotional numbing hypothesis described earlier [16]. Specifically, adolescents with higher levels of emotional reactivity may engage in an emotional numbing process as a coping mechanism following prolonged trauma exposure, which is common in a refugee camp environment [57]. Over the course of continued exposure to stress, adolescents may generalize this numbing process into a trait-like callous and emotionally detached affective and interpersonal style. The negative association between Neuroticism and Callousness, as well as Uncaring, among those with refugee camp histories may be indicative of this emotional numbing process. This finding underscores the importance of considering etiological and treatment distinctions between callous clinical presentations potentially stemming from prolonged exposure to a stressful environment, and callous presentations that are more clearly linked to trait dispositions that reflect “primary psychopathy,” that is psychopathy that ostensibly does not result from adverse environments or co-occurring psychological distress (see [35]).

Limitations

The cross-sectional, correlational nature of our design precludes causal inferences. Indeed, although we considered refugee camp status in the explanation of C&U traits, this association is probably more nuanced and bidirectional, underscoring the need for future longitudinal

research. In addition, we cannot exclude the possibility that individuals who underwent refugee camp experiences differed in unmeasured personality traits even prior to these experiences. Our use of all single-informant reports raises potential concerns regarding both common method and source variance. Additionally, our refugee camp status variable was a single yes/no item asking participants to indicate whether they had lived in a refugee camp prior to coming to the US. Future research would benefit from multi-informant approaches and utilization of multiple methods. Although our sample was relatively diverse, we did not collect information regarding reasons for immigration, and the study was limited by recruitment from one geographic area. Further, as a result of a relatively small sample size, we were not able to explore potential differences among specific groups with different immigrant experiences. Indeed, differences with regard to cultural background may relate to how adolescents cope with migration stress and living in a refugee camp.

Further, the relatively low internal consistencies for some of the scales, most notably ICU Unemotional and BFI Agreeableness, probably attenuated bivariate associations. Nonetheless, associations did emerge across analyses with regard to Agreeableness, providing support for the robustness of these findings. In addition, because removing items with low item-total correlations may result in inflated magnitudes of correlations (because of capitalization on sample-specific differences; see [58], for a clever demonstration), it will be important to replicate these findings in novel samples using similarly abbreviated versions of these scales. Nonetheless, it is important to note that although associations were attenuated and often failed to reach significance as a result of lower scale reliabilities, results were largely parallel when original scales were used in the analyses. The ICU [11] framework is the only approach of which we are aware that is designed specifically for comprehensively assessing C&U traits, which provides the basis for the LPE DSM-5 specifier. Indeed, although recent efforts have been made to develop interview-based clinical assessments of prosocial emotions (i.e., Clinical Assessment of Prosocial Emotions [CAPE], [59]), these efforts are explicitly tied to the ICU. As such, the convergent and discriminant validity of these measures needs to be studied further. Additionally, it will be imperative to confirm that our findings, and, importantly, those of the broader literature, are not instrument/theory-specific.

Finally, we did not explicitly assess traumatic experiences. As part of the larger study from which these data were drawn, however, posttraumatic symptoms were assessed with the adolescent version of the Los Angeles Symptom Checklist (LASC) [60]. Results of subsidiary analyses comparing C&U traits for youth who had lived in a refugee camp with those that had not yielded no significant differences across subscales, including Reexperiencing/Intrusion

($t = .68, p > .67$) and Avoidance/Numbing ($t = .92, p > .36$). These analyses raise the possibility that our results primarily reflect the continued chronic stressors experienced by individuals living in refugee camps rather than discrete traumatic experiences. Nevertheless, in the absence of data on exposure to traumatic events, such as those involving the threat of death or serious injury, this interpretation remains conjectural. As a consequence, future research will need to examine the contribution of discrete traumatic experiences to variability in C&U traits among refugee populations.

Summary

Results of the current study bear a number of implications for psychiatric classification, future research, and clinical and intervention settings. As noted earlier, our results, as well as previous findings (e.g., [7, 8, 19]), suggest that specific C&U traits map onto distinct personality trait domains, a point that is obscured when they are combined into a single score, as in the ICU or implicitly treated as equivalent indicators of a single construct, as in the *DSM-5* specifier. This issue is important not only in the service of advancing our understanding of the nomological network of C&U traits, but also because the *DSM* specifier criteria are based on the conceptualization of CU traits as a single construct [6].

Our results further highlight the importance of considering how C&U traits may manifest within immigrant populations. Our results raise important concerns with regard to the LPE specifier for CD in *DSM-5*, with regard to both its contribution to the heterogeneity within the CD diagnosis as its broad applicability. Specifically, it is imperative for mental health professionals working with immigrant adolescents to consider how adolescents' experiential backgrounds may contribute to their clinical presentation. For example, recent findings suggest that youth who have a trauma history and present with increased C&U traits may benefit from treatments and interventions that integrate trauma-focused components [43, 61]. This is particularly true for professionals working in the US as the US is one of the leading nations accepting refugees, with approximately 56,400 refugees having resettled in 2011, 46 % of which were children and adolescents [44]. In light of the data on the continuing high rates of immigration [62], the importance of this issue is only likely to increase for the foreseeable future.

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