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Self-esteem in adolescents with reactive attachment disorder or disinhibited social engagement disorder

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ABSTRACT

Background: Low self-esteem predicts negative outcomes and mediates the association between childhood adversity and mental health problems in adolescence. Reactive attachment disorder (RAD) and disinhibited social engagement disorder (DSED) are presumably caused by early insufficient care, but their association with self-esteem is unknown.

Objective: Investigate global and domain-specific self-esteem in adolescents with RAD or DSED. **Participants and setting:** All adolescents living in Norwegian residential youth care (RYC) ($N = 306$; age 12–20) were compared with a sample from the general Norwegian adolescent population ($N = 10,480$; age 12–20).

Methods: Self-esteem for scholastic competence (SC), social acceptance (SA), athletic competence (AC), physical appearance (PA), romantic appeal (RA), close friendship (CF), and self-worth (SW) was investigated using the revised version of the Self-Perception Profile for Adolescents.

Results: Compared to the general population, adolescents with RAD diagnosis had lower SC (mean difference, $MD = -0.30$, $p = .020$) and higher CF ($MD = 0.25$, $p = .021$), whereas adolescents with DSED diagnosis had lower SC ($MD = -0.42$, $p = .005$), SA ($MD = -0.40$, $p = .015$), AC ($MD = -0.22$, $p = .038$), PA ($MD = -0.33$, $p = .048$), and SW ($MD = -0.37$, $p = .013$). Compared to adolescents in RYC without RAD/DSED diagnoses, adolescents with DSED diagnoses had lower SA ($MD = -0.42$, $p = .012$) and SW ($MD = -0.32$, $p = .037$). More RAD symptoms were associated with lower SA ($B = -0.051$, $p = .013$), AC ($B = -0.048$, $p = .028$), RA ($B = -0.053$, $p = .007$), and CF ($B = -0.052$, $p = .005$). More DSED symptoms were associated with lower SC ($B = -0.125$, $p = .038$).

Conclusion: Both global and domain-specific self-esteem in adolescents with RAD or DSED should be assessed; developmental support and treatment plans should be adjusted accordingly.

1. Introduction

High self-esteem predicts beneficial outcomes in important life domains such as health, work, and interpersonal relationships (Orth & Robins, 2014), whereas low self-esteem in adolescence predicts poor physical and mental health, worse economic prospects, and

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criminal behavior in adulthood (Trzesniewski et al., 2006). Self-esteem denotes the self-evaluation of one's worth and ability and evolves as a function of a person's developmental history, experiences, and cognitive ability (Harter, 2012). Children with emotionally unavailable, rejective, and unsupportive caregivers are prone to develop a self-perception as incompetent, unlovable, and unworthy, reflected by low global self-esteem (Harter, 2012). Moreover, severely insufficient care in early childhood is a diagnostic criterion and the presumed cause of reactive attachment disorder (RAD) and disinhibited social engagement disorder (DSED) (American Psychiatric Association, 2013). In adolescence, RAD and DSED frequently co-occur with emotional and behavioral problems and disorders (Seim et al., 2020a), but associations with self-esteem are unknown. Intervention studies indicate that poor self-esteem in children and adolescents can be enhanced and that targeting children and adolescents with identified disorders or problems is more effective than preventive interventions in the general population (Haney & Durlak, 1998; O'Mara et al., 2006). Because self-esteem has been found to mediate the association between child maltreatment and emotional and behavioral problems (Flynn et al., 2014; Ju & Lee, 2018; Turner et al., 2015), it may be an important target for intervention in the prevention and treatment of mental health problems in high-risk adolescents, including those with RAD or DSED. Further, low self-esteem may, independently of psychopathology, contribute to low quality of life in high-risk adolescents (Jozefiak et al., 2017), and self-esteem enhancement may therefore be important to improve life quality in adolescents with RAD or DSED.

Self-esteem is typically conceptualized as a multidimensional construct, having several domain-specific components, such as academic, physical, and social self-esteem (Harter, 2012; Rosenberg et al., 1995), in addition to an evaluation of global self-esteem. Because a person may have, for example, a high academic self-esteem and a low physical self-esteem, and the person's global self-esteem then depends on how important the person considers academic and physical success to be (intrapersonal perspective) and how important these domains are for the individual's perception of their own social status (interpersonal perspective), a person's self-esteem cannot be adequately understood without considering both global and domain-specific components (Harter, 2012; Marsh et al., 2004; Rosenberg et al., 1995; Von Soest et al., 2016). Moreover, self-esteem interventions that directly target specific self-domains, such as academic self-esteem, rather than aiming to enhance self-esteem in general, have been shown to more effectively improve self-esteem in the targeted domain (O'Mara et al., 2006). Therefore, to optimize treatment and care for individuals with RAD or DSED, services and caregivers need specified knowledge about self-esteem in adolescent RAD and DSED, which has not been previously studied. Accordingly, having access to a national sample of adolescents living in residential youth care (RYC) and a national sample of adolescents in the general population, we investigate global and domain-specific self-esteem in adolescent RAD and DSED.

RAD is characterized by social withdrawal, limited emotional responsiveness, and failure to seek and respond to comfort (American Psychiatric Association, 2013). DSED, on the other hand, is characterized by indiscriminate behavior and a lack of reticence in interactions with strangers or in other unfamiliar settings (American Psychiatric Association, 2013). Longitudinal studies have demonstrated that symptoms of RAD and DSED may persist from early childhood to adolescence and early adulthood (Guyon-Harris et al., 2018; Guyon-Harris et al., 2019; Humphreys et al., 2017; Sonuga-Barke et al., 2017). However most available studies of RAD and DSED are of younger children, and more knowledge about RAD and DSED in adolescence is called for (Zeanah et al., 2016). Because RAD and DSED are rare psychiatric disorders distinct from insecure and disorganized attachment patterns (Schroder et al., 2019) that characterize nearly half of the general adolescent population (Ballús et al., 2019), findings from studies of associations between disorganized or insecure attachment and self-esteem cannot be directly mapped onto RAD and DSED. The only available studies of self-esteem in individuals with RAD or DSED are of school-aged children. However, because global and domain-specific self-esteem tend to drop from childhood to adolescence (Robins et al., 2002) with a subsequent increase through adolescence to adulthood (Robins et al., 2002; Von Soest et al., 2016), and because the presentation and impact of RAD and DSED in adolescence may differ from that in childhood (Zeanah et al., 2016), findings in school-aged children are not necessarily transferable to adolescence. Therefore, a specific investigation of self-esteem in adolescents with RAD or DSED is needed.

At school age, a study of institutionalized children found that disturbed attachment behavior, including symptoms of either RAD or DSED, was associated with poor self-reported scholastic competence and global self-esteem but was not associated with social acceptance or athletic competence self-esteem (Vacaru et al., 2018). Regarding RAD, a study in special schools for children with emotional and behavioral disorders found no associations between RAD and self-reported global self-esteem (Bosmans et al., 2019). Another study comparing school-aged high-risk children with controls from the general population reported that having more RAD symptoms was associated with lower self-esteem, measured as the mean of cognitive competence, peer acceptance, and behavioral conduct self-esteem (Zimmermann & Iwanski, 2019). Beyond age 12 years, the self-esteem in individuals with RAD has not been studied. For DSED, an investigation of school-age children in special education schools found, contrary to expectations, that children with signs of DSED had more positive appraisals of both self and others and reported higher global self-esteem than the control group (Vervoort et al., 2014). Beyond middle childhood, the self-esteem of individuals with DSED has not been investigated. Altogether, research on self-esteem in RAD and DSED is scarce, findings are equivocal, and there is a total lack of knowledge for adolescence.

The causal relationship between self-esteem and other psychopathology (such as emotional and behavioral disorders) is not entirely clear, and two opposing explanations dominate the literature: The vulnerability model proposes that low self-esteem is a risk factor for psychopathology, whereas the scar model proposes that low self-esteem is a consequence of psychopathology (Orth et al., 2012; Reed-Fitzke, 2020; Zeigler-Hill, 2011). A variant of the vulnerability model, the stress process model, proposes that negative stress interacts with self-esteem in predicting psychopathology, with self-esteem acting as a mediator (Pearlin, 1989; Reed-Fitzke, 2020). Although there is a risk that RAD or DSED may cause other psychopathology later in life, the early debut and etiology implicit in the RAD and DSED diagnoses make it less likely that other psychopathology causes RAD or DSED. Hence, in the investigation of associations between RAD or DSED and self-esteem, other psychopathology may act as a collider (in the case of the vulnerability model) or a mediator (in the case of the scar model) but less likely a confounder, and it should therefore not be adjusted for.

Categorical and dimensional approaches to RAD and DSED each have their strengths and weaknesses (Stafford et al., 2003), where

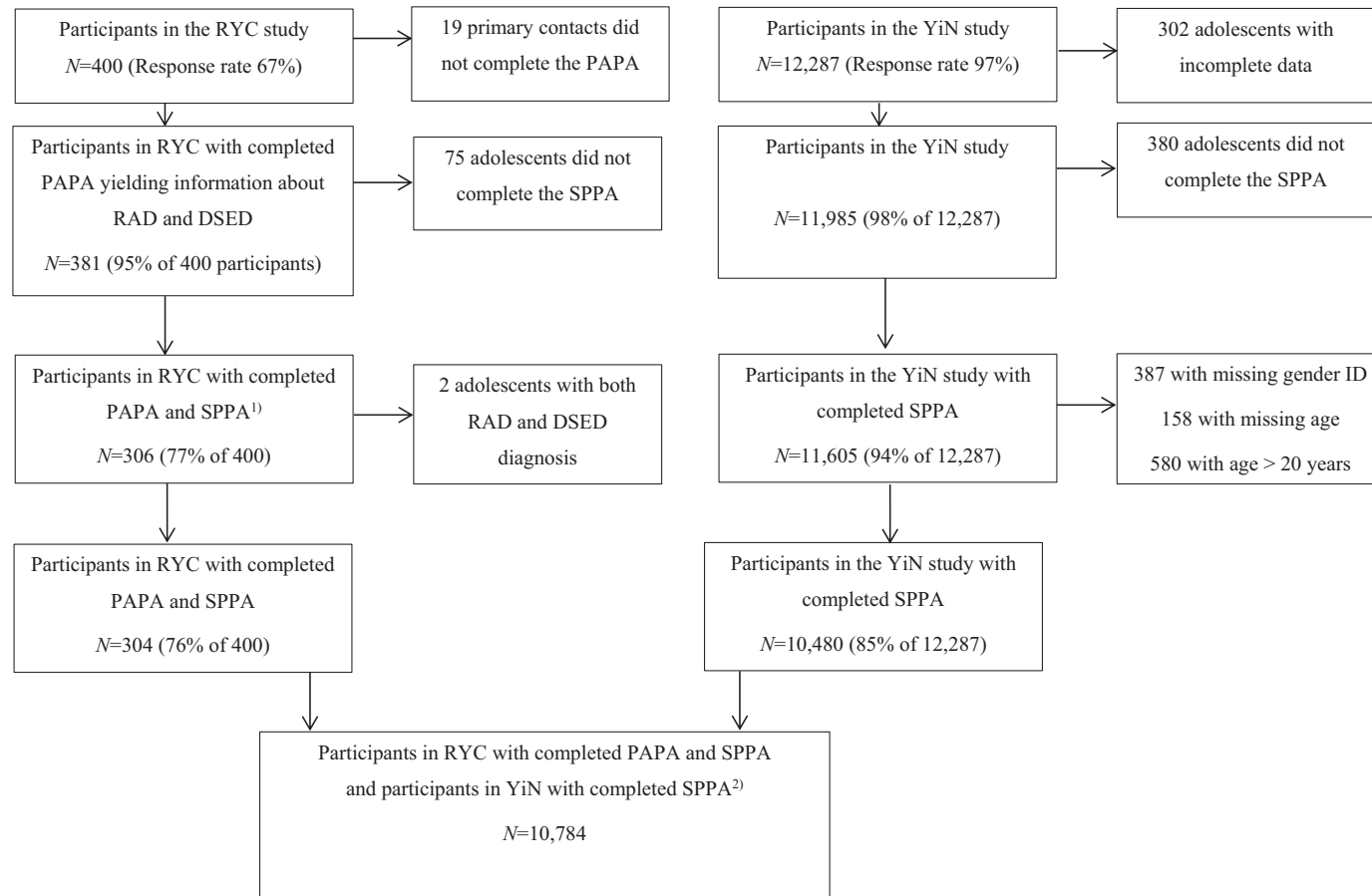


Fig. 1. Participant flowchart Note. *DSED* disinhibited social engagement disorder; *PAPA* preschool age psychiatric assessment; *RAD* reactive attachment disorder; *RYC* residential youth care; *SPPA* Self-Perception Profile for Adolescents; *YiN* Young in Norway study. ¹Participants included in analysis of association between self-esteem domains and RAD and DSED symptom loads. ²Participants included in group comparisons of self-esteem (adolescents with: RAD diagnosis, DSED diagnosis, adolescents in RYC with neither RAD nor DSED diagnoses, and adolescents in the general population).

categorical diagnoses are clinical tools that consider, for example, onset, impairment, and exclusion criteria and reflect more than simple cut-off values of symptom loads. Dimensional measures of symptom loads, on the other hand, give higher statistical power and allow the inclusion of sub-threshold cases, which may have high levels of impairment and psychiatric burden, although some diagnostic criteria are unfulfilled (Stafford et al., 2003). To encompass the advantages of both categorical and dimensional approaches, we investigate self-esteem by using both diagnostic and symptom load approaches to RAD and DSED.

Due to the high-risk nature of adolescents living in residential youth care (RYC) (Greger et al., 2015; Jozefiak et al., 2016) and indications that school-age children not reared with their parents have lower self-esteem in many domains compared with children in the general population (Wang et al., 2015), we hypothesize that adolescents with RAD or DSED living in RYC have lower self-esteem compared with adolescents in the general population. However, this may not be the case in all self-esteem domains. Further, it is unknown whether self-esteem in adolescent RAD and DSED differs from self-esteem in other high-risk adolescents living in RYC without RAD or DSED. Moreover, children with RAD seem to be more responsive to enhanced caregiving than children with DSED (Smyke et al., 2012; Zeanah & Gleason, 2015), but it is unknown whether there is a difference in self-esteem between adolescents with a RAD diagnosis and those who have a DSED diagnosis. Because of the general knowledge drought concerning self-esteem in individuals with RAD or DSED and the complete lack of knowledge in adolescence, our study is mainly exploratory, aiming to investigate whether adolescents with RAD or DSED diagnoses or symptoms have lower global or domain-specific self-esteem than adolescents without RAD or DSED.

More specifically, we aim to investigate whether mean values of global and domain-specific self-esteem among adolescents living in RYC (i) differ between those with a RAD diagnosis, a DSED diagnosis, neither RAD nor DSED diagnoses, and adolescents in the general population, and (ii) are associated with RAD or DSED symptom loads.

2. Methods

2.1. Participants

2.1.1. Adolescents in RYC

All residents aged 12–23 years living in Norwegian RYC between 2011 and 2014 were invited to participate in the research project *Mental Health in Adolescent Residents in the Child Welfare System* (Jozefiak et al., 2016). Of 601 eligible adolescents, a total of 400 participated, of which 381 yielded information about RAD and DSED, and $N = 306$ also yielded information about self-esteem and participated in the study. The participants were between 12.2 and 20.2 years old ($M = 16.8$, $SD = 1.4$), 56.9% were female ($n = 174$), and 78.5% were ethnic Norwegian. The mean age at first out-of-home placement was 12.4 years ($SD = 4.1$), and the mean number of out-of-home placements was 3.4 ($SD = 2.5$). In total, $n = 5$ participants had been diagnosed with mild intellectual disability, whereof none had RAD, and $n = 1$ qualified for a DSED diagnosis. In a previous study, the participants demonstrated high levels of parental risk factors, such as drug use, mental illness, or other chronic illnesses, and very high rates of psychiatric morbidity (Jozefiak et al., 2016). Exposure to maltreatment was self-reported by 71%, and virtually all had likely been exposed to social neglect prior to placement (Greger et al., 2015). The prevalence of RAD diagnosis was 9.2% ($n = 28$), and 8.5% qualified for a DSED diagnosis ($n = 26$), congruent with our previous findings in the total sample of $N = 381$ with available information about RAD and DSED (Seim et al., 2020b).

2.1.2. Adolescents in the general population

The Young in Norway Study (Wichstrøm, 1999) sampled 67 schools with a total of 12,287 students from a national register of all junior and senior high schools in Norway, by stratifying the sample according to geographic region and school size. A total of 10,480 students had completed the self-esteem questionnaire, were in a comparable age range as the RYC sample, had available gender identification allowing adjustment for gender, and participated in the study. The students were in Grades 7 through 12 and were 12 to 20 years old ($M = 15.8$, $SD = 1.9$), 50.5% female ($n = 5295$). The recruitment flowchart is shown in Fig. 1.

2.2. Setting in RYC

The primary focus of the Norwegian child protection services (CPS) is to support families and children in need within their homes, and out-of-home placements are limited to situations when considered paramount to fulfil a child's basic needs (Bufdir.no, 2020). In such cases, placement in foster homes is preferred, with RYC being a last resort (Backe-Hansen et al., 2011). The Norwegian CPS placement criteria (Lovdata.no, 2020) imply that social neglect, maltreatment, or severely inadequate care are likely exposures of children and adolescents prior to out-of-home placements.

Law and quality requirements regulate Norwegian RYC institutions, aiming to ensure that residents are provided with a developmentally supportive and secure environment, covering all basic needs (Lovdata.no, 2020). Typical Norwegian RYC institutions have three to eight residents, resemble family homes, and strive to retain relational continuity. All residents have a primary contact among the staff, who particularly focus on their designated resident, aiming to build a trustful relationship and fulfil the various roles of a primary caregiver. Because 90% of the RYC participants had lived in RYC for three months or more (Kayed et al., 2015), the primary contacts were considered to know their designated resident well and to be reliable informants.

2.3. Procedure

In the RYC institutions, data was collected from June 2011 until July 2014 by four trained research assistants, all with relevant

Table 1

Self-esteem subdomains for adolescents with and without RAD and DSED diagnoses. Between-group comparisons of global and domain-specific self-esteem, as measured by one-way ANCOVA with SPPA-domains as dependent variables, grouping factor as fixed factor, and gender and age as covariates.

	Group	n	Descriptive statistics		YiN			RYC			RAD					
			M	SD	MD	CI	p	MD	CI	p	MD	CI	p			
Scholastic competence	YiN	10,421	2.83	0.52												
	RYC	237	2.64	0.67	-0.17	-0.25	-0.07	.001								
	RAD	25	2.52	0.65	-0.30	-0.54	-0.04	.020	-0.13	-0.39	0.16	.344				
	DSED	23	2.37	0.69	-0.42	-0.72	-0.14	.005	-0.25	-0.56	0.03	.103	-0.12	-0.52	0.26	.550
Social acceptance	YiN	10,473	3.08	0.49												
	RYC	253	3.11	0.68	0.01	-0.08	0.10	.755								
	RAD	26	3.20	0.59	0.11	-0.16	0.33	.338	0.10	-0.17	0.32	.444				
Athletic competence	DSED	24	2.68	0.78	-0.40	-0.74	-0.08	.015	-0.42	-0.77	-0.08	.012	-0.51	-0.92	-0.12	.008
	YiN	10,462	2.45	0.63												
	RYC	249	2.36	0.76	-0.05	-0.15	0.04	.233								
Physical appearance	RAD	26	2.48	0.79	0.04	-0.25	0.31	.790	0.09	-0.21	0.40	.539				
	DSED	24	2.11	0.59	-0.22	-0.42	-0.004	.038	-0.17	-0.38	0.06	.163	-0.26	-0.59	0.08	.124
	YiN	10,366	2.59	0.67												
Romantic appeal	RYC	251	2.58	0.95	-0.01	-0.11	0.09	.893								
	RAD	26	2.78	0.97	0.19	-0.16	0.51	.270	0.19	-0.16	0.54	.280				
	DSED	22	2.14	0.87	-0.33	-0.67	-0.03	.048	-0.32	-0.68	0.01	.073	-0.52	-0.97	-0.08	.023
Close friends	YiN	10,315	2.61	0.58												
	RYC	242	2.67	0.66	0.04	-0.03	0.12	.301								
	RAD	26	2.72	0.77	0.09	-0.23	0.35	.518	0.04	-0.28	0.32	.735				
Self-worth	DSED	24	2.65	0.54	0.08	-0.15	0.29	.426	0.04	-0.20	0.26	.738	-0.01	-0.32	0.35	.961
	YiN	10,430	3.16	0.59												
	RYC	252	3.28	0.62	0.08	0.00	0.16	.054								
Self-worth	RAD	26	3.43	0.52	0.25	0.03	0.45	.021	0.17	-0.06	0.38	.130				
	DSED	24	3.30	0.41	0.03	-0.15	0.21	.726	-0.05	-0.24	0.15	.654	-0.22	-0.52	0.09	.128
	YiN	10,403	2.87	0.55												
Self-worth	RYC	252	2.81	0.82	-0.05	-0.15	0.05	.344								
	RAD	26	2.88	0.77	0.01	-0.29	0.32	.956	0.05	-0.26	0.38	.716				
	DSED	24	2.42	0.78	-0.37	-0.64	-0.07	.013	-0.32	-0.63	-0.02	.037	-0.38	-0.77	-0.002	.064

Note: Groups: adolescents in the general population (YiN), adolescents in RYC with neither RAD nor DSED diagnoses (RYC), adolescents in RYC with RAD diagnosis (RAD), adolescents in RYC with DSED diagnosis (DSED). CI 95% confidence interval; M mean; MD mean difference; SD standard deviation.

Bold text signifies $p < .05$

professional backgrounds. The research assistants completed semi-structured psychiatric interviews with the adolescents and their primary contacts in RYC, in addition to questionnaires completed by the adolescents. In the general population, data was collected in 1992 by student completion of questionnaires in school. All participants gave written, informed consent. The Norwegian Data Protection Authority approved the research in the general population, and the Norwegian Regional Committee for Medical and Health Research Ethics in central Norway approved the research in RYC, as well as the current study.

2.4. Instruments

2.4.1. RAD and DSED

Because at the time of data collection, there were no validated assessment tools for RAD and DSED in adolescence, and there are no available interviews tailored for adolescent self-report, the Preschool Age Psychiatric Assessment (PAPA) (Egger et al., 2006), a semi-structured psychiatric interview including a module for caregiver-informed symptoms of RAD and DSED was conducted with the primary contacts of adolescents living in RYC. RAD symptoms were assessed by 11 items and DSED symptoms by 4 items. In the diagnostics of RAD and DSED, we applied the DSM-5 criteria (American Psychiatric Association, 2013) but lacked the RAD-item 'response to comfort.' To avoid over-diagnostics, strict criteria of high symptom severity and functional impairment were set (Seim et al., 2020b). Random and regular controls of the interviews were conducted to ensure adherence to the interview protocol and prevent interviewer drift. Blinded re-coding of a randomly drawn sample ($n = 42$; 10.5%) of interview audio recordings yielded satisfactory inter-rater reliability for the assessed diagnoses (Gwet's AC_1 ranged from 0.74 to 1.0, and absolute agreement ranged from 83% to 100%) (Jozefiak et al., 2016).

2.4.2. Self-esteem

The revised version (Wichström, 1995) of the Self-Perception Profile for Adolescents (SPPA) was completed by the adolescents in RYC and in the general population. Seven of the original nine SPPA scales were used to assess self-esteem. The global self-worth subscale was used to assess global self-esteem, and the following domain-specific self-esteem scales were also included: scholastic competence, social acceptance, athletic competence, physical appearance, romantic appeal, and close friends. Because having a part-time job was rare (10%) among the adolescents in RYC (Jozefiak et al., 2017), the subscale 'job competence' was omitted. Further, the 'behavior conduct' subscale was excluded because it has shown low reliability in several studies (Jozefiak et al., 2017). The revised SPPA has shown similar or better psychometric properties than the original nine-scale SPPA (Wichström, 1995), and satisfactory internal consistency for each subscale (Von Soest et al., 2016). In the revised SPPA, each domain consists of five items, with four response options ranging from 1 (*describes me poorly*) to 4 (*describes me very well*). To avoid acquiescence, about half of the SPPA items are negatively worded, and the other half are positively worded. Hence, the scores of negatively worded items were reversed such that high scores indicate high self-esteem for all items.

2.5. Statistical analysis

For each participant, we calculated mean values of the five items composing the seven respective SPPA domains. The domain mean was coded as missing if information was missing for more than one of the five domain-specific items. We created a grouping variable with four groups (group name in parentheses): adolescents in the general population (YiN), adolescents living in RYC with neither RAD nor DSED diagnoses (RYC), adolescents living in RYC with a RAD diagnosis (RAD), and adolescents living in RYC with a DSED diagnosis (DSED). To allow for comparison of mutually exclusive groups, we excluded $n = 2$ who satisfied both the RAD and DSED diagnoses. Furthermore, participants who had not completed the SPPA were excluded (Fig. 1). Thus, the comparison of groups was based on information from $n = 304$ adolescents in RYC and $n = 10,480$ adolescents in the general population, giving a total $N = 10,784$ participants. Differences in group means were investigated using analysis of covariance (ANCOVA) with the self-esteem domains as dependent variables. Due to slight differences in the standard deviations between the groups and large differences in the group sizes, we used bootstrapping with the bias-corrected and accelerated (BC_a) method and $B = 1000$ bootstrap samples. Associations between RAD or DSED symptoms and self-esteem were investigated among the adolescents in RYC ($N = 306$) using linear regression with each SPPA domain, one at a time, as the dependent variable. All analyses were adjusted for age and gender. Two-sided p -values $< .05$ were considered to betoken statistical significance, and where relevant we report 95% confidence intervals (CI). Due to multiple hypotheses, p -values between .01 and .05 should be interpreted with caution. We used SPSS version 26.0 for all analyses.

3. Results

3.1. RAD and DSED diagnoses

Adolescents with a RAD diagnosis (Table 1) had lower self-esteem for scholastic competence and higher for close friendship compared to adolescents in the general population. We found no self-esteem differences between adolescents with a RAD diagnosis and those in RYC with neither RAD nor DSED.

Adolescents with a DSED diagnosis (Table 1) had lower self-esteem for scholastic competence, social acceptance, athletic competence, physical appearance, and self-worth than adolescents in the general population. Furthermore, compared to adolescents in RYC with neither RAD nor DSED, adolescents with a DSED diagnosis had lower self-esteem for social acceptance and self-worth. Compared to adolescents with a RAD diagnosis, adolescents with a DSED diagnosis evinced lower self-esteem for social acceptance

and physical appearance. No between-group differences were found for self-esteem in romantic appeal (Table 1).

3.2. RAD and DSED symptoms

More RAD symptoms were associated with lower self-esteem in the social acceptance, athletic competence, romantic appeal, and close friendship domains, whereas more DSED symptoms were associated with lower scholastic competence self-esteem (Table 2). The distributions of RAD and DSED symptoms in adolescents living in RYC are presented in online supplements (Tables S1 and S2).

4. Discussion

The purpose of this study was to examine whether adolescents with RAD or DSED have lower global and domain-specific self-esteem than adolescents without RAD or DSED. We found that compared to the general population, adolescents in RYC had lower scholastic competence self-esteem regardless of whether they had a RAD or DSED diagnosis. For the remaining domains, adolescents with a RAD diagnosis evidenced no lower self-esteem than any compared groups and had slightly *higher* close friendship self-esteem than the general population. However, using a dimensional approach to RAD, having more RAD symptoms was associated with lower self-esteem for several domains. For DSED, adolescents with a DSED diagnosis evidenced lower self-esteem in many domains compared to both the general population and other high-risk adolescents in RYC, and having more DSED symptoms was associated with lower scholastic competence self-esteem. Because the categorical and dimensional approaches to RAD and DSED gave somewhat different results, we discuss the results from each approach separately, starting with the categorical diagnoses.

4.1. RAD diagnosis

The mean self-esteem value for scholastic competence in adolescents with a RAD diagnosis was comparable to that in maltreated pre-adolescents using the same self-esteem measure as in the current study (Cederbaum et al., 2020; Mennen et al., 2010). Further, the lower scholastic competence self-esteem in adolescents with RAD compared to the general population agrees with previous findings in institutionalized school-aged children with symptoms of either RAD or DSED (Vacaru et al., 2018). However, because all groups in RYC had lower scholastic competence self-esteem than adolescents in the general population, and there were no between-RYC-group differences or any association between scholastic competence self-esteem and RAD symptom load, the reduced scholastic competence self-esteem in adolescents with RAD may be related to factors common to all adolescents in RYC, such as adversity exposure and relational disruptions, rather than being RAD specific. Nonetheless, awareness of the low scholastic competence self-esteem may better prepare caregivers, clinicians, social workers, and teachers to provide adolescents in RYC, including those who have RAD, with adequate scholastic developmental support and arrange for experiences of mastery in scholastic domains.

Although the *p*-value of between .01 and .05 requires cautious interpretation, our results indicate that adolescents with a RAD diagnosis had a slightly *higher* close friendship self-esteem than peers in the general population. Previous studies, although not specific to RAD, report that maltreated home-reared pre-adolescents have *lower* close friendship self-esteem than non-maltreated peers (Cederbaum et al., 2020; Mennen et al., 2010). By further comparing our results to previous research that applied the same self-esteem measure as the current study, we found higher means for close friendship self-esteem in all adolescent RYC-groups compared to reported means in maltreated home-reared and foster placed pre-adolescents (Cederbaum et al., 2020; Mennen et al., 2010). However, in the general population, the mean levels we found in adolescents are comparable to reported levels in pre-adolescents (Cederbaum et al., 2020; Mennen et al., 2010). Therefore, rather than representing a normative developmental increase in self-esteem through adolescence, the higher close friendship self-esteem in adolescents living in RYC may be due to RYC-specific factors. Notably, the high levels could either represent a false or genuine high self-esteem (Burack et al., 2006; Salmivalli, 2001). Indeed, following severe childhood neglect and abuse, self-aggrandizement may serve as a psychological defense mechanism in order to protect a frail self-esteem (Harter, 2012). Accordingly, given the social vulnerability and relational disruptions following placement, it may be that some adolescents in RYC—as a self-protective mechanism in order to reduce a feeling of aloneness—count others, for example, co-

Table 2

RYC-population of *N* = 306. Linear regression analyses with Self-Perception Profile for Adolescents (SPPA) subscale scores as dependent variables and RAD and DSED symptom loads as covariates. All analyses are adjusted for age and gender.

Self-esteem domain (scale 1–4)	RAD symptoms (0–11)				DSED symptoms (0–4)					
	B	CI	<i>p</i>	β	B	CI	<i>p</i>	β		
Scholastic competence	–0.013	–0.055	0.029	.537	–0.036	–0.125	–0.243	–0.007	.038	–0.125
Social acceptance	–0.051	–0.091	–0.011	.013	–0.137	–0.113	–0.226	0.001	.053	–0.110
Athletic competence	–0.048	–0.091	–0.005	.028	–0.118	0.014	–0.107	0.135	.819	0.013
Physical appearance	–0.013	–0.067	0.040	.619	–0.026	–0.023	–0.175	0.129	.766	–0.016
Romantic appeal	–0.053	–0.092	–0.014	.007	–0.151	0.031	–0.079	0.141	.578	0.032
Close friends	–0.052	–0.089	–0.016	.005	–0.162	0.033	–0.070	0.137	.528	0.032
Self-worth	–0.018	–0.064	0.029	.462	–0.040	–0.041	–0.174	0.092	.544	–0.034

Note. *B* unstandardized regression coefficient; β standardized regression coefficient; *CI* 95% confidence interval; *DSED* disinhibited social engagement disorder; *RAD* reactive attachment disorder; *p* two-tailed *p*-value.

Bold text signifies *p* < .05

inhabitants in their RYC unit, as close friends regardless of the quality of the relationship. However, we must also acknowledge the possibility that our findings reflect a *genuine* high close friendship self-esteem among some of the adolescents in RYC, possibly due to resilience factors related to the RYC setting. For instance, it may be that living in RYC with peers who have similar life experiences favors the development of truly close friendships.

For the remaining self-esteem domains, we found that adolescents with a RAD diagnosis and adolescents in RYC with neither RAD nor DSED diagnoses did *not* have lower self-esteem than adolescents in the general population. Possibly, this lack of expected discrepancy between high-risk adolescents and the general population echoes the findings from a two-year follow-up of U.S. adolescents, where self-esteem decreased in those who experienced consistently high or increasing levels of poly-victimization, whereas the self-esteem in adolescents who experienced a decrease in poly-victimization was comparable to that in adolescents with stable low levels of victimization (Turner et al., 2015). Because in our study, the adolescents living in RYC on average had their first out-of-home placement four years prior to the data collection, and 90% had lived in RYC for more than three months, it may be that a decrease or halt in adverse experiences following removal from an adverse home environment cultivated an increase in self-esteem to levels comparable with those in the general population. However, there was limited information about the length of stay in RYC (a dichotomous measure: >3 months, yes/no), and lacking information about whether and when reestablishment of parental care had been attempted between previous alternative placements. Hence, we could not study the effect of time on self-esteem following removal from neglectful or abusive caregiving environments. Further, because self-esteem is dependent on social referencing, where an individual will make comparisons to people or groups with which the individual considers comparison to be relevant (Harter, 2012), it may be that adolescents who have lived a while in RYC tend to compare themselves to other adolescents living in RYC rather than to peers in their school or neighborhood. If so, such a contextual comparison factor could contribute to the lack of expected discrepancy between self-esteem in the high-risk adolescents living in RYC and those in the general population. Longitudinal studies are needed to investigate the trajectories of global and domain-specific self-esteem in children and adolescents throughout their placements in alternative care.

4.2. DSED diagnosis

Although, as discussed for RAD, the lower scholastic competence self-esteem in adolescents with DSED may largely be due to factors common to all adolescents in RYC, our results indicate that, contrary to other adolescents in RYC, those with a DSED diagnosis tend to have lower self-esteem than peers in the population for several domains. Finding a lower social acceptance self-esteem in adolescents with a DSED diagnosis than in the general population agrees with previous reports of lower social acceptance self-esteem in maltreated children (Cederbaum et al., 2020; Mennen et al., 2010); however, no previous research has specified the social acceptance self-esteem in DSED or compared it to that in other maltreated groups. Although the indiscriminate behavior intrinsic to DSED may give an impression of a high social self-esteem, our results indicate the contrary, namely that adolescents with a DSED disorder have lower social acceptance self-esteem even compared to other high-risk adolescents in RYC, including those with a RAD diagnosis. Possibly, adolescents with a DSED diagnosis—through their indiscriminate behavior—are more exposed to adverse experiences after placement than other adolescents in RYC and, therefore, to a lesser degree experience an improvement in their self-esteem following removal from neglectful home environments. Additionally, at least in a Norwegian cultural setting where modesty is appreciated and respecting others' privacy is important, it may be that others are more prone to feel invaded by adolescent disinhibited behavior than to feel rejected by adolescent inhibited behavior. Consequently, it may be that adolescents with inhibited behavior evoke more sensitive and supportive responses from their social environment, whereas adolescents with disinhibited behavior evoke more responses of dislike or avoidance from their surroundings, affecting self-esteem trajectories both prior to and after placement in RYC.

Such possible liabilities regarding social feedback and lasting adversity exposure may also depress other self-esteem domains in adolescents with a DSED disorder. For self-esteem in athletic competence, we found lower levels in adolescents with a DSED disorder than in the general population. Previous findings in maltreated children, although non-significant, support the direction of this association (Mennen et al., 2010; Vacaru et al., 2018); however, the current study is the first to specify athletic competence self-esteem in individuals with DSED. Due to multiple hypotheses and a p -value close to .05, the lower athletic competence self-esteem in adolescents with DSED must be interpreted cautiously. However, athletic competence self-esteem in adolescence is associated with physical appearance self-esteem (Haugen et al., 2013), which in turn is the self-esteem domain most highly correlated with global self-esteem (Harter, 2012; Von Soest et al., 2016; Wichstrøm & von Soest, 2015). Hence, the general trend that adolescents with a DSED disorder had lower self-esteem for athletic competence, physical appearance, and self-worth compared with all other groups, although not always statistically significant, illustrates internal consistency and supports the validity of our results.

Physical appearance self-esteem has not previously been specified in individuals with DSED. However, previous research reports lower physical appearance self-esteem in individuals exposed to childhood maltreatment (Brayden et al., 1995; Grilo & Masheb, 2001), which adds to the above-discussed internal consistency in supporting our findings. Although the results must be cautiously interpreted due to p -values between .01 and .05, the finding that adolescents with a DSED diagnosis have lower physical appearance self-esteem not only compared to the general population but also compared to adolescents with a RAD diagnosis may at least in part be due to possible liabilities for adolescents with a DSED diagnosis, as discussed above.

For global self-esteem, the finding that adolescents with a DSED diagnosis had lower global self-esteem than their peers counters the finding of a higher global self-esteem in special education school children with signs of DSED (Vervoort et al., 2014) but coincides with the lower global self-esteem in institutionalized school-age children having either RAD or DSED symptoms (Vacaru et al., 2018). In total, it appears that adolescents with a DSED disorder are prone to have lower self-esteem in several domains compared with both

the general population and other high-risk adolescents in RYC, even those with a severe RAD diagnosis.

4.3. RAD and DSED symptoms

The finding that having more RAD *symptoms* was associated with lower self-esteem for social acceptance, athletic competence, romantic appeal, and close friendship, whereas adolescents with a RAD *diagnosis* did not have lower self-esteem than their peers in any of these domains, may be because the dimensional measure of RAD symptom load does not consider diagnostic criteria, such as certain obligate symptom combinations or exclusion of individuals with autism spectrum disorder (ASD). Therefore, individuals who primarily have other psychiatric disorders associated with low self-esteem—for example, depression, anxiety, or ASD—may have overlapping symptoms with RAD without fulfilling the RAD diagnosis and thereby contribute to a negative association between certain self-esteem domains and RAD symptom load. Indeed, in a previous study of the same sample, symptoms of RAD correlated modestly with symptoms of depression or anxiety and highly with symptoms of ASD (Seim et al., 2020b). Nonetheless, RAD symptoms were found to be distinct from symptoms of other psychiatric disorders, including depression, anxiety, and ASD (Seim et al., 2020b), lending support to the validity of our findings. Overall, we consider that caregivers, social workers, and clinicians aiming to provide adequate developmental support or treatment to adolescents with RAD will be better positioned to do so by considering possible low self-esteem levels in the mentioned domains than by wrongly overlooking it.

Finding that scholastic competence self-esteem decreased with an increasing number of DSED symptoms agrees with reports in institutionalized children (Vacaru et al., 2018). Although, as discussed for RAD, the negative association may primarily be explained by factors common to all adolescents in RYC, our results indicate that there may be DSED-specific factors that further deteriorate scholastic competence self-esteem. Evidence is limited regarding physiological or neurobiological mechanisms underlying the development of RAD and DSED in response to childhood adversity (Zeanah et al., 2016); however, there are indications that DSED symptoms may primarily reflect impaired inhibitory control due to developmental deviations of regions in the prefrontal cortex (Pears et al., 2010). The prefrontal cortex is responsible for executive functioning and situates abilities not only of inhibitory control but also of working memory, attention capacity, mental shifts, and other aspects of cognitive control (Koechlin & Summerfield, 2007), thereby being essential to scholastic functioning. Hence, the reduced scholastic competence self-esteem in adolescents with a DSED disorder may reflect a lower scholastic functioning—indeed lower cognitive abilities have been demonstrated in school-age children with DSED (Pritchett et al., 2013), possibly both due to missed educational opportunities (Pritchett et al., 2013) and developmental neurobiological deviations (Pears et al., 2010).

4.4. Strengths and limitations

The comparatively large and representative national samples both in RYC and in the general population are clear strengths of this research. Further strengths are the use of in-depth semi-structured psychiatric interviews to assess RAD and DSED and the broad assessment of multiple self-esteem domains in the high-risk and general population.

However, several limitations should be acknowledged. First, although sole use of caregiver information in the assessment of RAD and DSED is common in research (Humphreys et al., 2017; Lehmann et al., 2018; Sonuga-Barke et al., 2017), clinical parameters recommend the use of multiple methods, including observation (Atkinson, 2019; Zeanah et al., 2016). Caregiver reports may generate both over-identification (Giltaj et al., 2017) and under-identification (Bruce et al., 2019) of RAD and DSED. However, caregiver-informed assessments have also been found to converge with observation assessments of RAD and DSED (Atkinson, 2019; Gleason et al., 2011; Zeanah & Gleason, 2015; Zimmermann & Iwanski, 2019), giving confidence to our findings. Further, although RAD has been demonstrated to be trans-relational in nature (Zimmermann & Iwanski, 2019), we cannot be certain that the aberrant attachment behaviors reported by the primary contacts in RYCs delineate the adolescents' behaviors toward previous primary caregivers, nor that RAD symptoms in accordance with the DSM-5 criteria were present prior to the age of five years. Moreover, in the diagnostics of RAD and DSED, we could substantiate, but not prove, fulfillment of the DSM-5 exposure criteria requiring extremely insufficient early care. In addition, for the RAD A criterion in DSM-5, we had information about comfort seeking behavior but lacked information about the adolescents' response to comfort when distressed. Although this deflated the number of RAD symptoms in our dimensional measure of symptom load, it may have inflated the prevalence of RAD diagnosis. Consequently, we took careful measures to minimize the risk of overdiagnosis (Seim et al., 2020b). In effect, and because we found prevalence rates of RAD and DSED no higher than those in Norwegian foster children (Lehmann et al., 2013), we regard the risk of overdiagnosis to be minimal.

In comparison groups representing the general population, taking measures to compensate for possible high-risk participants may introduce bias and inflate the real differences between the population of interest and the general population. Therefore, in the general population sample, the inclusion of all students in the sampled schools and non-adjustment for possible high-risk individuals may be regarded as a strength in our study. Still, there can be some presence of RAD, DSED, or RYC placement in the general population sample. Our lack of information and adjustment thereof, may have resulted in underestimation of real differences in self-esteem between the RYC and the non-RYC general population groups. However, because RAD, DSED, and RYC placements are considered very rare in the general population, we expect such bias to be negligible.

Due to possible developmental changes in both self-esteem and RAD/DSED, our findings are not necessarily transferable to other age groups. Further, the cross-sectional study design precludes investigation of self-esteem trajectories in individuals with RAD or DSED, both prior to and after placement. Moreover, self-esteem in adolescent RAD or DSED may differ for adolescents in other settings, such as those in well-functioning foster/adoptive homes or those in less developmentally supportive or larger sized RYCs. Cultural factors may also influence self-esteem (Harter, 2012), and our findings can therefore not necessarily be transcribed to adolescents with

RAD or DSED in non-Western cultures.

Furthermore, although self-esteem by definition implies a self-evaluation of one's ability and worth, various types of response biases are likely to occur by self-report measures of self-esteem (Salmivalli, 2001) and may impact our findings. Because severe and chronic child abuse and neglect increase the risk of developing false-self behavior (Harter, 2012), we expect false and unhealthy high self-esteem to be more prevalent in high-risk groups, such as adolescents living in RYC. If so, it may be that our results give a distorted impression in the direction of falsely high self-esteem levels in adolescents living in RYC, including those with RAD or DSED. Future research on self-esteem in RAD and DSED may benefit from including measures of awareness and acceptance of one's own shortcomings or negative characteristics (Salmivalli, 2001), as an effort to differentiate healthy and less healthy high self-esteem.

4.5. Clinical implications

The most essential intervention for individuals with RAD or DSED is the provision of a lasting relationship with an emotionally available and sensitive caregiver (Zeanah et al., 2016). However, specified interventions targeting global or domain-specific self-esteem may be important mental health preventive measures in high-risk adolescents (Valdez et al., 2015), including those with RAD or DSED, and have been shown to be more effective than general or indirect interventions in improving the desired self-esteem domains (Haney & Durlak, 1998; O'Mara et al., 2006). Although further research is warranted to confirm our results, this first investigation of global and domain-specific self-esteem in adolescent RAD and DSED may be of clinical value for health workers, social workers, caretakers, and teachers of adolescents with RAD or DSED, by giving a direction for self-esteem interventions and suggesting the following focus areas:

Scholastic self-esteem predicts important life outcomes such as educational attainment, income, and employment (Von Soest et al., 2016) and may be an important target for adolescents in RYC, including those with RAD or DSED diagnoses. Because scholastic self-esteem is primarily promoted by positive school results (Marsh et al., 2018), the low scholastic self-esteem in adolescents with RAD and DSED probably reflects lower scholastic functioning. Ensuring that teachers have adequate information about the adolescents' background histories, symptoms, and functioning may be crucial to facilitate school staff interacting with the adolescents in developmentally supportive manners. Further, in accordance with clinical guidelines, all maltreated children, and thereby all children and adolescents with RAD or DSED, should receive comprehensive psychiatric assessments, including assessments for neurodevelopmental delays or disorders (Zeanah et al., 2016). Customizing learning plans in accordance with the individual's functioning may facilitate a sense of scholastic mastery, and school interventions that combine contingent praise of effort or ability with specific skills training in the desired fields of competence are recommended (O'Mara et al., 2006).

Further, because social acceptance self-esteem is rather highly correlated with global self-esteem (Vacaru et al., 2018; Von Soest et al., 2016) and predicts important life outcomes, including unemployment, income, and mental health indicators (Von Soest et al., 2016), interventions to enhance social acceptance self-esteem by, for example, combining contingent feedback or praise with specific social competence skills training (O'Mara et al., 2006) may prove beneficial for adolescents with RAD or DSED, and may be useful in, for example, milieu therapy plans for those living in RYC. Moreover, social acceptance self-esteem has been found to be associated with quality of life in high-risk adolescents (Jozefiak et al., 2017). Hence, targeting social acceptance self-esteem in adolescents with RAD or DSED may contribute to enhanced quality of life in a severely deprived group.

Finding ways to specifically target physical appearance self-esteem in adolescents with DSED may be important because physical appearance self-esteem predicts essential life outcomes such as income, unemployment, and mental health indicators (Von Soest et al., 2016). Further, physical appearance self-esteem is associated with quality of life in high-risk adolescents (Jozefiak et al., 2017) and is the self-esteem domain most highly correlated with global self-esteem in adolescence (Harter, 2012; Von Soest et al., 2016; Wichstrøm & von Soest, 2015). Because the correlation between physical appearance evaluated by self and others is only moderate (Ehlinger & Blashill, 2016), interventions to enhance self-acceptance and reduce self-criticism of physical appearance may be valuable, in addition to psychoeducation on the impact of societal body ideals and the importance of self-evaluated appearance for the feeling of self-worth. Further, due to the close and reciprocal relationship between global and physical appearance self-esteem (Von Soest et al., 2016; Wichstrøm & von Soest, 2015), another approach may be to target low global self-esteem in adolescents having DSED, with a potential indirect simultaneous enhancement of physical appearance self-esteem. Additionally, because physical activity may enhance physical appearance self-esteem, athletic competence self-esteem, and global self-esteem (Haugen et al., 2013; Legrand, 2014), interventions to stimulate participation and a sense of mastery in physical activities, for example, through specific athletic skills training combined with contingent praise and feedback, may be beneficial for adolescents with RAD or DSED.

4.6. Conclusion

This cross-sectional study explored global and domain-specific self-esteem in adolescents living in RYC with RAD or DSED diagnoses or symptoms. Although unable to inform on the trajectories of self-esteem throughout placements in alternative care, the study supports the relevance of assessing global and domain-specific self-esteem in high-risk adolescents. Results indicated that self-esteem in several domains decreased with an increasing number of RAD symptoms. Further, compared to peers in the general population and in RYC, adolescents with a DSED diagnosis had lower self-esteem in multiple domains. Because low self-esteem in adolescence predicts poor life outcomes in adulthood and is associated with worse quality of life in high-risk adolescents, and because interventions targeting specific self-esteem domains may be more effective than unspecific interventions, all adolescents with RAD or DSED should be offered assessment of global and domain-specific self-esteem. School interventions, milieu therapeutic focus in, for example, RYCs, and individual treatment plans should be adjusted accordingly.

Declaration of competing interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chiabu.2021.105141>.

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