A comparative study of child abuse in children with disruptive behavior disorders of different socioeconomic classes

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Introduction
Disruptive behavior disorders (DBD) may be described along a continuum as the emergence of oppositional defiant disorder, and may be a precursor to conduct disorder. Several psychosocial factors have been mentioned regarding children with DBD; one of them is child abuse (CA). However, minimal research has considered the nature of this factor as a cause or a consequence, and its compound effect on other factors such as the socioeconomic class (SEC).

Aim of the work
This work aimed to compare the effect of CA on the disciplinary style for children with DBD among different SEC and its relation to DBD severity.

Participants and methods
The study included 80 children, divided into two groups, recruited from government and private clinical settings, who were subjected to a child psychiatric interview, neurological and physical examinations, psychometric assessment using the Achenbach Child Behavior Checklist-Diagnostic and Statistical Manual-oriented scales, CBCL DSM-oriented scales and SEC assessment.

Results
CA in the form of emotional abuse, physical abuse and/or neglect were found in both the studied groups among children with DBD, and varied statistically between the two groups for physical abuse and neglect. Physical abuse and neglect were related significantly to DBD diagnosis, CBCL mean scores and SEC. Finally, the presence of more than one type of CA in addition to the SEC was significantly related to CBCL mean scores, suggesting a compound effect of both child maltreatment and SEC on the severity of DBD in the studied children.

Conclusion
Children with DBD represented a population at risk for CA. CA was related significantly to lower SEC, symptoms' severity and the type of DBD. A compound effect was found as children with more than one type of CA and compromised SEC were predicted to have more severe symptoms of DBD compared with children with either CA or compromised SEC alone.

Keywords:
Achenbach Child Behavior Checklist-Diagnostic and Statistical Manual-oriented scales, compound effect, conduct disorder, disruptive behavior disorders, oppositional defiant disorder, socioeconomic class

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Introduction

Child maltreatment (CM) or child abuse (CA) occurs in all strata of societies all over the world (Kruger, 2008; Fang *et al.*, 2012). It constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power (Kruger, 2008). Estimates indicate that about 1.4 million American children, or between 2 and 3% of the population under the age of 18 years, are exposed to CA (Fang *et al.*, 2012). Social, behavioral and emotional handicaps are perhaps the most serious long-term consequences of CM (Fry *et al.*, 2012; McLaughlin *et al.*, 2012). Disruptive behavior disorders (DBD) have been linked to CM and might best be described along a continuum as the emergence of oppositional defiant disorder (ODD), and may be a precursor to conduct disorder (CD) (Keenan *et al.*, 1999). In risk and resilience research, several child and family characteristics have been shown to be related to an increased risk of developing DBD (Loeber *et al.*, 2000; McMahon and Frick, 2005; Lahey *et al.*, 2008; Kulkarni *et al.*, 2010). So far, little is known about the factors associated with its severity and less is known about the predictive value of the compound effect of CA and socioeconomic class (SEC) on the severity of DBD. In the present study, we explored the presence of CA among children with DBD of different SEC and the predictive value of both psychosocial factors on the severity of symptoms of DBD.

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Aim of the work

This work aimed to compare the effect of child abuse on the disciplinary style for children with DBD from different SEC, and to study the relation of the compound effect of child abuse and SEC as predictive factors of DBD severity.

Participants and methods

Eighty children were recruited from government and private child outpatient clinics and were assigned into two groups: group I consisted of 40 children enrolled from government clinics (AL Hadra University and School Student Insurance Hospitals, Alexandria), whereas group II consisted of 40 children enrolled from private clinics in Alexandria. The inclusion criteria for the recruited children were as follows: age range 6–18 years, both sex, a *Diagnostic and Statistical Manual of Mental Disorders*-IV-text revised (DSM-IV-TR) diagnostic criteria of DBD (Achenbach *et al.*, 2003) and a written informed consent from the participant and/or the accompanying parent. The exclusion criteria were chronic neurological or physical debilitating disease and psychiatric disorders other than DBD continuum. All children were subjected to the following examinations: first, history taking and a child psychiatric interview according to the DSM-IV-TR (Achenbach *et al.*, 2003); second, neurological and physical examinations; third, psychometric assessment using the Achenbach Child Behavior Checklist-Diagnostic and Statistical Manual-oriented scales (CBCL DSM-oriented Scales) (Koura, ???). The subscales for ODD and CD, parent form, were used to assess the severity of symptoms in the recruited children only and not for diagnosis, that is, no cut-off scores were needed. The Arabic translation of the questions were adopted from Koura's standardized and validated version of the CBCL, parent form (American Psychiatric Association, 2000). Fourth, the SEC of the parents was assessed using the Fahmi and El-Sherbini's SEC scale (Fahmy and El-Sherbini, 1983).

Statistical methods

Data were described statistically in terms of range, mean ± SD, frequencies (number of cases) and percentages when appropriate. Comparison of quantitative variables between the study groups was performed using the Student *t*-test for independent samples when the two groups were normally distributed and the Mann Whitney *U*-test for independent samples when the two groups were not normally distributed. Significance of the obtained results was judged at the 5% level.

Results

Descriptive data

The mean age was 10.3 ± 2.7 and 11.1 ± 2.9 years in groups I and II, respectively, with both groups matching for age ($t = 1.71$, $P = 0.195$). Also, both groups included 7 (17.5%) girls and 33 (82.5%) boys and were matched for sex ($\chi^2 = 0.00$, $P = 0.195$). Socioeconomic data were collected from the recruited sample and divided into high, middle and low SEC. There was a statistically significant difference between both groups ($\chi^2 = 38.2$, $P = 0.0001$): high SEC was found only in group II, middle SEC was found in the majority of the recruited children and was more in group II and low SEC was found more frequently in group I compared with group II (Table 1).

DSM-IV-TR diagnoses included CD, ODD and disruptive behavior disorder not otherwise specified (DBD-NOS). The highest distribution was ODD, followed by DBD-NOS and lastly CD in both groups with no statistical difference ($\chi^2 = 2.5$, $P = 0.3$). Also, CBCL mean scores for ODD and CD did not show any statistically significant difference between the two groups (ODD: $\chi^2 = 0.8$, $P = 0.4$; CD: $\chi^2 = 1.5$, $P = 0.2$). On matching CBCL mean scores with DSM-IV-TR diagnoses, the ODD subscale had a significant positive relation with DSM diagnoses, with its highest mean score found in the ODD diagnosis ($F = 58$, $P = 0.0001$). Again, the CD subscale had a significant positive relation with all DSM diagnoses, with its highest mean score found in the CD diagnosis ($F = 40.1$, $P = 0.0001$) (Tables 2 and 5).

CA was reported in this study by the following definitions provided by Kruger (2008). Physical abuse was defined as that which results in actual or potential physical harm from an interaction or lack of an interaction, which is reasonably within the control of a parent or a person in a position of responsibility, power or trust. There may be a single or repeated incidents and/or corporal punishment as a punishment in which physical force is used and intended to cause some degree of pain or discomfort, however light. It mostly involves hitting ('smacking', 'slapping', 'spanking') children, with the hand or with an object (whip, stick, belt, shoe, wooden spoon, etc). It can also involve, kicking, shaking or throwing children, scratching, pinching, burning, scalding or forced ingestion (for example, washing children's mouths out with soap or forcing them to swallow hot spices). Child sexual abuse was defined as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared and cannot give consent, or that violate the laws or social taboos of the society. Emotional abuse is defined by the failure

Table 1 Sociodemographic data of the studied sample

Sociodemographic data of studied sample	*N* (%)			χ^2	*P*-value
	Group I	Group II	Total		
Type of school					
Private	5 (12.5)	29 (72.5)	34 (42.5)	32.3	0.0001*
Governmental	35 (87.5)	11 (27.5)	46 (57.5)		
Fathers' education					
Illiterate/read and write	9 (22.5)	1 (2.5)	10 (12.5)	26.3	0.0001*
Primary	7 (17.5)	2 (5)	9 (11.3)		
Preparatory	5 (12.5)	4 (10)	9 (11.3)		
Secondary	10 (25)	3 (7.5)	13 (16.2)		
University/higher	9 (22)	30 (75)	39 (48.8)		
Mothers' education					
Illiterate/read and write	17 (42)	3 (7.5)	20 (25)	29.9	0.0001*
Primary	3 (7.5)	0 (0)	3 (3.8)		
Preparatory	1 (2.5)	4 (10.5)	5 (6.2)		
Secondary	9 (22.5)	7 (17.5)	16 (20)		
University/higher	10 (25)	26 (65)	36 (45)		
Fathers' occupation					
None	2 (5)	0 (0)	2 (2.5)	29.1	0.0001*
Semiprofessional	29 (72.5)	8 (20)	37 (46.3)		
Professional	9 (22.5)	32 (80)	41 (51.2)		
Mothers' occupation					
None	33 (82.5)	28 (70)	61 (76.3)	6.8	0.8
Semiprofessional	4 (10)	3 (7.5)	7 (8.7)		
Professional	3 (7.5)	9 (22.5)	12 (15)		
Socioeconomic class					
Low	27 (67.5)	4 (10)	31 (38.8)	38.2	0.0001*
Middle	13 (32.5)	25 (62.5)	38 (47.5)		
High	0 (0)	11 (27.5)	11 (13.8)		
Total					
N (%)	40 (100)	40 (100)	80 (100)		

*Significant *P*-value.

Table 2 Descriptive data of the studied sample

Descriptive data	*N* (%)			Test of significance	*P*-value
	Group I	Group II	Total		
DSM diagnoses					
CD	7 (17.5)	13 (32.5)	20 (25)	$\chi^2 = 2.5$	0.3
ODD	17 (42.5)	15 (37.5)	32 (40)		
DBD-NOS	16 (40)	12 (30)	28 (35)		
Physical abuse					
Absent	1 (2.5)	8 (20)	9 (11.3)	$\chi^2 = 12.7$	0.002*
With hands	11 (27.5)	18 (45)	29 (36.2)		
With hands and objects	28 (70)	14 (35)	42 (52.5)		
Neglect					
Absent	33 (82.5)	39 (97.5)	72 (90)	$\chi^2 = 5.6$	0.03*
Present	7 (17.5)	1 (2.5)	8 (10)		
Total	40 (100)	40 (100)	80 (100)		
CBCL mean scores					
ODD mean ± SD	6.2 ± 1.8	6.6 ± 1.5	$t = 0.8$		0.4
Min–max	3–9	4–9			
CD mean ± SD	13.3 ± 5.1	14.7 ± 5.1	$t = 1.5$		0.2
Min–max	2–26	8–29			

CBCL, Child Behavior Checklist; CD, conduct disorder; DBD-NOS, disruptive behavior disorder not otherwise specified; DSM, Diagnostic and Statistical Manual of Mental Disorders; Max, maximum; Min, minimum; ODD, oppositional defiant disorder; *Significant *P*-value.

to provide a developmentally appropriate, supportive environment, including the absence of a primary attachment figure, so that the child can develop a stable and full range of emotional and social competencies commensurate with her or his personal potentials and in the context of the society in which the child

Table 3 The relation between the socioeconomic class of the children and some studied variables

Studied variable	Socioeconomic class [*N* (%)]				*F*-test	*P*-value
	Low	High	Middle	Total		
Physical abuse						
Absent	0 (0)	5 (45.5)	4 (10.5)	9 (11.3)	40.1	0.0001*
With hands	3 (9.7)	4 (36.5)	22 (57.9)	29 (36.2)		
With hands and objects	28 (90.3)	2 (18.2)	12 (31.6)	42 (52.5)		
Neglect						
Absent	24 (77.4)	10 (90.9)	38 (100)	72 (90)	12.2	0.002*
Present	7 (22.6)	1 (9.1)	0 (0)	8 (10)		
DSM diagnosis						
CD	10 (32.3)	3 (27.3)	7 (18.4)	20 (25)	7.8	0.1
ODD	12 (38.7)	7 (63.6)	13 (34.2)	32 (40)		
DBD-NOS	9 (29)	1 (9.1)	18 (47.4)	28 (35)		
Total	31 (100)	11 (100)	38 (100)	80 (100)		

CD, conduct disorder; DBD-NOS, disruptive behavior disorder not otherwise specified; DSM, Diagnostic and Statistical Manual of Mental Disorders; ODD, oppositional defiant disorder; *Significant *P*-value.

Table 4 The relation between DSM diagnoses and physical abuse and neglect

Studied variable	DSM diagnosis [*N* (%)]				χ^2	*P*-value
	CD	ODD	DBD-NOS	Total		
Physical abuse						
Absent	1 (5)	5 (15.6)	3 (10.7)	9 (11.3)	8.8	0.03*
With hands	4 (20)	10 (31.3)	15 (53.6)	29 (36.2)		
With hands and objects	15 (75)	17 (53.1)	10 (35.7)	42 (52.5)		
Neglect						
Absent	15 (75)	31 (96.9)	26 (92.9)	72 (80)	6.2	0.045*
Present	5 (25)	1 (3.1)	2 (7.1)	8 (20)		
Total	20 (100)	32 (100)	28 (100)	80 (100)		

CD, conduct disorder; DBD-NOS, disruptive behavior disorder not otherwise specified; DSM, Diagnostic and Statistical Manual of Mental Disorders; ODD, oppositional defiant disorder; *Significant *P*-value.

dwells. Such acts include restriction of movement, patterns of belittling, denigrating, scapegoating, threatening, scaring, discriminating, ridiculing or other non-physical forms of hostile or rejecting treatment. Lastly, neglect was defined as the failure to provide for the development of the child in all spheres: health, education, emotional development, nutrition, shelter and safe living conditions, in the context of resources reasonably available to the family or caretakers.

In this study, none of the children was exposed to sexual abuse; however, emotional abuse was found in all the studied children [80 (100%)]. It occurred in the form of criticism, belittling, rediculing and threatening for punishment or abandonment. Physical abuse was present in 71 (97.7%) children, and absent in only 9 (11.3%) children. The use of objects was found in 42 (52.5%) children, most of which was found in group I and was intended as corporal punishment. There was a significant statistical difference between both groups regarding physical abuse ($\chi^2 = 12.7$, $P = 0.002$). Neglect was found in only 8 (10%) children: one child was from group II, and it was in the form of nonavilablity of the parents and lack of emotional support and educational supervision. Seven (90%) children from group I sufferred from defective educational supervision and physical healthcare. Also, the presence of neglect differed significantly among both groups ($\chi^2 = 5.6$, $P = 0.03$) (Table 2).

Correlative data

On correlating SEC with physical abuse, a statistically significant relation was found regarding the frequency and the type of abuse: the highest frequency of physical abuse (with the use of hands and objects) was found in the low SEC group ($\chi^2 = 40.1$, $P = 0.0001$). Low SEC had a statistically significant relation with the presence of neglect ($\chi^2 = 12.2$, $P = 0.002$) (Table 3). Also, we found a significant relation between DSM diagnosis and physical abuse ($\chi^2 = 8.8$, $P = 0.03$) and neglect ($\chi^2 = 6.2$, $P = 0.045$). The highest frequency of physical abuse was found among children with ODD and the lowest among children with DBD-NOS; also, children with ODD were exposed to the use of hands and objects more often than the other studied children. In contrast, the highest frequency of neglect was found in children with CD (Table 4).

Lastly, we tried to investigate the relation of the compound effect of the studied psychosocial stressors

Table 5 The relation between CBCL mean scores and the studied variables

CBCL subscale mean scores	Studied variable	Mean score	SD	Min	Max	*F*-test	*P*-value
ODD	DSM diagnosis						
	CD	5.6	1.1	4	9	58	0.000*
	ODD	7.9	1	5	9		
	DBD-NOS	5.2	1.1	3	8		
CD	DSM diagnosis						
	CD	20.1	6.1	2	29	40.1	0.000*
	ODD	11	1.8	7	15		
	DBD-NOS	13.1	2.6	8	19		
ODD	Physical abuse						
	Absent	6.4	1.9	3	9	2.6	0.02*
	With hands	5.9	1.5	3	9		
	With hands and objects	6.7	1.6	4	9		
CD	Physical abuse						
	Absent	11.8	1.3	11	14	4.1	0.02*
	With hands	12.5	3.2	7	20		
	With hands and objects	15.5	6.2	2	29		
ODD	Number of PSS present						
	One, *n* = 9	6.1	1.8	3	9	3.1	0.048*
	Two, *n* = 41	6.4	1.7	3	9		
	Three, *n* = 24	6.8	1.4	4	9		
	Four, *n* = 6	6.9	0.6	6	9		
CD	Number of PSS present						
	One, *n* = 9	10.8	3.5	2	14	3.7	0.02*
	Two, *n* = 41	13.9	4.4	8	29		
	Three, *n* = 24	14	5.8	7	28		
	Four, *n* = 6	19.3	5.6	12	26		

CBCL, Child Behavior Checklist; CD, conduct disorder; DBD-NOS, disruptive behavior disorder not otherwise specified; DSM, Diagnostic and Statistical Manual of Mental Disorders; Max, maximum; Min, minimum; ODD, oppositional defiant disorder; PSS, psychosocial stressor; *Significant *P*-value.

(PSS) with the severity of symptoms as measured by CBCL mean scores. Hence, we identified children having one or more of the following factors: emotional abuse, physical abuse, neglect, and low SEC; and we studied them with regard to their CBCL mean scores. A statistically significant relation was found, with mean scores increasing with the addition of more than one PSS; the highest score was obtained when all four PSS were present (ODD mean scores: $F = 3.1$, $P = 0.048$; CD mean scores: $F = 3.7$, $P = 0.02$) (Table 5).

Discussion

Behavior disorders constitute the bulk of mental health issues in children (Burns *et al.*, 1995). Consequently, DBD attracts considerable attention from researchers committed to promoting children's mental health, trying to nail down PSS predicting DBD and targeting them in treatment strategies. In the present work, we studied CA among children with DBD of different SEC, and its relation to symptoms' severity. Three types of CA were present in our study: 80 (100%) children were exposed to emotional abuse, 71 (88.7%) children were exposed to physical abuse as a part of corporal punishment with almost half of the children experiencing severe physical abuse, and 8 (20%) children exposed to neglect in the form of unavailable emotional care, educational supervision and medical supervision. No sexual abuse was reported. In a survey conducted by UNICEF in Egypt, violence against children, in its different forms, was widespread, of which corporal punishment was found in 81% of the children in disadvantaged communities, who declared that they were beaten at home, and 92% were beaten at school (UNICEF, 2008). Also, our results showed similar rates of physical abuse among East Asia and the Pacific area, as the prevalence of severe physical abuse ranged from 8.6 to 23.1%, and milder forms were present at a rate of one in seven adults between the ages of 18 and 54 years (Chan, 2009; UNICEF, 2012). De Jong *et al.* (2001) surveyed a community sample of survivors of war and mass violence in Cambodia and found a prevalence of 36.6% for 'youth domestic stress', which included several abuses, such as insulting, threatening and beating before the age of 12 years. Isaranurug *et al.* (2001) studied 413 sixth-grade students, and found that 66.1% of the students reported experiencing physical aggression, which included different means of punching, hitting with a stick or a

belt, throwing things at a child, pinching and slapping, and 4% received physical aggression on an almost daily basis. Runyan *et al.* (2010) found that corporal punishment ranges from harsh/severe discipline and abuse (including beating, kicking and shaking) to harsh verbal discipline, in their Filipino study.

Ibrahim *et al.* (2008) stated that about two-thirds (68.3%) of the students reported exposure to some form of child abuse in a University sample of female students in Jeddah, Saudia Arabia. Physical and emotional forms of abuse were recalled by 45.1 and 50.6% of the students, respectively, whereas 2.9% reported exposure to forced contact sexual assault. Lower rates of CA were found by Hussey *et al.* (2006), in the National Longitudinal Study of Adolescent Health, which was a prospective cohort study following a national sample of adolescents into adulthood. The authors estimated that having been left home alone as a child, indicating possible supervision neglect, was the most prevalent (reported by 41.5% of the respondents), followed by physical assault (28.4%), physical neglect (11.8%) and contact sexual abuse (4.5%). The higher rates seen in our study could be explained by the different methodology, age of the recruited sample and the mental health state. Our culture seems to influence the type and the frequency of CA found in our study. The prevalence of emotional abuse seems to be related to our highly expressed emotions and the lack of or decreased sexual abuse may originate from our religious society.

The current study found that DBD and CBCL mean scores for ODD and CD were related significantly with physical abuse using hands and objects and neglect. In accordance to our results, Arnold *et al.* (1993), found that parents of a clinical sample of children experiencing behavioral difficulties reported engaging in more dysfunctional discipline styles compared with a control group of parents. Sprang *et al.* (2005), in their study of abusive parents, indicated higher levels of children externalizing behavior problems were predictive of a greater CM severity. The increase risk of CA among children with DBD has been explained in the literature; certain parenting styles, particularly harsher, authoritarian parenting styles, were also predictive of the development of conduct problems (Thompson *et al.*, 2003). A difficult child temperament may place a child at risk for both behavior problems and maltreatment (Ammerman, 1991). Increased child abuse potential is also associated with parents' perception of greater externalizing behavior problems in their children (Haskett *et al.*, 1995).

Further, in this study, CA was related significantly to SEC, where parents of lower SEC used physical abuse with hands and objects and presented neglect more frequently than parents of higher SEC. In support of our findings, many studies in the literature have recognized that children living in families with limited economic resources are at a higher risk of maltreatment than children from higher socioeconomic strata (Wolock and Horowitz, 1979; Trickett *et al.*, 1991; Pelton, 1994; Haskett *et al.*, 1995; Gillham *et al.*, 1998). An inverse association between the income and measures of CM has been found in large-scale, cross-sectional studies of the general population such as the National Incidence Studies (Sedlak and Broadhurst, 1996; Gillham *et al.*, 1998). Various mechanisms have been proposed to explain the observed associations between poverty and CM; one hypothesis is that poverty may reduce a parent's ability to provide for a child's most basic necessities (e.g. food, shelter, medical care). Alternatively, economic hardships may lead to changes in parental mental health, caregiving behaviors or family dynamics that in turn pose a threat to child safety and well-being (Berger, 2007; Jonson-Reid *et al.*, 2009).

Furthermore, the present work verified a compound effect of psychosocial factors, CA types and SEC on symptoms' severity of DBD as shown by CBCL mean scores. More than one PSS was predictive of symptoms' severity. Hussey *et al.* (2006) studied the relation between CA types and sociodemographic data in their sample, and whether they predicted adolescents' self-rated health, overweight status, depression, cigarette, alcohol, marijuana and inhalant use, and violent behavior. The authors found that each sociodemographic characteristic was associated with at least one type of maltreatment, and race/ethnicity was associated with all four. Each type of maltreatment was associated with no fewer than eight of the 10 adolescent health risks examined. Also, there are many studies linking poverty to DBD, 10,11 physical abuse 50 and sexual abuse 51,52,53; however, the literature lacks studies showing the association of the SEC and the types of CA and their association with DBD. A neurobiological perspective was observed to underlay this finding as both low SEC and CA together present higher constant stress than each alone. This in turn lead to behavioral pathology resulting from central noradrenergic dysregulation 54, neuroendocrine dysfunction 55, neuromotor deficits 56, low turnover of serotonin and noradrenalin as manifested with low cerebrospinal levels of 3-methoxy 4-hydroxy phenyl glycol and 5-hydroxyindol acetic acid 57 or a low density of platelet serotonin 2A receptors 58.

Conclusion

Children with DBD were found to be at risk for CA, especially those belonging to lower SEC. Also, the presence of both CA and a compromised SEC were predictive of the severity of symptoms of DBD. Targeting dysfunctional parenting and implementing social help services should be addressed in managing DBD.

Our study was limited by its sample size, but it screened out populations at risk for CA for future research direction.

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Conflicts of interest

None declared.

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