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RESEARCH ARTICLE

DETERMINE THE EFFECT OF CONDUCT DISORDER ON STUDENTS' ACADEMIC PERFORMANCE AND THEIR CORRELATION: CASE STUDY OF KAMUKUNJI AND OLYMPIC SECONDARY SCHOOLS, NAIROBI, KENYA

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ABSTRACT

Conduct Disorder (CD) is a behavioral emotional mental disorder associated with a host of negative health, academic and social outcomes among adolescents. They include among others, unwanted pregnancies, bullying, threatening other students, poor school attendance and truancy. Several studies have found other behaviors exhibited by students such as inability or unwillingness to do assigned class work or homework, disrespect for teachers and other learners and poor academic performance suggestive of CD. The serious disruption of school programs, students' poor academic performance and the emotional agony of the affected parents warrants effective assessment and treatment. The purpose of the study was to determine the effect of conduct disorder on students' academic performance and their correlation. The study adopted a cross sectional study design. A multistage sampling technique was used to select the study participants. A total of 611 respondents were sampled from a total population of 840 from the two study sites. Data was collected through administration of a Social Demographic Questionnaire (SDQ) and a standardized *conduct disorder scale (CDS)* while academic performance was measured using end-of-term one, two and term three examination results. Data was analyzed using SPSS version 21 and presented in tables, figures and descriptive statistics. The key findings of the study were; there was no statistical significant association between CD and academic achievement ($p=0.397$). The statistical association between CD and level of academic performance had a marginal satisfactory academic performance (10.4%) as compared to students with no CD (10.0%). This difference was statistically significant ($p=0.022$). The association of the severity of CD and academic performance did not have any statistical significance ($p=0.615$). Based on the findings, the study recommends further investigation to better understand the link between intelligence and the occurrence of externalizing disorders (CD) and future achievements. Capacity building of principals and teachers to be able to identify CD tendencies among the students. The study further prescribes effective treatment for CD in order to help curb the emergence of CD among the students so as to improve their academic performance while easing the burden of disease to the parents of the affected adolescents, the school and the community.

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INTRODUCTION

Conduct disorder (CD) is an externalizing mental disorder which occurs in children and adolescents aged 6-19 years (Bartol and Bartol, 1989). According to the American Psychological Association (APA) (2013), the disorder presents through behaviors such as aggression towards people or animals, destruction of property, deceitfulness or theft and serious violation of rules.

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Adolescents with CD lack empathy for others and they show little remorse, guilt, or understanding of the damage and pain inflicted on people by their behavior (Kim-Cohen, 2003; Pruitt, 1999). CD is associated with negative health outcomes including substance addiction, high risk sexual behaviors that expose the adolescents to sexually transmitted infections, unwanted pregnancies, crimes, academic failure and traumatic incidences including deaths (Shamsie, 2001). A study by Woodward et al. (2000) found 10% of the girls who had high CD at age eight had a pregnancy rate 5.3 times higher at age 18 than those who had mild or no CD. Untreated CD can progress to antisocial personality disorder and learning deficits (Myers,

1998). Further, according to Loeber *et al.*, (1993b), 40% of children and adolescents with CD eventually developed antisocial personality disorder. On the other hand, a study by Agulamu (2012) revealed that 60% of adults arrested in Nigeria for violent crimes had a background of CD while in secondary school. Globally, Conduct Disorder has been found to increase significantly during the adolescent stage (Dryfoos, 1990). According to Kazdin (1995) the consequence of child or adolescent onset of CD is that the individuals may receive less cognitive stimulation from their parents whom as a result spend less time with children because of the difficult interactions. This, contributes to low levels of academic readiness at school entry and academic performance thereafter. Kazdin (1995) further observed that as the child advances in school, any additional non-compliance with adults creates child-teacher interaction problems that may also result in less cognitive stimulation by the teachers resulting in poor academic performance. Untreated, these children often fail by the time they reach middle school. Lambert *et al.* (2001) found an association between academic achievement deficits and disruptive behavior (CD) as early as first grade an important predictor of academic performance outcome during elementary and middle school. In a large epidemiological study, children aged 11 years with reading disorders were found to be three times as likely to exhibit some acting-out behavior problems (Cantwell & Sattereld, 1978). In the same breath, Lambert *et al.* (2001) reported that students with CD like to engage in power struggles. They often react badly to direct demands or statements such as: "You need to..." or "You must..." They may consistently challenge class rules, refuse to do assignments, and argue or fight with other students. Their frequent absences and refusal to do assignments often lead to academic failure causing significant impairment in both social and academic functioning.

Similarly, in their study on academic performance among school children with behavioral disorders, Akpan, Ojinnaka, and Ekanem (2010) noted poorer academic performance among adolescents with CD at 12.9% while those without CD had 9.1%. They noted that, due to the adolescents' serious problems of social adjustment, disruptive behavior at home as well as in school and failure to make friends, they also had difficulties writing and keeping notes to learn. Crowley and Gelhorne (2010) posited that when students perform poorly in school, they develop negative self-thoughts about their own abilities. This could make them more likely to associate with "bad friends" or peers who have negative influence on them and so they no longer desire to excel academically. Crowley and Gelhorne further asserted that cognitive or academic deficits are thus the most widely reported educational correlates of CD. In Africa, the literature available indicates high levels of CD among adolescent secondary school students who present with academic underachievement, low self-esteem, low frustration tolerance, poor social skills as well as depressive symptoms (Humaida, 2012). In a study conducted among secondary school students in Nigeria on CD among children in urban schools, Briggs and Alikor (2013) found from a population of N=885 the behaviors exhibited by these students included bullying, threatening other students, stealing and poor school attendance leading to poor academic performance. In Kenya, the current study found no literature that showed the effect of CD on academic performance of the students per se. However, some of the disruptive behaviors indicative of CD increased among secondary school students in the last decade, leading to insecurity, destruction of property,

deaths and culminated to academic underachievement (Nyakundi, 2014). Some of the observed and reported disruptive behaviors among secondary schools in Kenya include the St. Kizito incident where female students were raped by male students and 19 girls died (Simatwa, 2007), Hawinga School girls gang-raped in 1993 (Oriang, 2001) and Bombululu High School fire tragedy in 1998 that claimed 25 lives (Ndeti *et al.*, 2004). Four school prefects in Nyeri high school burnt to death by fellow students (Mwaniki, 1999). Kyanguli High School fire of 2001, 67 students died (Odaló, 2001). In 2008 a student at Upper Hill School was burnt to death (Ombati, 2008). Reported also were numerous school strikes, poor academic performance and misconduct among the students. A study conducted among secondary school students in Kisumu on assessment of students' attitudes towards peer counselors in student discipline in secondary schools, Kute found that absenteeism and truancy accounted for 20% of cases of indiscipline in the schools under study leading to poor academic results (Kute, 2011). On the other hand, Mutsoga (2003) itemized the most common forms of problem behaviors in Kenya secondary schools as bullying, vandalism, alcohol and substance abuse, truancy, inability or unwillingness to do assigned class work or homework leading to academic underachievement. The above studies, observations and reports indicate that CD as a problem among secondary school students and its consequence on academic underachievement cannot be overemphasized given the global, regional and the local prevalence and its negative academic outcomes. This study aims to scientifically determine the effect of conduct disorder on students' academic performance and their correlation.

MATERIALS AND METHODS

The study was a cross-sectional study design. The study was conducted in Nairobi County, Kenya and among sub-county secondary schools. Nairobi County was purposively selected for the study because it has the highest number of secondary schools at 211 and among them are 28 sub county secondary schools. It is highly cosmopolitan and therefore a good representation of the different ethnic groups. The sub county secondary schools from Nairobi County were further selected for the study because they were more in number (28) and had a higher estimated population of 8,400 students when compared to other types of schools. Consequently, Kamukunji and Olympic mixed sub-county secondary schools were selected through stratified randomization. Kamukunji school has four classes (form one to form four). The total population of the school was approximately 450 students with 300 students in forms one, two and three (P. K. Gakungu, personal communication, July 1, 2015). Olympic sub-county secondary school has four classes (form one to form four). The total student population was 670 students with 540 students in forms one, two and three (B.K. Mbugua, personal communication, July 7, 2015). The form fours from both schools were excluded from the study because they were unavailable as they were preparing for their national end of year Kenya Certificate of Secondary Education Examination. A multistage sampling technique was used. The first stage purposively sampled sub-county schools as well as the target population comprising of form one, two and form three students. Second stage employed stratified random sampling which sampled Kamukunji and Olympic mixed sub-county secondary schools as the study sites. A sample size of 611 was used with a power of 90% and desired precision of 0.05

(Fishers, 1998). The research instruments consisted of a self-administered questionnaire comprising of; a) A researcher developed Socio demographic questionnaire (SDQ) which sought to collect information related to the respondents gender, age, level of education, place of residence, religion, parents/guardians marital status, occupation and other socio-economic characteristics; b) A standardized conduct disorder scale (CDS) which has 40 items and with four subscales that represent core symptom clusters necessary for the diagnosis of CD was also used. The scale has good psychometric properties with reliability coefficient of: aggressive conduct, 0.94, hostility, 0.91, deceitfulness and theft, 0.79, and rule violations, 0.74. The overall reliability coefficient for the whole scale is 0.96 (Gillian, 2002). The cutoff scores for the different levels of CD according to Gillian are shown below:

Table 1. Conduct Disorder Scale Scores

CD Quotient:	Degree of Severity	Probability of CD
100	Severe	Highly probable
85 – 99	Moderate	Probable
70 – 84	Mild	Likely
69	Not applicable	Unlikely

Ordinary end of terms one, two and term three examination results were used to measure the academic performance. Approvals and permit to collect data were sought from the Research Ethics Committee at Nairobi Hospital (indicate the reference number), National Council of Science, Technology and Innovation and Ministry of Education ref no. NACOSTI/P/15/4164/6747 of 30th June 2019. The permits were presented to and discussed with the principals of the selected schools. Data collected was double entered by two separate groups of data entry clerks, cleaned and analyzed using SPSS version 21.0 with descriptive and inferential statistics generated and presented in form of figures and tables.

RESULTS

Demographic Characteristics of the Study Population: The study recruited and obtain data from 611 forms one, two and three respondents from the two schools giving a 100% response rate. One hundred and ninety nine (199) respondents were from Kamukunji from whom 69 met criteria for CD. Olympic contributed 412 respondents with 123 meeting criteria for CD. Of the 611 respondents, 293 were males (48%) while 318 were females (52%). The mean age for the males was 16.64 years while for females it was 15.96 years. Majority of the respondents were Protestants at 218 (36%), while “others religions” were 152 (25%), Catholics were 147 (24%) and Muslims were 95 (16%). The data on socio-demographic characteristics of the respondents from the two schools showed that the two sites were comparable with no significant statistical difference with respect to the key characteristics namely religion, sex, education and wealth index.

Relationship between the Prevalence of CD and SDC of the Respondents: Table 2 show that there was a statistically significant difference between respondents who had CD and those who did not ($p=0.022$). Those with CD had a higher mean age compared to those with no CD but the age difference was not statistically significant. A statistical significance difference was observable amongst the age of male respondents (16.64 years) and female respondents (15.96 years) with ($p<0.0001$). A statistical significance difference was also observed between the two schools ($p<0.0001$), with the Olympic school having the highest proportion of respondents in the study population. Kamukunji school respondents were older with a mean age of 16.63 years compared to those of the control group respondents at 16.12 years.

Table 2. SDC and the Occurrence of CD among the Respondents

Presence or absence of Conduct Disorder	n	Age (Mean)	Std. Deviation	t	Df	p-value
No Conduct Disorder	419	16.21	1.361			
Conduct Disorder	192	16.47	1.189	-2.299	609	0.022
Sex						
Male	293	16.64	1.364			
Female	318	15.96	1.178	6.622	609	<0.0001
School						
Kamukunji	199	16.63	1.450			
Olympic	412	16.12	1.211	4.540	609	<0.0001

Table 3. Respondents' Academic Performance Stratified by School at Baseline

Name of School	Frequency (n,%)	95% CI
-(Kamukunji)		
unsatisfactory	171/199 (85.9%)	81.06% - 90.74%
satisfactory	28/199 (14.1%)	9.26% - 18.94%
(Olympic)		
unsatisfactory	378/412 (91.7%)	89.04% - 94.36%
satisfactory	34/412 (8.3%)	5.64% - 10.96%

Table 4. Statistical Associations between the CD and the Level of Respondents Academic Performance

	Academic Level of Performance		² statistics	p-value
	Unsatisfactory	Satisfactory		
No Conduct Disorder	377/419 (90.0%)	42/419 (10.0%)	0.886	0.022
Conduct Disorder	172/192 (89.6%)	20/192 (10.4%)		
Severity of CD			1.799	0.615
No CD	377/419 (90.0%)	42/419 (10.0%)		
Mild	98/109 (89.9%)	11/109 (10.1%)		
Moderate	49/53 (92.5%)	4/53 (7.5%)		
Severe	25/30 (83.3%)	5/30 (16.7%)		
Name of School			4.982	0.032
Kamukunji	171/199 (85.9%)	28/199 (14.1%)		
Olympic	378/412 (91.7%)	34/412 (8.3%)		

Effect of CD on respondents' academic performance: Table 3 indicates that most of the respondents from the Kamukunji School group (85.9%) and from the Olympic School group (91.7%) had unsatisfactory performance of grade C and below. The percentages of the unsatisfactory and satisfactory performance were comparable within the 95% CI. Table 4 shows that respondents with CD recorded a marginal satisfactory academic performance (10.4%) as compared to respondents with no CD (10.0%). These differences were statistically significant ($p=0.022$).

This is comparable to the severity of the CD, with those in severe level being more satisfied at 16.7%, moderate at 7.5%, mild at 10.1% and no CD at 10.0%. The satisfaction levels were statistically significant among the schools ($p=0.032$) with the Kamukunji school having 14.1% satisfaction as compared to 8.3% for the Olympic school. Table 5 is a summary of the academic performance of the respondents at baseline. It indicates that majority of the respondents had marginal performance with 47.1% scoring below 30%. Table 6 shows the mean percentage scores of academic performance for

Table 5. Academic Performance Levels of the Respondents at Baseline (Term One)

Marks	Grade	Value	(n,%)
Less/equal to 30	E	0	288 (47.1%)
31-35	D-	1	81 (13.3%)
36-40	D	2	81 (13.3%)
41-45	D+	3	60 (9.8%)
46-50	C-	4	45 (7.4%)
51-55	C	5	28 (4.6%)
56-60	C+	6	11 (1.8%)
61-65	B-	7	8 (1.3%)
66-70	B	8	5 (0.8%)
71-75	B+	9	0 (0.0%)
76-80	A-	10	1 (0.2%)
81 and above	A	11	3 (0.5%)

Table 6. Comparison of Academic Performance between Respondents with no CD and Those with CD Using the Actual Scores in Percentage

	N	Mean	Standard deviation	df	p-value
No Conduct Disorder	419	32.44%	14.263	609	0.397
Conduct Disorder	192	31.41%	13.308		

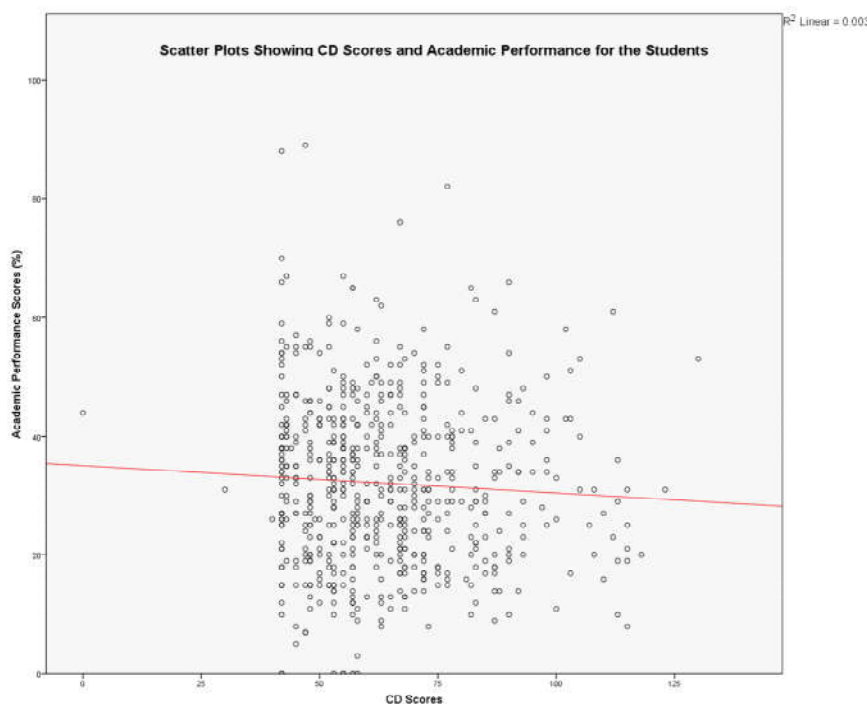


Figure 1. Scatter Plot Showing CD Scores and Academic Performance for the Respondents

Table 7. The Correlation of CD Score and Academic Performance in Percentage

		Academic Scores (%)	Total Scores based on CD Screening tool (n)
Grading	Pearson Correlation	1	-0.059
	Sig. (2-tailed)		0.145
	N	611	611
Academic scores (%)	Pearson Correlation	-0.059	1
	Sig. (2-tailed)	0.145	
	N	611	

respondents with no CD (32.44%) and those with CD (31.41%). These were comparable but not statistically significant ($p=0.397$). Figure 1, the Pearson's bivariate correlation coefficient shows a low negative linear relationship between the grading (based on value) and the respondents' academic performance ($r=-0.061$), that was not significantly different from Zero ($p=0.130$). Table 7 shows an almost zero linear relationship ($r=-0.059$) between grading and academic performance. The results demonstrate that the CD scores and academic performance were not statistically associated in the study population.

SUMMARY FINDINGS

The prevalence of CD was observed to be higher within the 17 to 18 years old group of respondents with 38.6% and 45.5% respectively and lower CD prevalence among the 13 to 14 years old group at 12.5% and 30.4% respectively. Religious affiliations tended to impact on the CD prevalence, with Catholics respondents having the highest rates of prevalence at 36%, followed by Protestants at 34.9%, Islam at 28.4% and "others" at 23.2%. There was a statistical association of CD and SDC of the respondents, namely gender, age, and religion. Parents/guardians' marital status and their education level were found not to have any statistical significant association. There was no statistical significant association between CD and academic achievement ($p=0.397$). However, respondents with CD having serious problems of disruptive behavior may find it difficult to make and keep notes to learn which may have led to the lower academic performance of a mean of 31.4%. This was in comparison to respondents with no CD who might have an academic goal and some level of concentration and had a mean score of 32.4%.

DISCUSSION

Relationship between the prevalence of CD and SDC of the respondents: These results on the relationship between the prevalence of CD and SDC were comparable, giving no statistical significance difference ($p=0.229$). This similarity of the prevalence for both groups could be explained by the fact that the respondents from the two sites had similar social-demographic-economic characteristics. Their environmental characteristics too are the informal settlement with deficits in social amenities, violence and crimes that are witnessed regularly. Carr (1999) noted that this type of environment exposes the adolescents to greater hazards that may lead to higher chances of developing CD in similar ways. The selection criterion for entry in these schools was mainly from the nearby primary schools with low KCPE marks of 200 marks on average. According to Theen and Abdullah (2008), academic underachievement is associated with CD. The American Academy of Pediatrics (1995) and South *et al.* (2010) found similar results and made similar arguments. The study further found out that CD prevalence was higher in male respondents compared to female respondents. This was statistically significant (OR=1.577; 95% CI: 1.118-2.224; $p=0.009$). The APA reported that the overall CD appears more often in boys than in girls with a rate of 6% to 10% for boys and 2% to 9% for girls (APA, 1994). Other studies have shown similar results for example Boyle *et al.* (1992) in their epidemiological studies estimated the male-female ratio of CD prevalence at between about 3:1 and 5:1. One of the reasons advanced for this occurrence is that males tend to exhibit both physical aggression and relational aggression while females

tend to exhibit more of relational aggression (Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V) (2013). In this case, more males are likely to meet criteria for CD because the items in the CDS represent both aspects of aggression. The results of CD prevalence based on age seemed to increase as the respondents grew older, and this was statistically significant at $p=0.008$. The increase of CD with age agrees with a study done by Loeber and Keenen (1994) which indicated that the onset of CD tends to peak in late childhood and early adolescence with higher prevalence being observed in late adolescence. According to DSM-5 (2013), as adolescents advance in age, they develop increased physical strength, cognitive abilities and sexual maturity making them capable of more severe conduct problems such as rape or theft while confronting a victim. This coupled with the less severe symptom behaviors like lying and shoplifting which are the first to emerge at younger ages make the prevalence of CD for older adolescents higher. With regard to religion, the study found out that, Catholics tended to have a higher prevalence of CD followed by Protestants. This comparison however, was not statistically significant ($p=0.357$). Islam respondents on the other hand, had a higher CD compared to "other" religions and this was statistically significant ($p=0.017$). These differences may be explained by the fact that Islam religion seems to be more strict about adherence to its behavior standards and attendance of religious services. Levin and Taylor (1998) found that religious service attendance had a positive correlate to health and mental health outcomes. Protestants and Catholics, on the other hand, exhibit leniency to service attendance and are liberal. Other studies have found similar results and have advanced similar argument (Muriungi, 2011).

The effect of CD on respondents' academic performance: The study established that 90.1% of the respondents from both sites had an unsatisfactory academic performance with a grade below the average performance level of a C (Table 5). These results were comparable for both sites, thus no statistical significant difference. The reason for this similarity could be due to the fact that the entry to form one level of 200 marks or below of the respondents at both study sites is similar. This is a fairly low entry level such that pulling up the grades is quite a task. Both sites are day schools and the respondents' home environments and the parents/guardians social economic levels are largely the same often making the respondents miss school due to lack of school fees and other necessities. This coupled with the low entry marks does not make things better for the respondents. A study by Lambert *et al.* (2001) found similar results. The statistical association between CD and level of academic performance showed that students with CD had a marginal satisfactory academic performance (10.4%) as compared to students with no CD (10.0%). This difference was statistically significant ($p=0.022$). The association of the severity of CD and academic performance did not have any statistical significance ($p=0.615$). This finding indicates that the students with no CD might have an educational goal and purpose such that poor academic performance would bother them. On the other hand, the cognitive theory advances that students with CD may have cognitive deficits such as delayed language development and cognitive functioning which could lead to academic under-achievement (Theen & Abdullah, 2008). Such a student may appear unruffled about academic performance and satisfied with their low performance. The unsatisfactory and satisfactory level of academic performance in both schools was statistically significant ($p=0.032$) with Kamukunji school having 14.1% satisfactory performance as

compared to Olympic school at 8.3%. In terms of mean percentage scores, students with no CD had a mean score of 32.44% compared to those with CD who had 31.41%, giving no statistical significance ($p=0.397$). However, the slight mean difference could be indicative of the fact that students with CD perform more poorly than those without. Similar studies found an association between academic achievement and disruptive behavior, noting that students with CD often engage in power struggles, ignore teachers/parents demands of hard work and they may refuse to do homework. This could lead to low academic performance (Lambert *et al.*, 2001). Another finding of poorer academic performance among adolescents with CD was reported by Akpan *et al.* (2010). The report indicated a mean of 12.9% for adolescents with CD while those without CD had a mean of 9.1%. They also noted that the adolescents with CD had serious problems of social adjustment, were disruptive at home and at school, they failed to make friends and had difficulties in making and keeping notes to learn.

Conclusion

The study revealed that there was a statistical association of CD and SDC of the respondents, namely gender, age, and religion. Parents/guardians' marital status and their education level were found not to have any statistical significant association. The results further revealed that there was no statistical significant association between CD and academic achievement ($p=0.397$). However, the statistical association between students with CD and level of academic performance had a marginal satisfactory academic performance (10.4%) as compared to students with no CD (10.0%). This difference was statistically significant ($p=0.022$). The association of the severity of CD and academic performance did not have any statistical significance ($p=0.615$). CD and level of academic performance therefore, having a statistical significance calls for policy action in schools. Appropriate psychological interventions are also necessary to curb the emergence and effect of CD on academic performance among the students. This would promote healthy, well-adjusted adolescents who are performing well in academics as well as ease the burden of the disorder for the parents of the affected adolescents, the school and the community.

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