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Effects of childhood multiple maltreatment experiences on depression of socioeconomic disadvantaged elderly in Brazil

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A B S T R A C T
Childhood maltreatment is a risk factor for depression in nonelderly individuals. We investigated the effect of childhood abuse and neglect on the development of geriatric depression and its severity in socioeconomically disadvantaged individuals. A cross-sectional study investigated 449 individuals aged 60–103 years sorted by data using the enrollment list health coverage from the city of Porto Alegre, Brazil. The fifteen-item Geriatric Depression Scale was used to assess depression.
The Childhood Trauma Questionnaire was used to identify emotional and physical neglect, in addition to emotional, physical, and sexual abuse. Geriatric depression was associated with emotional and physical abuse and neglect. Emotional abuse and neglect, as well as physical abuse, increased the odds of an individual developing severe depression. Correlations were observed for combined forms of maltreatment, with two to five maltreatment types producing mild to moderate symptoms. Similar trends were observed for severe symptoms in a limited number of cases. The cross-sectional design limit causal inference. Retrospective measurement of childhood maltreatment may increase recall and response bias. Late-life depression and its severity significantly correlated with the extent of childhood emotional and physical abuse and neglect.
Thus, research should focus on supporting trauma survivors late in life, particularly when they come from low or middle income countries because these patients have higher rates of depression in elderly populations.

1. Introduction

Depression is a heterogeneous disorder that mostly converge to a few more stable phenotypic types with course dynamically shaped during life (Vares et al., 2016). Geriatric depression is a worldwide concern because it contributes significantly to the worsening of diseases and quality of life. It also increases the incidence of disabilities and mortality (Barry, Murphy, & Gill, 2011).

Brazil is facing an unprecedented increase in the number of elderly people. In a few decades, the elderly will constitute the majority of the population, and they will have significant health needs (Simões, 2016). Increased longevity often correlates with an increase in years that patients suffer from disabilities caused by depression (Kassebaum et al., 2016). Depression is the second-leading illness for years lived with disabilities (YLDs) for all ages and it remains among the top ten most common global diseases in all age categories. In southern and tropical Latin America, including Brazil, depression ranks second in YLDs (Kassebaum et al., 2016).

Although estimates of the prevalence and lifetime pathways vary substantially across communities for a variety of reasons, a number of sociodemographic correlates of depression are consistently found (Kessler & Bromet, 2013). Numerous variables are associated with the manifestation of depression, including individuals living with psychosocial adversities, previous history of depression, stressful events, and low socioeconomic status. In addition, in older age groups, morbidity and fragility are predominant factors in the etiology of this disease (Luppa et al., 2012). In Brazil, the prevalence of depression in the elderly is around 30.6% (Nogueira, Moretti et al., 2014), which is similar to data found in the literature, ranging from 15.0% to 30.0% (Hoffmann, Ribeiro, Farnese, & Lima, 2010).

Early adversities, such as quality of parental care and attachment, have been associated with subsequent mental disorders or satisfactory mental health (Bowlby, 2002). The effect of traumatic experiences in childhood are related to many problems later in life (McLaughlin et al., 2010), and specific types of child abuse and neglect (Infurna et al., 2016; Mandelli, Petrelli, & Serretti, 2015; Schulz et al., 2014) are predictors of subsequent depression in adulthood. Current evidence also relates depression in the elderly to many subtypes of childhood neglect, such as emotional and physical neglect (Comijs et al., 2013; Ege, Messias, Thapa, & Krain, 2015).

Late-life depression is also associated with adversities at the beginning of life in a "dose-dependent" fashion (Comijs et al., 2013; Raposo, Mackenzie, Henriksen, & Afifi, 2014).

The emergence of depressive symptoms in older adults may represent a traumatic reactivation, since it implies that some survivors of maltreatment may remain emotionally stable (or asymptomatic) for decades (Comijs et al., 2013) and successfully overcome the natural challenges of youth and adulthood. The reasons for greater latency may be explained by a variation in the acquisition of emotional regulation skills and other gains in psychological maturity, which are usually achieved through late adulthood and are related to improved mental health (Charles & Carstensen, 2010).

In general, studies that found an association between geriatric depression and childhood trauma were performed in high-income countries in population-based, primary care, and clinical samples of varying ages (McLaughlin et al., 2010; Green et al., 2010; Pitzer & Fingerman, 2010; Scott, 2011; Wainwright & Surtees, 2002). Few studies have focused on low- and middle-income countries where the majority of the elderly live in the world. Thus, socioeconomic disadvantages have not been adequately addressed, despite their importance in increased late-onset depression, which is often observed in populations with low literacy and poverty (Almeida et al., 2012; Luppa et al., 2012).

Recent empirical evidence suggests that different forms of maltreatment are likely to overlap and interact and that those specific combinations, rather than subtypes of abuse alone, may be uniquely related to particular psychosocial consequences Thus, the objectives of our study are to investigate: 1) the association between current geriatric depression and types of childhood maltreatment; 2) whether the number of childhood maltreatment events correlate with current geriatric depression; 3) whether the types of maltreatment are related to depression severity; 4) if the increase in intensity of depression is related to the number of maltreatment events suffered during childhood.

2. Methods

2.1. Design and study context

This was a cross-sectional study using a database generated by a previous multidimensional survey conducted between March 2011 and August 2012. It included a randomized sample of elderly individuals (60 years or older) based on the geographical registry list of the Family Health Strategy (FHS) of Porto Alegre, Brazil (Gomes, Lopes, Engroff, & Scheer, 2013).

Briefly, the FHS is a proactive approach to community public health implemented by the Brazilian Ministry of Health. It actively and continuously promotes and monitors health at the community level, replacing the previous model centered on health care facilities (Macinko & Harris, 2015). The FHS prioritizes regions that have predictors of vulnerability, which are primarily the result of socioeconomic disadvantage (SED), and works to expand health care to the poorest people with limited access to health care. The Community Health Workers (CHW) represent a communication interface between the community and the Brazilian health system (Macinko & Harris, 2015).

The implementation of the project did not alter the routine of the health professionals working in the community or the dynamics of the FHS. Thirty family health teams from a total of 97 serving the city of Porto Alegre were selected through stratified random sampling. A total of 1080 individuals aged 60 years or more were randomly selected to receive home visits from the community health workers. The final sample of 449 was formed of those participants who subsequently attended the São Lucas Hospital and performed the evaluation. Individuals who were unable to understand the issues involved or were unable to travel to the hospital were excluded. Trained medical doctors and psychologists, who had experience of providing mental health care for the elderly, collected the mental health information used in the study (Nogueira, Rubin, de S. Giacobbo, Gomes, & Cataldo Neto, 2014).

2.2. Assessments and variables

2.2.1. Outcome variable: current depression

The 15-item Geriatric Depression Scale version is one of the most important ways to assess geriatric depression specifically for the elderly. It avoids questions regarding somatic complaints, age-related characteristics that are potentially confounding (such as changes in sleep and slowness), and comorbid medical conditions that affect the elderly. Recent research showed that context influence is low (Gana, Bailly, Broc, Cazauvieilh, & Boudouda, 2017). As in many other countries, studies in Brazil demonstrated that GDS-15 is a very good screening tool and an accurate way to identify depression, which is defined by ICD-10 and DSM-IV (Almeida & Almeida, 1999; Castelo et al., 2010). The GDS

was interviewer-administered, as is the case in most validation studies (Pocklington, Gilbody, Manea, & McMillan, 2016). By prioritizing improvements in accuracy and a good balance between sensitivity and specificity, a cutoff score of 6 was used to identify geriatric depression (Almeida & Almeida, 1999). Scores between 6 and 10 were used for mild-to-moderate depression, and 11 was used to diagnose severe depression. (Almeida & Almeida, 1999; Nogueira, Moretti et al., 2014; Nogueira, Rubin et al., 2014)

2.2.2. Factors of interest: types of childhood maltreatment The short form of Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 1994), validated to Brazilian Portuguese (Grassi-Oliveira, Stein, & Pezzi, 2006), was used in the assessment of maltreatment experiences. Available factorial, validity, and reliability data confirmed that the CTQ is a good tool for screening, identifying, and estimating the severity of childhood abuse and neglect in epidemiological and clinical settings (Spinhoven et al., 2014). This tool consisted of 28 items and assayed 5 types of childhood traumatic experiences: physical abuse (PA), emotional abuse (AE), sexual abuse (SA), physical neglect (PN), and emotional neglect (EN). Emotional abuse (EA) can be defined as verbal attacks on a child's self-esteem or any humiliating behavior directed at a child by an older person. Physical abuse (PA) is defined as physical violence to a child by an older person who confers a risk or resulted in injury. Sexual abuse (SA) is defined as the sexual conduct between a child and an adult or elderly person. Emotional neglect (EN) was defined as the failure of an adult to meet the emotional and psychological needs of children. Physical neglect (PN) is defined as the inability of adults to meet a child's basic physical needs (food, shelter, clothing, safety and health care). Required responses on a Likert-5 scale: (1) "never true", (2) "rarely true", (3) "sometimes true", (4) "often true", and (5) "very often true". Two items from the PN subscale and five items from the EN subscale are reverse-coded. For the present study we used the "low-moderate" cut-off point to define positive cases, as recommended by the CTQ manual − "low to moderate" (EA > 8 and < =12, PA > 7 and < =9, SA > 5 and < =7, EN > 9 & < =14, PN > 7 and < =9, CTQ > 36 and < =51) (Bernstein & Fink, 1998).

2.3. Other covariates

Other covariates used were sociodemographic, which helped characterize the sample. Control covariates included age, sex, skin color, ethnicity, marital status, educational level, and income. Age was examined as categorical covariate (60–64.9 years, 65–74.9 years, 75+ years). To better address socioeconomic deprivation, educational levels were categorized as illiterate, 1–4 years, 5–7 years, 8–10, and 11 or more years. Income was scored as no income, less that one minimum salary, and one or more minimum salaries.

2.4. Statistics

For descriptive statistics, we used absolute and relative frequencies, in addition to the means and standard deviations. The chisquared test was used to assess uncontrolled associations and examine sample distributions and frequency variations with expected outcomes.

Logistic regression explored each of the five maltreatment types and their severities for their likelihood of causing depression later in life. We also tested the dose-response effect for the total number of maltreatments experienced on the likelihood and severity of depression. For all tests, a 95% confidence interval (CI) was used. Calculations were carried out using the software Statistical Package for the Social Sciences 20.0, SPSS®.

2.5. Ethics

This research was approved by the Research Ethics Committee of the Municipal Health Secretariat (record: 499, protocol number: 001.021434.10.7/2009) and by the Pontiícia Universidade Católica do Rio Grande do Sul (protocol number: 1760705). All individuals signed an informed consent form. Researchers also received authorization to access and manage the database after consenting to a confidentiality agreement.

3. Results

A total of 449 records were used in the present study. The sample was predominantly female with a mean age of 68.5 ± 6.7 years (ranging from 60 to 100.2 years). Education was very low or absent in 61.2% (4 years or less), and around 1/4 of the individuals sampled were illiterate. Additionally, 65.5% received less than one minimum salary and 8.0% received no income. The distribution of frequency and

severity of depression symptons by sociodemografic characteristics and childhood maltreatment experiences is provide in Table 1. Rates of severe depression were significantly associated with females and they consistently increased in decreasing levels for both education and income. Around 2/3 of the subjects reported one or more maltreatment types during childhood. The most frequently reported maltreatment was PN, followed by PA, EA, EN, and SA. All of these were associated with higher rates of depression and more severe symptoms. Only SA did not achieve statistical significance, possibly as a result of the number of reported cases. Depression and severe symptoms were positively associated with an increasing number of maltreatment types.

Table 2 shows the logistic regression models that compare the adjusted and unadjusted models for current geriatric depression and childhood maltreatment. The EN, EA, PN, and PA were independently associated with current geriatric depression. An increasing likelihood of depression was observed for individuals who experienced two to five experiences of maltreatment. Severe depression was significantly associated with EA, PA, and EN. The increasing likelihood between the severity of depression and the number of reported maltreatment events positively correlated, and there was a clear tendency for severe depression to occur when an individual suffered two to four or three to four combined traumatic experiences.

{INSERT Table 1}

{INSERT Table 2}

4. Discussion

Overall, this study showed that a significant portion of individuals in our sample who are suffering from geriatric depression reported having suffered some form of abuse or neglect during childhood. This study also demonstrated that, to a greater degree, emotional abuse was associated with severe depression, followed by emotional neglect and, to a lesser extent, physical abuse.

Therefore, in this sample, emotional abuse and neglect were likely the primary type of child maltreatment that contributed to depression later in life. However, emotional abuse had a more severe influence on depressive symptoms; that is, elderly people who reported having suffered from family or parental neglect displayed greater deterioration in their. This finding corroborates other reports that the stress experienced during the first decade of life – particularly stress related to the quality of parental care – has significant repercussion on the individual's emotional development and, consequently, on the severity of depression (Hackman, Farah, & Meaney, 2010; Mandelli et al., 2015). In general, emotional trauma has a greater impact than other types of existing trauma (Huh, Kim, Lee, & Chae, 2017; van Veen et al., 2013). This is partly because exposure to emotional abuse leads the individual to engage in maladaptive behaviors associated with cognitive emotional regulation to deal with an abusive environment, as well as to situations that resonate with it, such as depression (Huh et al., 2017). Many studies suggest that the capacity for emotional regulation is a relevant factor for understanding how emotional abuse affects individuals' resilience in the face of early stress, as well as in the development of psychopathologies (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Hopfinger, Berking, Bockting, & Ebert, 2016).

Concerning the cumulative effect of maltreatment experiences, many elderly people reported having these experiences. In these cases, the odds of suffering from depression increased gradually. However, this increase did not have the same impact on the severity of depression. This was due, in part, to the fact that the incidence of maltreatment had a nonlinear relationship with the severity of depression, making the degree of effect independent of the overlap of the stimulus. Generally, when the symptoms were close to the maximum, prolonged exposure to the stressful stimulus no longer influenced the severity of the disease. Additionally, low income and poorly educated populations were at higher risks of depression, contributing to a lower capacity for resilience in the development of psychopathologies (Silva et al., 2000).

The relationship between SA and geriatric depression is unknown. Although studies in non-elderly individuals have observed an association between a history of sexual abuse and symptoms of depression, this relationship was not statistically significant in adjusted controlled models. This was probably

because few cases could be definitively attributed to underreporting rates caused by guilt and shame (Robinaugh & McNally, 2011).

Our findings corroborate previous studies, including the following conclusions: (1) Depression usually manifests in individuals living with psychosocial adversities, such as family ties, loss of social contacts, and stressful and low-income events (Luppa et al., 2012); (2) The negative impact of experiencing maltreatment on an individual's mental health lasts a lifetime (Ogle, Rubin, & Siegler, 2014).

This study showed a clear association between depression in the elderly and childhood maltreatment in a representative sample of lower socioeconomic populations in a Brazilian urban city. We are not aware of other studies addressing this issue in low- and middleincome countries. In addition, this is the first study that documents the depressive "dose-dependent" effects related to the increasing number of experiences of childhood neglect and abuse. This has been a finding primarily reported in a range of early-adversity experiences in studies from developed countries.

These findings indicate that childhood maltreatment continues to be a robust indicator of current geriatric depression in older adults. These results remained robust after adjusting for sociodemographic covariates, including literacy and income, which are both important indicators of SED.

The first decade of life is a period in which individuals are susceptible to adverse events, such as abuse and neglect. These occur in conjunction with socioeconomic deprivation, which increases the probability of disease throughout life, especially in older populations (Hackman et al., 2010). Socioeconomic deprivation increases psychological distress and has a particular depressogenic effect on the elderly. It may be associated with some specific events in old age, such as the decreasing ability to work and earn a living, in addition to increased health spending. Limited schooling is also an important indicator of SED. Lower levels of literacy often lead to lower economic status, and inter-causality may explain only part of both. The reduced combination of intellectual and emotional abilities (mental capital) as a result of limited education may reflect a longer time experiencing stress, such as living in a place vulnerable to violence, higher incidence of medical conditions, and poor access to health services and social assistance.

It is important to investigate the effects of early-life stress and to discriminate among other potentially harmful contexts. There is a significant difference between age groups for risk factors that promote the development of depression. This is because lower incomes cause a higher risk for depression at advanced ages (Schaakxs et al., 2017). Studies of stressors and childhood adversities and their association with poorer mental health in the elderly is still limited (Ogle et al., 2014; Kuhlman, Maercker, Bachem, Simmen, & Burri, 2013; Raposo et al., 2014). Most studies have evaluated the association of early traumas with depressive symptoms, anxiety symptoms, or personality disorders in young adults from economically developed countries (Infurna et al., 2016).

5. Limitations

Although the present paper has shown some valuable findings, the cross-sectional design limits causal inference. Retrospective assessment of childhood trauma might be subject to recall bias. However, recent research has been reported that, compared to other measurements of early adversities, CTQ items are consistently less prone to response bias; specifically, minimal bias due to the mood congruency effect on responses of CTQ neglect and abuse items was also shown (Spinhoven et al., 2014).

6. Implications

The present study shows important associations between childhood trauma and depression in socioeconomic disadvantaged elderly. Prominently, the likelihood of depression was independently associated with emotional neglect, emotional abuse, physical abuse; and with a significant increasing odds per trauma starting from 2 to 5 combined traumatic experiences showing a maltreatment-related "dose-response". Severe depression in old age was particularly related with emotional abuse.

These consistent findings may represent a new focus of interest in the field of health outcomes related to early life adversities, and in particular in the research of specific types of maltreatment and stressors; since also reinforces the need of such research facing the limited data from low- and middle income countries were most elders lives and were the mental health gap is of major concern. In the same way, we alert for the paucity of studies addressing samples with higher risk of vulnerability (e.g. elderly) and living under deprivation (e.g. socioeconomic disadvantaged) that depends on public health services. Relevant improvements have been proven feasible in reducing the mental health gap of low- and middle-

income countries with increasing long-term funding investment in collaborative partnerships aiming to develop skills work force and research capacity. These initiatives based in promoting a continuous translation of knowledge to real practice also proven to improve mental health disorders identification, access to psychosocial support, treatment and follow-up for common mental disorders.

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Annexes :

Table 1

Frequency variations of depression, severity of symptoms according to sociodemography, types and number of experiences child maltreatment.

Idependent Variables	Total (%)	Depression		P value	Severity of depression		P value
		No N (%) resi	Yes N (%) resi		Mild to moderate N (%) resi	Severe N (%) resi	
Sex							
Male	161 (35,9%)	127(78,9%)	34 (21,1%)	P=0,005	27 (16,8%)	7 (4,3%)	P=0,009
Female	288 (64,1%)	191(66,3%)	97(33,7%)		65 (22,6%)	32 (11,1%)	
Age							
60–64,9 years	166 (37,0%)	116 (69,9%)	50 (30,1%)	P=0,758	36 (21,7%)	14 (8,4%)	P=0,949
65–74,9 years	207 (46,1%)	150 (72,5%)	57 (27,5%)		39 (18,8%)	18 (8,7%	
75+	76 (16,9%)	52 (68,4%)	24 (31,6%)		17 (22,4%)	7 (9,2%)	
Skin color/Ethnicity							
White/caucasian	297 (67,2%)	206 (69,4%)	91 (30,6%)	P=0,018	64 (21,5%)	27 (9,1%)	P=0,104
black/afro-brazilian	62 (14,0%)	41 (66,1%)	21 (33,9%)		15 (24,2%)	6 (9,7%)	
brown/multiethinic	74 (16,7%)	62 (83,8%)	12 (16,2%)		8 (10,8%)	4 (5,4%)	
Others (indigenous or oriental)	9 (2,0%)	4 (44,4%)	5 (55,6%)		3 (33,3%)	2 (22,2%)	
Education level							
Iliterate	116 (25,8%)	70 (60,3%)	46 (39,7%)	P < 0,001	26 (22,4%)	20 (17,2%)	P < 0,001
1–4 years	159 (35,4%)	110 (69,2%)	49 (30,8%)		39 (24,5%)	10 (6,3%)	
5–7 years	101 (22,5%)	77 (76,2%)	24 (23,8%)		17 (16,8%)	7 (6,9%)	
8–10 years	43 (9,6%)	35 (81,4%)	8 (18,6%)		6 (14%)	2 (4,7%)	
11+	30 (6,7%)	26 (86,7%)	4 (13,3%)		4 (13,3%)	0 (0%)	
Income							
No income	34 (8,0%)	19 (55,9%)	15 (44,1%)	P < 0,001	9 (26,5%)	6 (17,6%)	P < 0,001
< 1 MS	244 (57,5%)	156 (63,9%)	88 (36,1%)		61 (25%)	27 (11,1%)	
1 MS or more	146 (34,4%)	121 (82,9%)	25 (17,1%)		21 (14,4)%	4 (2,7%)	
Marital Status							
Married	176 (39,6%)	125 (71,0%)	51 (29,0%)	P=0,786	35 (19,9%)	16 (9,1%)	P=0,948
Not married	73 (16,4%)	54 (74,0%)	19 (26,0%)		14 (19,2)	5 (6,8%)	
Widower	74 (16,7%)	54 (73,0%)	20 (27,0%)		15 (16,7%)	5 (6,8%)	
Separated/divorced	121 (27,3%)	82 (67,8%)	39 (32,2%)		26 (21,5%)	13 (10,7%)	
Emotional Neglet							
No	320 (71,3%)	250 (78,1%)	70 (21,9%)	P < 0,001	52 (16,2%)	18 (5,6%)	P < 0,001
Yes	129 (28,7%)	68 (52,7%)	61 (47,3%)		40 (31,0%)	21 (16,3%)	
Physical Neglect							
No	224(49,9%)	250 (78,1%)	49 (21,9%)	P=0,001	35 (15,6%)	14 (6,2%)	P=0,003
Yes	225 (50,1%)	143 (63,6%)	82 (36,4%)		57 (25,3%)	25 (11,1%)	
Emotional Abuse							
No	318 (70,8%)	244 (76,7%)	74 (23,3%)	P < 0,001	59 (18,6%)	15 (4,7%)	P < 0,001
Yes	131 (29,2%)	74 (56,5%)	57 (43,5%)		33 (25,2%)	24 (18,3%)	
Psysical Abuse							
No	296 (65,9%)	223 (75,3%)	73 (24,7%)	P=0,004	53 (17,9%)	20 (6,8%)	P=0,011
Yes	153 (34,1%)	95 (62,1%)	58 (37,9%)		39 (25,5%)	19 (12,4%)	
Sexual Abuse							
No	405 (90,2%)	291 (71,9%)	114 (28,1%)	P=0,163	81 (20,0%)	33 (8,1%)	P=0,290
Yes	44 (9,8%)	27 (61,4%)	17 (38,6%)		11 (25,0%)	6 (13,6%)	
Abuse or neglect							
No	144 (32,1%)	122 (84,7%)	22 (15,3%)	P < 0,001	52 (16,2%)	18 (5,6%)	P < 0,001
Yes	305 (67,9%)	196 (64,3%)	109 (35,7%)		40 (31,0%)	21 (16,3%)	
Number of child maltreatment							
0	144 (32,1%)	122 (84,7%)	22 (15,3%)	P < 0,001	16 (11,1%)	6 (4,2%)	P < 0,001
1	112 (24,9%)	83 (74,1%)	29 (25,9%)		24 (21,4%)	5 (4,5%)	
2	83 (11,6%)	52 (62,7%)	31 (37,3%)		23 (27,7%)	5 (9,6%)	
3	52 (11,6%)	32 (61,5%)	20 (38,5%)		12 (23,1%)	8 (15,4%)	
4	42 (9,4%)	21 (50.0%)	21 (50,0%)		11 (26,2%)	10 (23,8%)	
5	16 (3,6%)	8 (50,0%)	8 (50,0%)		6 (37,5%)	2 (12,5%)	

Notes: MS: minimum salary (300US dollars per month).
The significance of bold value is p < 0.05.

Table 2
Association of types and number of child maltreatment experienes, current geriatric depression and severity.

Maltreatment child	Depression (cases)		Depression (severity)			
			Mild to moderate		Severe	
	unadjusted OR (95 % CI)	Ajusted	unadjusted OR (95 % CI)	Ajusted	unadjusted OR (95 % CI)	Ajusted
Abuse						
Emotional	2.540 (1.648–3.914)[*]	2.252 (1.351–3.754)[**]	1.844 (1.120–3.038)[**]	1.742 (1.012–2.999)[***]	5.276 (2.631–10.577)[*]	4.352 (1.991–9.516)[*]
Physical	1.865 (1.225–2.839)[**]	1.754 (1.076–2.861)[**]	1.727 (1.071–2.786)[**]	1.790 (1.055–3.037)[***]	2.230(1.139–4.368)[**]	2.245 (1.026–4.910)[***]
Sexual	1.607 (0.884–3.061)	1.395 (0.665–2.926)	1.464 (0.696–3.077)	1.415 (0.650–3.081)	1.960 (0.754–5.093)	1.552 (0.539–4.465)
Neglect						
Physical	2.048 (1.349–3.108)[*]	1.912 (1.179–3.103)[**]	1.993 (1.239–3.206)[**]	2.031 (1.214–3.397)[**]	2.185 (1.095–4.359)[**]	1.751 (0.814–3.767)
Emotional	3.204 (2.073–4.952)[*]	2.822 (1.698–4.692)[*]	2.828 (1.730–4.624)[*]	2.820 (1.642–4.845)[*]	4.289 (2.164–8.502)[*]	3.058 (1.404–6.656)[**]
Abuse or neglect	3.084 (1.850–5.140)[*]	2.550 (1.430–4.546)[**]	2.957 (1.648–5.305)[*]	2.790 (1.505–5.171)[*]	3.423 (1.394–8.410)[**]	2.545 (0.966–6.705)
1	1.938 (1.004–3.603)[***]	1.448 (0.712–2.948)	2.205 (1.104–4.402)[**]	1.958 (0943–4.066)	1.225 (0.362–4.145)	0.946 (0.261–3.426)
2	3.306 (1.751–6.242)[*]	3.298 (1.600–6.796)[*]	3.373 (1.648–6.900)[*]	3.575 (1.655–7.724)[*]	3.128 (1.034–9.465)[***]	2.922 (0.879–9.711)
3	3.466 (1.687–7.120)[*]	3.108 (1.359–7.111)[**]	2.859 (1.230–6.648)[**]	2.970 (1.195–7384)[**]	5.083 (1.646–15.702)[**]	4.570 (1.286–16.235)[**]
4	5.545 (2.603–11.814)[*]	3.813 (1.643–8.933)[*]	3.994 (1.630–9.790)[*]	3.354 (1.294–8.689)[**]	9.683 (3.181–29.469)[*]	5.666 (1.602–20.034)[**]
5	5.545 (1.883–16.330)[*]	4.394 (1.300–14.853)[**]	5.719 (1.758–18.608)[**]	6.352 (1.745–23.113)[**]	5.083 (0.881–29.337)	4.078 (0.578–28.766)

Adjusted OR: odds ratios adjusted for sex, age, sskin color/ethinicity, education, income, and marital status.

* p ≤ 0.001.
** p ≤ 0.01.
*** p ≤ 0.05.