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Research article

The intellectual profile of abused and neglected children in the Philippines: An analysis of SB5 IQ scores of sexually abused, physically abused and neglected children

Peejay D. Bengwasan

Saint Louis University, A. Bonifacio St., Baguio City, Philippines

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ABSTRACT

Child abuse and neglect have been associated with cognitive deficits, among other effects on child development. This study explores the prediction that child abuse and neglect has an impact on Stanford-Binet Intelligence Scales 5th Edition (SB5) IQ scores, in relation to gender, age and type of abuse experienced. 300 children with experiences of abuse and neglect were included in the study, comprising 100 sexually abused, 100 physically abused and 100 neglected children. Overall, all scores on the SB5 were found to be significantly lower than the minimum average scores on the test. Verbal IQ (VIQ) scores were likewise found to be significantly lower than Nonverbal IQ (NVIQ) scores. Full Scale IQ (FSIQ) scores did not reveal heterogeneity when gender was factored in. Age and type of abuse (with a moderate effect size) on the other hand, showed significant differences among groups. Statistical analyses of SB5 Factor Index Scores revealed that abused children, in general, have significantly higher Visual-Spatial Processing (VS) and Quantitative Reasoning (QR) scores and lower scores in Knowledge (KN). There was a large effect size found in such an analysis. Age (with a large effect size), gender and type of abuse (with moderate effect sizes) give significant variations to this obtained profile.

1. Introduction

Posttraumatic Stress Disorder (PTSD) is characterized as the development of characteristic symptoms following exposure to one or more traumatic events, which includes physical and sexual assault. Varied presentations of PTSD predominantly include fear-based re-experiencing as well as emotional and behavioral symptoms. Others may have anhedonia, dysphoria and negative cognitions; whereas, arousal, reactive-externalizing problems and dissociative symptoms may be more present in other individuals (APA, 2013). In addition to symptoms related to fear and anxiety, the psychological consequences of trauma may include disturbances of memory, identity and perception termed as dissociation (Kirmayer, Lemelson, & Barad, 2007). In the recent years, links have likewise been made between PTSD and brain structure. Brain scans using a structural magnetic resonance imaging (sMRI) of children with trauma symptoms from the ages of 9–7 showed that the anterior circular sulcus was larger among boys, but was smaller for girls (Klabunde, Weems, Raman, & Carrion, 2016). Such structural changes might even imply differences in cognitive ability.

Contrasts of Wechsler Intelligence Scales for Children-III (WISC-III) scores between traumatized youth with PTSD and non-exposed individuals revealed that those who had PTSD, showed a significantly lower Verbal IQ (Saigh, Yasik, Oberfield, Halamandaris, & Bremner, 2006). In the same way, Full Scale IQ and Verbal IQ of Wechsler Abbreviated Scales of Intelligence (WASI) were found to be significantly associated with trauma, re-experiencing symptoms and impairment for children and adolescents with a history of

E-mail address: pdbengwasan@slu.edu.ph.

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interpersonal violence (Salztman, Weems, & Carrion, 2005).

Comparative studies between individuals with PTSD and child abuse have also been made in relation to their cognitive abilities. Cognitive status examinations of 14 pediatric outpatients and 15 socio-demographically similar children who have not experienced abuse revealed that children with maltreatment-related PTSD performed poorly on measures of attention and abstract reasoning or executive function (Beers & De Bellis, 2002). There could be existing patterns of cognitive ability that may be similar to maltreatment-induced PTSD, such as what was found from the Wechsler Intelligence Scales for Children, Third Edition (WISC-III) results of maltreated children (Frankel, Boetsch, & Harmon, 2000). This further suggested that significantly higher Picture Completion subtest scores as compared to Vocabulary subtest scores implied hypervigilance, related to PTSD. Following the same pattern, an analysis of WISC-III profiles of 12 sexually abused, 12 physically abused, 12 neglected and 12 non-maltreated Japanese children showed significant higher Picture Completion results compared to Vocabulary subtests (Ogata, 2011). This implies that individuals with experiences of child abuse and neglect have significantly lower verbal abilities, much like individuals with PTSD. Taking instances of PTSD and neglect together, a battery of neurocognitive tests revealed significantly low IQ, reading, mathematics, and selected differences in complex visual attention, visual memory, language, verbal memory and learning, planning, problem solving, and speeded naming (De Bellis, Hooper, Spratt, & Woolley, 2009).

Child abuse or maltreatment on its own reveals effects on specific cognitive skills. In parent reports of children's exposure to potentially traumatic events, executive functions (which include working memory, inhibition, auditory attention and processing speed tasks) were likewise associated with familial trauma, that is, sexual abuse, physical abuse, witnessing domestic violence and experiencing neglect (DePrince, Weinzierl, & Combs, 2009).

Fourteen (14) to Sixty-four (64) percent of maltreated children demonstrate speech and language delays (English et al., 2005). Consequently, this has implications for school performance. In fact, abused preschoolers scored on average twenty (20) points lower than non-abused preschoolers on IQ tests (Hoffman-Plotkin & Twentyman, 1984). Abused children likewise experience problems in school, are less inclined to engage in autonomous academic exploration and require external motivation before they can initiate and engage in an educational task (Koenig et al., 2000). Apart from greater probability of repeating grade levels, they may exhibit poor work habits and receive lower grades in Math and English during the elementary years (Rowe & Eckenrode, 1999). Adolescents in the middle and high school years who have experienced maltreatment have likewise been found to have lower grade point averages (GPAs) and problems completing homework assignments. The intensity of maltreatment was likewise associated with greater probabilities of lower GPAs and other academic problems (Slade & Wissow, 2007).

Even among different types of child abuse, heterogeneity may exist with regard to how traumatic experiences affect cognitive ability. However, most differences among types of abuse may be more evident during adulthood. Apart from establishing that cognitive test performances differentiate those with early life trauma from healthy individuals, abuse (emotional, physical or sexual) has a slightly stronger effect than neglect on visual memory, executive functioning and spatial working memory. With regard to visual working memory, alterations in the Hypothalamic-Pituitary-Adrenal axis may partially explain such deficits. Moreover, sexual abuse appeared to be associated with additional visual working memory deficits; whereas, emotional processing and processing speed deficits were more pronounced in patients with history of neglect (Gould et al., 2012).

Majority of research also suggests that children who are physically abused or neglected have higher rates of cognitive language delays than those who experience other types of maltreatment like sexual and emotional abuse (Koenig et al., 2000). In differentiating children who were neglected from those that also experienced physical abuse, it was found that children who experienced neglect without physical abuse obtained lower scores in auditory attention and response set, and visual-motor integration. However, they also showed greater capacity for problem solving, abstraction, and planning (Nolin & Ethier, 2007).

From the existing literature on PTSD, child abuse and neglect, there appears to be certain similarities with regard to IQ test results. What could link PTSD and child abuse are seemingly overlapping consequential behaviors. Similar to symptoms of PTSD, Lusk and Waterman (1986) have indicated that the most common problems exhibited by child abuse victims include affective disorders, anxiety or fear, depression, physical effects, learned helplessness, aggressive and antisocial behaviors, withdrawal, self-destructive behaviors, psychopathology, sexual problems, poor self-esteem and problems with interpersonal relationships (Gil, 1991).

Given close associations between what would seem as emotionally anchored symptoms of PTSD, child abuse and neglect, links with regard to cognition and intelligence may likewise exist. Abused and maltreated children tend to develop brains that are attuned to dangers, similar to preoccupation found in PTSD. Early experiences of stress form templates in the brains in which the fear responses become fixed. The brain becomes organized just for the purpose of survival. Child victims are constantly in states of high alert that could assist them to avoid further maltreatment but costly to their optimal development (Herman, 1992; Terr, 1990).

Finkelhor, (1984) identified a number of areas that require additional and more refined research, including the differential effects of abuse. It appears that several factors mediate the impact of any type of abuse on children, including the age of the child at the time of abuse and the gender of the victim, among other factors. The younger the child, the more severe the effects of abuse would be. Females may likewise show more severe symptoms given the higher frequency of female victimization (Gil, 1991). With abuse affecting the brains of boys and girls differently, the impact on cognition and intelligence may likewise be affected by such factors.

The current study tests the prediction that child abuse has a heterogeneous impact on intelligence. Apart from testing the hypothesis that general mental ability and verbal abilities are significantly diminished by abuse and maltreatment, this study likewise seeks to explore the hypotheses that age, gender and type of abuse yield heterogeneous IQ scores across specific areas of intelligence, such as fluid reasoning, memory and visual spatial memory are affected.

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