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Violence Against Children and Mental Health Outcomes in Sub-Saharan Africa: A Systematic Review and Meta-Analysis

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ABSTRACT

Violence Against Children and Mental Health Outcomes in Sub-Saharan Africa:

A Systematic Review and Meta-Analysis

By

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4/20/2018

Background: Violence against children (VAC) is a devastating problem in sub-Saharan Africa and a major public health problem globally. The World Health Organization (WHO) defines violence against children as all forms of (physical, emotional, sexual abuse or neglect, commercial and other forms of exploitation), causing potential harm to the well-being of a child's survival, development, and dignity. The World Health Organization (WHO) estimates that 40 million children aged 15 years and younger fall victim to violence each year. In African countries, violence against children is seldom recognized and the injury perpetrated are rarely reported and managed adequately.

Aim: The purpose of this study is to systematically synthesize the evidence relating violence against children (VAC) and mental health outcomes among populations in sub-Saharan Africa, and to propose policy recommendations to intensify legal consequences for perpetrators, and provide support for VAC victims to receive long-term mental health services.

Methods: A review of literature was conducted, searching Medline/PubMed, Embase, Web of Science, PsychInfo, EBSCO, CINAHL-EBSCO, Cochrane databases for primary research studies related to key search terms: (violence against children, exposure to childhood violence, mental health outcomes, children, sub-Saharan Africa) involving children before the age of eighteen and in Sub-Saharan countries. Eligible study results were analyzed using Review STATA version 13.0. To provide fixed and random effects AOR to generate pooled odds ratios (AOR) of the association between violence in childhood and mental health outcome, data were analyzed using the random effects model. Subgroup analyses by gender were conducted to identify potential methodological moderators.

Results: Twenty published studies (15 cross-sectional, 3 prospective, 3 cohorts and 1 case-control studies) involving populations in nine sub-Saharan countries – Kenya (1 study), Malawi (2 studies), Namibia (1 study), Nigeria (1 study), South Africa (9 studies), Swaziland (3 studies), Tanzania (1 study) and Uganda (2 studies) were included in the review. Overall all forms of

childhood violence were significantly associated with mental health outcomes. Children who experienced any form of violence were most likely burdened with depression, compared to other types mental health outcomes. However, violence-type predictors varied by gender. While boys were three times more at odds to develop depression from emotional abuse [AOR 3.17, 95% CI (1.61–4.72)], girls were two times more likely to develop depression from sexual violence [AOR 2.133, 95% CI (1.704–2.562)].

Conclusion: Findings from this review confirms that all forms of violence in childhood have a significant impact on mental health outcomes. Lack of data can hinder efforts to reveal the pervasive nature of violence in childhood. This in turn limits the effectiveness of initiatives to prevent it. Thus, there is need for high-quality follow-up studies, comprehensive social and mental health programs, and supportive child protection services.

Keywords: violence against children, exposure to childhood violence, child abuse, child maltreatment, mental health outcomes.

VIOLENCE AGAINST CHILDREN AND MENTAL HEALTH OUTCOMES IN SUB-SAHARAN AFRICA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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1. CHAPTER I Introduction

1.1 Background

Violence against children is a public health, human rights, and social problem, with potentially devastating and costly consequences (Hillis, Mercy, Amobi, & Kress, 2016). Violence against children (VAC) is defined by the World Health Organization (WHO) as "all forms of physical and emotional ill-treatment, sexual abuse, neglect and exploitation that results in actual or potential harm to the child's health, development or dignity"(UNICEF, 2018; WHO, 2018). Child abuse and mental health in Africa are pervasive social problems and they both represent major threats to the achievement of the 2030 United Nations Sustainable Development Goals (SDG). This targeted objective calls for an end to all forms of violence against children and improving children's psychosocial well-being (SDG Target 16.2) and focus on elevating the importance on preventing and promoting mental well-being as a global priority (SDG Target 3.4)(UN, 2018).

Globally, it is estimated that one billion children aged two to seventeen years, have suffered physical, sexual or emotional violence or neglect in the past year, with the highest rates reported in the African region (WHO, 2018). Sub-Saharan Africa, has particularly elevated prevalence rates (20-60%) for child mental health problems such as anxiety, PTSD, and depression (Cortina, Sodha, Fazel, & Ramchandani, 2012).

1.2 Study Purpose

The purpose of this study is to systematically synthesize and summarize the evidence relating violence against children (VAC) and mental health outcomes among populations in sub-

Saharan Africa, and to propose policy recommendations to intensify legal consequences for perpetrators, and provide support for VAC victims to receive long-term mental health services.

2 CHAPTER II Literature Review

2.1 Violence in Childhood and Mental Health Outcomes

Early life stressors such as abuse, sexual violence, emotional neglect, family violence, community violence, war and related violent experiences affects a child's brain and behavioral functioning and may disrupt the child's stress regulatory system (Ismayilova, Gaveras, Blum, Tô-Camier, & Nanema, 2016). These traumatic childhood experiences persist as mental health problems such as: posttraumatic stress disorder (PTSD) (Machisa, Christofides, & Jewkes, 2016)l, mood disorders (Oladeji et al., 2010; Slopen et al., 2010), depression (Kounou et al., 2013) (Breiding et al., 2013; Jewkes et al., 2010; Kinyanda et al., 2013; Kounou et al., 2013; Machisa et al., 2016; Meinck et al., n.d.; Reza et al., 2009), anxiety disorders (Goodman, Gutarra, Billingsley, Keiser, & Gitari, 2017; Slopen et al., 2010; Vagi et al., 2016) and suicide ideation (Bruwer et al., 2014; Cluver et al., 2015; Devries et al., 2011; Liang et al.,2007; Reza et al., 2009), victims are more likely to engage in anti-social behaviors such as bullying (Liang et al., 2007), take part in rape or be abusive later in life (Boyes et al., 2014), also they are at risk of abuse or victimization as adults.

2.2 Violence in Childhood and Mental Health in Sub-Saharan African

Studies have documented different types of violence experienced during childhood and how they significantly contribute to proportions of mental health disorders (Chen et al., 2010; Fry & Blight, 2016; Norman et al., 2012). These studies also found that preventing VAC could help to reduce a wide range of mental health outcomes such as depression, anxiety, suicide and conduct disorders.

Over the last decade, recognition of the pervasive nature and impact of VAC has grown, and has seen substantial improvement in the analysis of both the prevalence and consequences of violence in childhood as demonstrated by a number of studies, surveys, reviews and meta-analysis looking at this field of study with a regional perspective (UNICEF, 2018; WHO, 2018). This trends have expanded to expanded to non-Western contexts such as sub-Saharan Africa (Machisa et al., 2016; O'Donnell, Williams, & Kilbourne, 2013). Findings from the Violence Against Children Surveys (VACS), a joint effort by the Centers for Disease Control (CDC) and UNICEF, systematically measures physical, emotional, and sexual violence, and has so far been released in 6 countries in sub-Saharan Africa (CDC, 2018). The highest rates of physical and emotional violence are reported among boys in Zimbabwe, where the lifetime exposure to physical abuse and emotional abuse, before turning 18 years, was 76% and 38% respectively. Moreover, 38% of girls in Swaziland had experienced sexual abuse, which was also the highest prevalence seen among the studied countries (CDC, 2018) (Ameli, Meinck, Munthali, Ushie, & Langhaug, 2017).

Studies conducted in Sub-Saharan African countries have shown there is a relationship between depression and childhood exposure to community violence (Ismayilova et al., 2016). (Shields, Nadasen, & Pierce, 2008) (Liang et al., 2007) (Oladeji et al., 2010) (Ameli et al., 2017) (Vagi et al., 2016) (Abbo et al., 2013) (Devries et al., 2011). Perceived psychological stress among women is significantly higher if they experienced emotional abuse as a child (Goodman et al., 2017). Physical abuse by parents and teachers in the form of discipline is an integral part of the African culture was also found to be associated with anxiety and depression (Fakunmoju & Bammeke, 2015). The belief in the necessity of harsh physical punishment lowers the

perception of physical abuse, encourages abuse of power, thus leaving room for violence. Finding from the (Oladeji et al., 2010) study shows there is the elevated likelihood of developing a mood disorder among individuals who had experienced family violence, neglect and abuse as a child. Females who experienced emotional and sexual abuse as a child are more likely to develop depression and be suicidal (Jewkes et al., 2010) and girls who witnessed abuse against their mothers in the home are more likely to demonstrate suicidal behaviors (Devries et al., 2011). Childhood adversities, especially sexual abuse and physical abuse are important risk factors for the onset and persistence of suicidal behavior, with this risk being greatest in childhood and adolescence (Bruwer et al., 2014) (Cluver et al., 2015). Both psychosocial stressors and exposure to war trauma as a form of community violence, are significant predictors of anxiety disorders (Abbo et al., 2013). Other studies in South Africa suggest exposure to violence during adolescence is linked to anti-social, violent behavior (Ameli et al., 2017) and Posttraumatic Stress Disorder (Collings, 2011). Clearly, these studies offer valuable insights about the mental health impact of childhood violence in the region. However, the long-term mental health consequences of the different forms of childhood violence have not been systematically examined.

Millions of African children have to grow up under harsh and adverse psychosocial conditions, but it's not entirely understood how this negative psychosocial environment is affecting their mental health (Kinyanda et al., 2013). To achieve this goal and guide the development of mental health policies and interventions, it is crucial to understand the impact of a wide range of violence in childhood undermining the population's mental well-being. Studies have investigated the different forms of childhood violence and mental health

outcomes in Sub-Saharan Africa, but none have systematically analyzed the available research in the sub-Saharan African region. Therefore, it is essential to use the best available evidence to address this omission in research, clarify the present state of empirical research, fill a gap in existing knowledge about this relationship and identify critical issues for future research in sub-Saharan Africa. To date, this appears to be the first meta-analysis that examines evidence for associations between violence subtypes against children and diverse mental health outcomes in sub-Saharan Africa.

3 CHAPTER III Methods

3.1 A systematic review of the impact of violence in childhood on mental health outcomes

A systematic review is conducted to identify studies reporting on violence in childhood and mental health outcomes published between January 2007 to the end of October 2017. The term 'violence in childhood' is used to cover violence against children, violence by children towards others (such as bullying) and violence to which children are exposed (such as witnessing parental violence, family or community violence). Definitions of various types of violence examined in the study are presented in Table 1.

Table 1. Definition of Key Study Terms Concerning Types of Violence

Emotional Violence	Emotional violence involves the failure to provide a developmentally appropriate, supportive environment, including the availability 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 dwells. There may also be acts towards the child that cause or have a high probability of causing harm to the child's health or physical, mental, spiritual, moral or social development. These acts must be reasonably within the control of the parent or person in a relationship of responsibility, trust or power. Acts include restriction of movement, patterns of belittling, denigrating, scapegoating, threatening, scaring, discriminating, ridiculing or other non-physical forms of hostile or rejecting treatment.
Physical violence	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 person in a position of responsibility, power or trust. There may be single or repeated incidents.
Sexual violence	Child sexual violence is 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 society. Child sexual violence is evidenced by this activity between a child and an adult or anotherchild who by age or development is in a relationship of responsibility, trust or power, the activity being intended to gratify or satisfy the needs of the other person.
Neglect	Neglect can be 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 and causes or has a high probability of

	causing harm to the child's health or physical, mental, spiritual, moral or social development. This includes the failure to properly supervise and protect children from harm as much as is feasible.
Adolescent relationship violence	Often called teen dating violence or intimate partner violence, adolescent relationship violence entails the perpetration and/or victimisation of violence between intimate partners during teenage years, which can take many forms – physical, sexual or emotional, or a combination of these.
Bullying	Bullying involves repeated exposure over time, to negative actions on the part of one or more other persons, and the victim has difficulty defending himself or herself. This systematic review includes studies on both bullying perpetration and bullying victimization, as well as cyber-bullying and peer-to-peer victimization.
Community violence	Community violence involves witnessing, perpetrating or direct victimisation of interpersonal violence in any space used or occupied by children other than homes, schools, institutions or organised workplaces. Different forms of community violence include physical violence, sexual violence, assault by authority figures such as the police and violence associated with gangs and traffickers.
Witnessing domestic violence	Witnessing domestic violence involves exposure to violence in the home, as perpetrated by family members towards others.

Definitions are from the UN Convention on the Rights of the Child, the World Report on Violence and Health, World Health Organization, 2002, and the UN Secretary Generals' World Report on Violence against Children, 2006. The sexual violence definition is from the Report of the Consultation on Child Violence Prevention, 29–31 March 1999. Geneva, World Health Organization, 1999 (document WHO/HSC/PVI/99.1). The bullying definition is from Olweus, D. (1995). Bullying at school: What we know and what we can do. 1993. Malden: Blackwell Publishing, as used by UNESCO. The adolescent relationship violence definition is from the CDC's Division of Violence Prevention.

3.1.1 Inclusion and Exclusion Criteria

This systematic review and meta-analysis included studies published in peer-reviewed jounals meeting the following inclusion criteria: (1) if they were primary research published in a peer-reviewed journal, (2) the study considered violence in childhood (occurring before the age of 18) regardless of the setting (home, school, community, institution) where the violence occurred including: (i) sexual violence (including unwanted touching, forced sex, attempted unwanted sex, sexual harassment or pressurized/coerced sex), (ii) emotional violence (including verbal abuse, psychological abuse), (iii) physical violence (including corporal punishment, violent discipline, and physically abusive behaviors), (iv) bullying (including physical or verbal

bullying), (v) witnessing domestic violence, (vi) witnessing community violence, and/or (vii) gang violence and its impact on mental health outcomes (3) the related mental health outcomes include any of the following anxiety disorder, panic disorder, social phobias, eating disorders, schizophrenia, sleep disoders, obsessive compulsive disorder, bipolar, mood disorder, depression, for posttraumatic stress disorder (PTSD), obsessive compulsive disorder, mania, suicide ideation, suicide attempts definitions (WHO, 2018). I included retrospective and prospective cohort, cross-sectional, and case-control studies in this review.

Based on previous studies which have measured the burden of violence on health and other outcomes such as education and wellbeing (Fang et al., 2015; Fang et al., 2016), included studies needed to present reported odds ratios (ORs), or adjusted odds ratios (AOR) disaggregated by the type of violence, with preference given to adjusted odds ratios (AOR). Studies which sampled on the basis of the presence of any specified mental health outcome were not included since this would invalidate the calculation of an OR for that outcome. ORs refer to the ratio of the odds of an event occurring in an exposed group versus an unexposed group, in the case of this review it being those who have experienced a specific type of violence and those who have not (Fry, McCoy, & Swales, 2012).

3.1.2 Search Strategy

A comprehensive search was conducted using databases CINAHL-EBSCO, Embase, ERIC, PsychINFO, Pubmed, (Medline), Google Scholar and SocINDEx for peer-reviewed papers published from the start of January 2007 to end of October 2017. The search was restricted to studies published in the English language and studies confined to the sub-Saharan Africa geographical region between January 2007 and September 2017. A highly sensitive search was

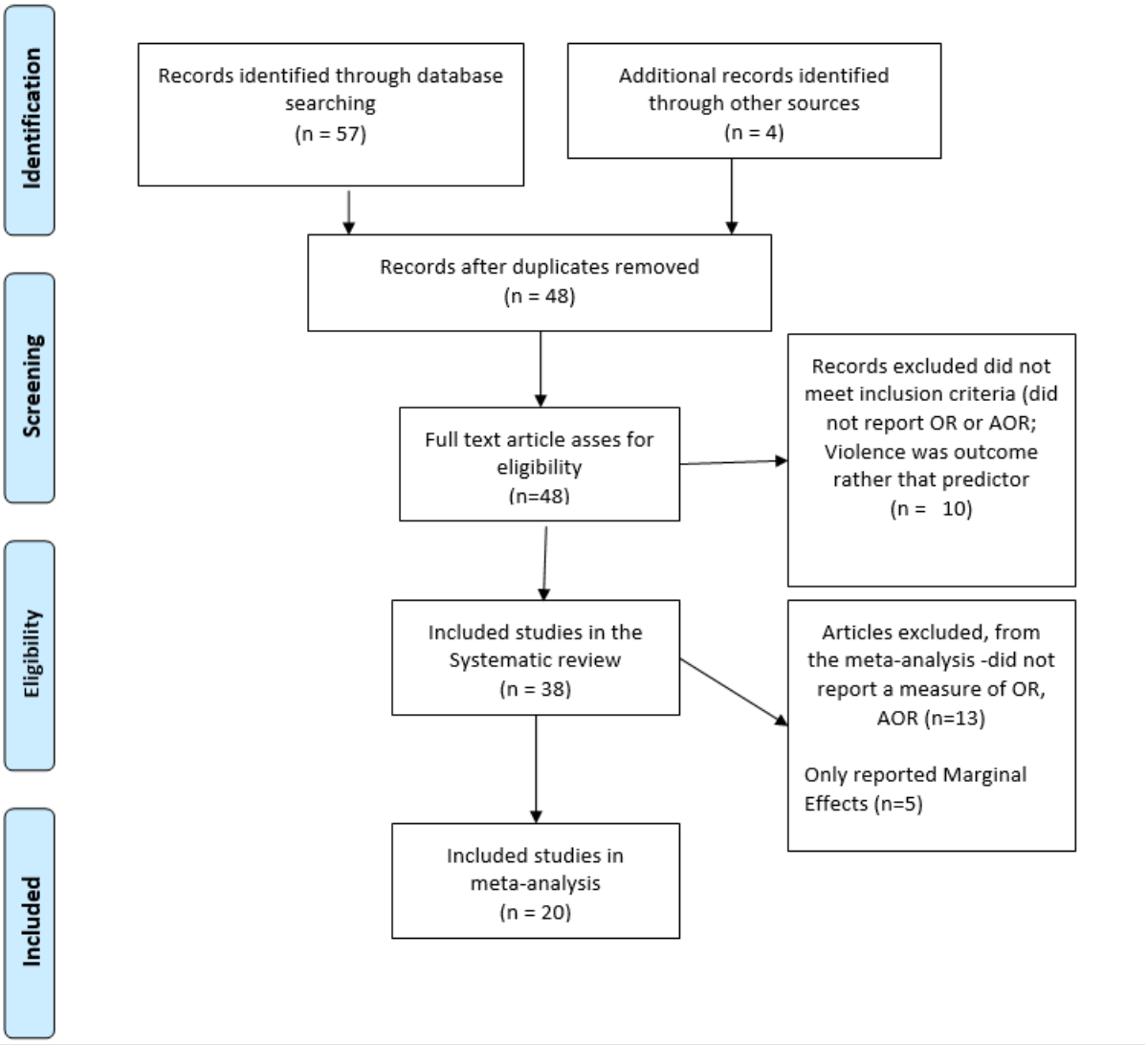
performed using both free text and controlled vocabulary of subject headings, keywords or terms consisting of population type (children), type of violence and type of mental health outcome. At first, the keywords for child, children or pediatric were used to identify studies pertaining to the population of interest. Then combinations of keywords relating to violence were searched and these included: abuse or violence in childhood, emotional abuse, sexual abuse, physical violence or abuse, witnessing parental violence or intimate partner violence, community violence. For mental health outcome keywords such as mental, mentally, psychologically, psychological, psychiatric, psychiatry, mental disease and mental health were utilized. The keywords such as developing nations, third world, developing country, and Africa were used to locate regional studies. To identify additional relevant studies, I hand searched several journals including Child Abuse and Neglect; Child Maltreatment; Child Abuse Review; Journal of Interpersonal Violence. The search was limited to published studies and potentially relevant articles were assessed individually against the inclusion criteria.

3.1.3 Data Collection

Articles were selected by their titles and abstracts. After initial selection duplicates were removed and full-text articles that appeared to meet the inclusion criteria retrieved for closer examination. If insufficient information was presented in the abstract, full texts were recovered for further review. A standardized data extraction sheet was developed, data extracted included publication details, country of study, sample size, study design, type of violence, mental health outcome and measure instrument. For each included study bibliographies were

examined to ensure all articles meeting the inclusion criteria could be located. Figure 1 depicts the screening process of retrieved articles and includes the number and reasons for decisions of exclusion.

Figure 1. Systematic review flow chart



A total of sixty one articles were reviewed through electronic databases of these, forty-eight abstracts were further reviewed to assess whether they met the inclusion criteria. Although

twenty-five studies met the inclusion criteria, five studies were further excluded because they reported only marginal effects (ME) leaving a total of twenty studies to be used in the meta-analysis. Figure 1 search flow chart highlights the search and inclusion process. The chart consists of a four-phase flow diagram. It is a systematic attempt to collate all empirical evidence that fits pre-specified eligibility criteria, minimize bias, and thus providing reliable findings from which conclusions can be drawn and decisions made.

Table 2 presents a complete list of included studies along with descriptive characteristics important in this study, including: country, year, design, and exposure and outcome measures by type.

Table 2. Descriptive Characteristics of Included Studies

Study Number	Authors Information and Year	Country	Study Design	Type(s) of Violence Studied	Types(s) of Mental Health Outcomes
1	Goodman (2017)	Kenya	Cross-sectional	Emotional abuse	Anxiety
2	Kounou (2013)	Togo	Case-control	EA/N, PA, SA	Depression, Personality Disorder
3	Meinck (2017)	Swaziland	Cross-sectional	Emotional Abuse	Depression
4	Skeen (2016)	South Africa and Malawi	Cross-sectional / Longitudinal	Physical Violence	Depression
5	Oladeji (2010)	Nigeria	Cross-sectional	FCV, CA, N	Depression and Anxiety Disorders
6	Shields (2016)	South Africa	Cross-sectional	Child Abuse and Neglect	Depression; PTSD
7	Breiding (2013)	Swaziland	Cohort	Physical abuse	Depression; suicide
8	Jewkes (2010)	South Africa	Cohort	Emotional Violence	Depression
9	Reza (2009)	Swaziland	Cohort	Sexual Violence	Depression; suicide
10	Vagi (2016)	Tanzania	Cross-sectional	Sexual Violence	Anxiety; Depression
11	Ameli (2017)	Malawi	Prospective	EA, FCV, PA	Bullying depression
12	Liang (2007)	South Africa	Cross-sectional	Physical Abuse	Suicide Ideation
13	Mercilene (2016)	South Africa	Cross-sectional	Childhood neglect/abuse	Depression /PTSD
14	Lucie (2015)	South Africa	Prospective	Domestic and community violence	Suicide Ideation
15	Belinda (2014)	South Africa	Cross-sectional	Physical Abuse	Suicide
16	Devries (2011)	Namibia	Cross-sectional	SV; CV	Suicide

17	Collins J (2011)	South Africa	Cross-sectional	Community Violence	PTSD
18	Kinyanda (2013)	Uganda	Cross-sectional	PV, EV	Depression
19	Slopen (2010)	South Africa	Cross-sectional	PV, CV	Anxiety
20	Catherine (2013)	Uganda	Cross-sectional	Physical violence	Anxiety
SV= sexual violence; SA=sexual abuse; EV= emotional violence; EA/N=emotional abuse/neglect; CV=community violence; PV= physical violence; PA=Physical Abuse; FCV=family/community violence; N=neglect					

3.2 Meta-analyses to estimate the impact of violence in childhood on mental health outcomes

3.2.1 Effect size

The effect size used in this study was AOR (Adjusted Odds Ratio). Most of the studies reported AORs and ORs. If only the ORs and not AORs for a study were available, corresponding estimates of AORs were produced using an adjustment factor calculated from studies that both had AORs and ORs. If both ORs and AORs in the same study were not available, the average of the adjustment factors derived from other outcomes within the same general category of outcomes. The adjustment factor was calculated by the following formula:

$$U = \frac{OR_A}{OR_U}$$

Where OR_A represents the adjusted odds ratio and OR_U represents the unadjusted odds ratio, the U is the bias produced from failure to control for the confounders. Most studies that reported ORs or AORs had corresponding 95%CIs (Confidence Interval), those studies that did not report 95%CIs (for ORs or AORs) or only reported RR (Relative Risk) were excluded from the analysis.

3.2.2 Mental Health Outcomes and Violence Types

The mental health outcomes were divided into five different outcome types based on the finding of the systematic review: depression, anxiety, suicide ideation, posttraumatic stress

disorder (PTSD) and mood disorders. Types of violence in childhood were categorized into five different violence types for the meta-analysis: (1) sexual violence; (2) physical violence; (3) emotional violence; (4) neglect; (5) other (witnessing parental violence in home/school/community). Since limited studies were found related to the impact of community violence, war, gang violence, and witnessing family violence they were a categorized as “other”.

3.2.3 Meta-Analysis Strategy

Since several estimates provided under one outcome type and one corresponding violence type could exist in the same study (because of different control variables, different subtypes of outcomes type and violence type). To overcome this problem a classified meta-analysis was adopted as a strategy. First only one estimate is calculated for each study under one outcome type and one corresponding violence type.

3.2.4 Classified meta-analyses.

Insufficient numbers of studies reported the same individual outcome to be able to meta-analyze mental health outcomes separately. The final meta-analysis then was performed using STATA 13.1 for windows and followed four distinct steps. Firstly, Adjusted odds ratios of each included study with multiple outcomes on mental health were pooled using the weighted average generated based on the total sample size to aggregate all possible effects from one study into one overall AOR for each study. This technique avoids violation of the independence of observations that may result from the aggregation of overlapping samples (Borenstein, 2009). Secondly, both random-effects and fixed-effects models were used to estimate pooled AOR. The composite measure of mental health outcome was obtained by weighting studies

based on the inverse of variance using both random-effects and fixed-effects models (Borenstein, 2009). The random-effects model was selected to account for any remaining heterogeneity in the estimates across studies because these models account for both random variability and the variability in effects among the studies (Borenstein, 2009). However, given the small number of included studies, random-effects model tended to be biased as the between-studies variance cannot be reliably estimated (Borenstein et al., 2010). Thirdly, a series of sub-group analyses were conducted to estimate AOR for mental health outcomes by gender. These subgroup analyses were intended to handle heterogeneities, although the significance of interpreting the statistical values (p value, I^2) may be limited due the relatively small number of included studies in the meta-analysis contributing to low statistical power.

4 CHAPTER IV Results

4.1 Description of Studies

The systematic review identified twenty studies that examined the relationship between violence in childhood (before eighteen years) and mental health outcomes (see Figure 1). Fifteen out of the twenty included studies were cross-sectional, two prospective studies, three cohorts, and one case-control. There was little geographical spread among the included studies and Sub-Saharan African countries represented: South Africa (8), Swaziland (3), Tanzania (1), Uganda (2), Nigeria (1), Namibia (1), Malawi (1), Kenya (1), Togo (1), and (1) study carried out in both South Africa and Malawi (Table 2). The majority of the studies measured violence in childhood retrospectively using standardized self-report tools for participants in childhood, adolescence or adulthood. Seven studies were conducted in populations with age ranging from three to eighteen years, eight studies included participants older than eighteen years (studies 1,2,5,13,15,16,17,19) and five studies included participants in the age group (thirteen to twenty-four years). Seven studies controlled for female population, four studies assessed for male and female populations separately, and thirteen studies did not control for gender variability. The results of primary meta-analyses are presented in Tables 3–5, with Figures 2, 3, 4, 5, showing the forest plots of these meta-analyses.

Results are provided for mental health outcomes including: depression (10 studies) (Ameli et al., 2017; Breiding et al., 2013; Jewkes et al., 2010; Kinyanda et al., 2013; Kounou et al., 2013; Machisa et al., 2016; Meinck et al., n.d.; Reza et al., 2009; Skeen, Macedo, Tomlinson, Hensels, & Sherr, 2016; Vagi et al., 2016), anxiety (5 studies) (Abbo et al., 2013; Goodman et al., 2017; Oladeji et al., 2010; Slopen et al., 2010; Vagi et al., 2016), suicide ideation (7 studies)

(Breiding et al., 2013; Bruwer et al., 2014; Cluver et al., 2015; Devries et al., 2011; Liang et al., 2007; Reza et al., 2009; Vagi et al., 2016) , Posttraumatic stress disorder (PTSD) (3 studies) (Collings, 2011; Machisa et al., 2016; Shields et al., 2008), and mood disorders (2 studies) (Oladeji et al., 2010; Slopen et al., 2010). Table 1 provides a detailed description of eligible studies.

There were no significant differences between the findings regardless of the models used. Results were interpreted based on a fixed-effects model that accounts for systematic error of each AOR (Borenstein, 2009). Forest plots show the weighted mean estimates of log-transformed fixed-effects AORs with 95%CIs. Forest plots of summary estimates of each study were reviewed to determine whether the source of any heterogeneity between studies could be identified. Cochran's Q set at $p = 0.05$ and I^2 were used to measure overall and between group heterogeneities.

4.2 Main Findings

Tables 3–6 present outputs from the classified meta-analyses for studies reporting AORs presented in a format similar to other studies in this field (see for example Abajobir et al., 2017). Results show fixed and random effect AORs of the association between different forms of violence in childhood and different mental health outcomes. Gender differences were also provided since these were present in some of the included studies.

Table 3 highlights the findings on the association between various forms of violence in childhood and mental health outcomes for the total population. Depression and Anxiety had the most number of studies (8) for all forms of violence. Overall all forms of childhood violence

were significantly associated with mental health outcomes, except for mood disorders (AOR 0.99; 95% CI 0.65-1.32). Children who experienced any form of violence in childhood are most likely to develop depression compared to other mental health outcomes. Children who experienced emotional violence were almost two times likely to develop depression (AOR = 1.99; 95% CI 1.53–2.45). Physical violence was associated with anxiety (AOR = 1.88; 95% CI 1.56–2.20). Similarly, exposure to physical violence increased the odds of being a victim to suicide ideation (AOR = 1.59; 95% CI 1.33–1.84). Children exposed to other forms of violence mostly in the form of witnessing violence in the home or being engaged in community violence were more likely to develop PTSD (AOR 1.52, 95% CI 1.21–1.77).

Although exposure to sexual violence was found to have a two-fold increased odd of developing depression (AOR = 2.24; 95% CI 0.51–3.96) and greater than two times increased risk of suicide ideation (AOR=2.60; 95% CI -2.40-7.60), these findings were not statistically significant. There was no relationship between childhood exposure to 'other' forms of violence and anxiety (AOR = 0.95; 95% CI 0.40–1.50). The same effect presented between other forms of violence and mood disorders (AOR=0.79, 95% CI 0.31–1.27).

Table 4-5 present findings from gender disaggregated studies that focused on the association between violence in childhood and mental health outcomes for both males and females. The overall finding indicates females were more likely to be burden by depression, anxiety, and suicide as a consequence of any form of violence in childhood (see table 4). A female child victim of sexual violence were two times more likely to develop depression (AOR 2.22, 95% CI 1.71–2.74); whereas males burdened by emotional violence were three times more likely to develop depression (AOR, 3.17; 95% CI, 1.61-4.72). Table 5 presents complete

results of VAC and mental health outcomes by gender. Although male children were eight times more likely to suffer from PTSD as a result of exposure to other forms of violence, findings were not significant (AOR=8.50, 95% CI -10.20–27.20).

Table 3.

Fixed Effect and Random Effect of Child Violence Associated with Mental Health Subtypes

Total Population: Mental health (Depression)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence	3	3	1.99	1.53	2.45	2.19	1.36	3.03	0.274	22.70%
Physical Violence	2	2	1.31	0.55	2.07	1.36	0.4	2.31	0.274	22.70%
Sexual Violence	1	1	2.24	0.51	3.96	2.24	0.51	3.96	.	
Neglect	1	1	1.36	0.53	2.19	1.36	0.53	2.19	.	.
Other	.	.								
overall	7	7	1.75	1.4	2.09	1.75	1.3	2.19	0.269	21.10%
Total Population: Mental health (Anxiety)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence	1	1	1.02	0.65	1.39	1.02	0.65	1.39	.	.
Physical Violence	3	3	1.88	1.56	2.2	1.88	1.56	2.2	0.867	0.00%
Sexual Violence	1	1	2.2	-1.3	5.7	2.2	-1.3	5.7	.	.
Neglect			.	.	.	.	.	.	.	.
Other	2	2	0.95	0.4	1.5	0.95	0.4	1.5	0.492	0.00%
overall	7	7	1.43	1.21	1.65	1.41	0.99	1.84	0.012	63.30%
Total Population: Mental health (Suicide ideation)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence	2	2	.	.	.	.	.	.	.	.
Physical Violence			1.59	1.33	1.84	1.59	1.33	1.84	0.6	0.00%
Sexual Violence	1	1	2.6	-2.4	7.6	2.6	-2.4	7.6	.	.
Neglect			.	.	.	.	.	.	.	.
Other	2	2	1.11	0.95	1.28	1.04	0.71	1.37	0.144	53.20%
overall	5	5	1.25	1.11	1.39	1.3	0.98	1.61	0.018	66.50%
Total Population: Mental health (Post traumatic Stress disorder)										

Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence	2	2	1.12	1.08	1.16	1.14	1.04	1.24	0.08	67.50%
Sexual Violence			.	.	.	.	.	.	.	.
Neglect			.	.	.	.	.	.	.	.
Other	3	3	1.52	1.27	1.77	1.53	1.22	1.85	0.364	1.10%
overall	5	5	1.13	1.09	1.18	1.23	1.07	1.39	0.005	73.00%
Total Population: Mental health (Mood disorder)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence	2	2	1.21	0.72	1.7	1.21	0.72	1.7	0.856	0.00%
Sexual Violence	1	1	0.5	-1.55	2.55	0.5	-1.55	2.55	.	.
Neglect			.	.	.	.	.	.	.	.
Other	2	2	0.79	0.31	1.27	0.79	0.31	1.27	0.912	0.00%
overall	5	5	0.99	0.65	1.32	0.99	0.65	1.32	0.789	0.00%
note: n of studies means number of studies, n of outcomes means number of outcomes (one study may report several outcomes/ see strategy adopted in analyses in methods section										

Table 4.

Fixed/ Random Effect of Child Violence Association with Mental Health Subtypes By Sex

Females: Mental health (Depression)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence	3	3	1.47	1.02	1.63	1.71	0.84	2.57	0.108	55.00%
Physical Violence	4	4	1.29	0.95	1.63	1.43	0.85	2	0.068	57.80%
Sexual Violence	3	3	2.22	1.71	2.74	2.22	1.71	2.74	0.95	0.00%
Neglect			.	.	.	.	.	.	.	.
Other	3	3	2.07	1.57	2.57	2.07	1.57	2.57	0.752	0.00%
overall	13	13	1.64	1.43	1.86	1.79	1.46	2.12	0.017	51.30%
Females: Mental health (Anxiety)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence			.	.	.	.	.	.	.	.

Sexual Violence	1	1	2.26	1.26	3.26	2.26	1.26	3.26	.	.
Neglect			.	.	.	.	.	.	.	.
Other			.	.	.	.	.	.	.	.
overall	1	1	2.26	1.26	3.26	2.26	1.26	3.26	.	.
Females: Mental health (Suicide ideation)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence	1	1	2.33	0.76	3.9	2.33	0.76	3.9	.	.
Sexual Violence	3	3	1.92	1.28	2.57	1.92	1.28	2.57	0.429	0
Neglect			.	.	.	.	.	.	.	.
Other	1	1	2.14	0.91	2.57	2.14	0.91	3.9	.	.
overall	5	5	2.01	1.47	2.55	2.01	1.47	2.55	0.742	0.00%

Table 5

Fixed/ Random Effect of Child Violence Association with Mental Health Subtypes By Sex

Males: Mental health (Depression)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence	2	2	3.17	1.61	4.72	3.17	1.61	4.72	0.753	0.00%
Physical Violence	2	2	1.1	1.05	1.15	1.48	0.25	2.71	0.139	54.40%
Sexual Violence	1	1	1.5	0.80	2.20	1.50	0.80	2.20	.	.
Neglect			.	.	.	.	.	.	.	.
Other	2	2	1.52	1.27	1.76	1.52	1.27	1.76	0.34	0%
overall	6	6	1.12	1.07	1.17	1.53	1.14	1.92	0.002	72.00%
Males: Mental health (Anxiety)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence			.	.	.	.	.	.	.	.
Sexual Violence	1	1	1.72	0.7	2.74	1.72	0.7	2.74	.	.
Neglect			.	.	.	.	.	.	.	.
Other			.	.	.	.	.	.	.	.
overall	1	1	1.72	0.7	2.74	1.72	0.7	2.74	.	.
Males: Mental health (Suicide ideation)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		

Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence			.	.	.	.	.	.	.	.
Sexual Violence	1	1	3.47	-2.55	9.48	3.47	-2.55	9.48	.	.
Neglect			.	.	.	.	.	.	.	.
Other			.	.	.	.	.	.	.	.
overall	1	1	3.47	-2.55	9.48	3.47	-2.55	9.48	.	.
Males: Mental health (PTSD)										
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL		
Emotional Violence			.	.	.	.	.	.	.	.
Physical Violence	1	1	1.2	1.1	1.3	1.2	1.1	1.3	.	.
Sexual Violence			.	.	.	.	.	.	.	.
Neglect			.	.	.	.	.	.	.	.
Other	1	1	8.5	-10.2	27.2	8.5	-10.2	27.2	.	.
overall	2	2	1.2	1.1	1.3	1.2	1.1	1.3	0.444	0.00%
note: n of studies means number of studies, n of outcomes means number of outcomes (one study may report several outcomes/ see strategy adopted in methods section										

5 CHAPTER V Discussion

Findings from this systematic review and meta-analysis found significant associations between different forms of violence against children and mental health outcomes. At risk children remain vulnerable to abuse. Hence, evidence from this study further demonstrates the importance of VAC and its burden on child's psychological well-being. Interestingly, findings show that both male and female children have the potential to develop at least one form of mental health outcome as a consequence of exposure to violence during childhood. In particular, sexual violence and emotional violence appears to have a strong influence on mental health outcomes. Depression and anxiety were frequently studied outcomes.

Other forms of violence in childhood, including physical violence, neglect and community violence are also shown to impact mental health significantly. These are important findings that support the idea that prevention of violence in childhood is a key strategy for raising awareness and improving mental health globally. Limited number of studies were available to assess the outcome mood disorder. Therefore, assessment for this mental health outcomes should not be overlooked in further studies. There was evidence of low to moderate levels of heterogeneity. Exceptions included the findings for depression and suicide attempts. Residual unexplained heterogeneity may be attributable to other study-level level covariates that could not be evaluated in this meta-analysis. Although, there were limitations due to number of studies There may be limitations of study, but the findings do reveal potential associations that warrant further investigation and research attention.

5.1 Strengths and Limitations:

The main strengths of this meta-analysis include the comprehensive and reproducible search and selection criteria. The AOR estimates used for both subgroup and overall analyses to explore the relationship of violence against children (VAC) and mental health outcomes in terms of gender, and type of mental health outcome (substantiated or self-reported). Though conservative criteria were used initially to control for heterogeneities across included studies, sub-group and overall analyses explored statistically significant heterogeneities across included studies. Secondly, associations between different types of childhood violence and mental health outcomes disorders was reported in at least one prospective studies and large population-based studies. The strength of the relationship between abuse and mental disorders was generally reduced when the effects of important mediating variables were taken into account. Despite some variability, overall, the different types of childhood violence were found to approximately double the likelihood of adverse mental health outcomes when combined in a meta-analysis.

Limitations: the main limitation of this study is the small number of longitudinal studies. Only two studies were prospective, while majority of the studies were cross-sectional studies and relied on adult retrospective report of abuse and neglect in childhood. Furthermore, retrospective, self-reported information regarding abuse in childhood may be subject to recall bias, where those with adjustment problems may be more prone to recall or disclose exposure to abuse and neglect. In many cases participants were asked to report on events that would have occurred many years before, and the issue of potentially unreliable recall threatens the validity of the published literature on child maltreatment. At least with respect to child sexual

abuse, evidence suggests moderate to good consistency of reports over time. It has also been suggested that biases are probably towards under-reporting rather than over-reporting of abuse. Secondly all included studies exclusively focused on violence in childhood and a few (5) mental health outcomes, with depression being the most studied outcome. Mental health outcomes are a broad range of mental illnesses and little is known about VAC association with other types of mental health outcomes. Lastly, this study includes low contribution of data by countries in the region.

5.2 Recommendations and Prevention Strategies

This results from this review aim to influence the way we think and talk about childhood violence. Signs of progress are evident, and UNICEF alongside other agencies have made ending violence against children a priority for sub-Saharan Africa. Yet there is need for increased efforts in research, national policies and violence prevention programs. To increase the success of existing programs and help the region achieve the United Nations Sustainable Development Goals (Target 16.2; Target 3.4) in the 2030 agenda, I recommend policies that: 1) strengthen legal and policy frameworks; 2) strengthen child protection services; 3) support communities, parents (or caregivers); and 4) enhance response capacity and access to support services for children and their caregivers. The development of child abuse policies should be based on the framework of evidenced-based research and practices and guided by both rights conventions and local culture and values.

1) Strengthen the legal and policy framework: The different strata of government need to strengthen and uphold the legal and policy frameworks that protect children from

various forms of violence, exploitation and abuse as a means to build and sustain a safe environment for every child (UN's SDG Target 16.2; Target 3.4). These efforts could be achieved by:

- Criminalizing all forms of abuse nationally
- Use efficient monitoring and evaluation systems
- Update national and state-level criminal and civil legislation, regulations and codes of conduct
- Improve social and mental health services

2) Strengthen child protection services: effective child protection is dependent of effective policies that enable:
   - Prioritization of child protective systems at national, local and community levels
   - Allocations of adequate funds and resources to strengthen the promotion, prevention and capacities of the systems.
   - Accountability structures for child protection systems with clear roles, responsibilities and standards for all of the actors involved
3) Supporting communities, parents (or caregivers) and children through:
   - Community-based interventions
   - School-based interventions that provide teachers, student and parents with life skills on how to positively deal with their emotions, empathize with others and safely manage abusive situations
   - Parenting programs that teach parents life skills on how to prevent, recognize and respond to violence

4) Raise access to response and support services for children and their caregivers
    - Through comprehensive and sustained media awareness campaign that shift attitudes
    - Educate on violence and mental health to encourage reporting and help seeking behaviors
    - Availability and access to services

Finally, there is need to understand more about the social context of childhood violence and its association with mental health. This can be achieved by further through expanded regional population-based surveillance of violence against children, increase investments to support evidenced-based violence prevention and mental health programs, and policies aimed to provide a comprehensive cohesive framework that ensures children develop in a safe, non-violent and inclusive environment.

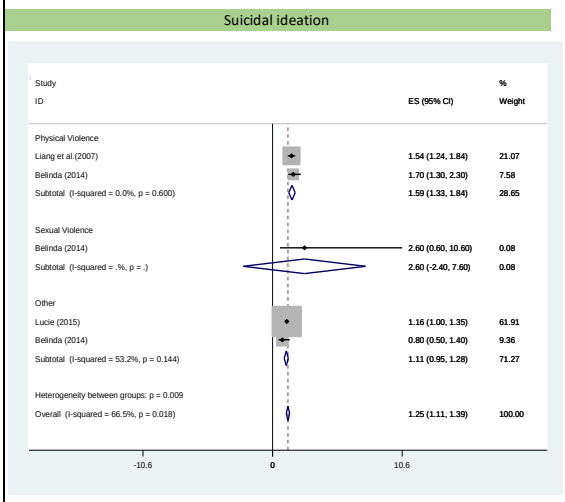
Conclusion

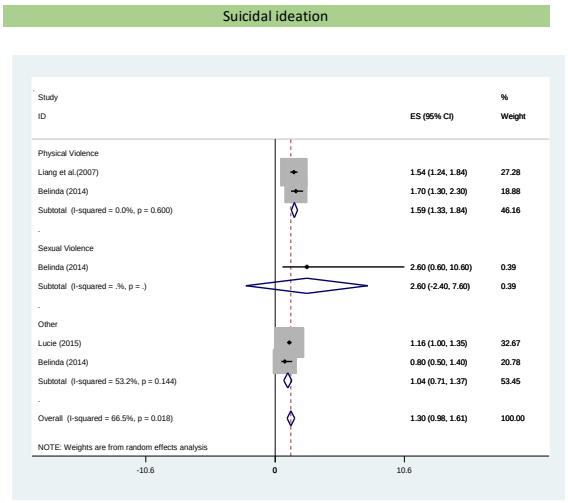
Overall, the findings from this review confirms that all forms of violence in childhood have a significant impact on mental health outcomes. The findings of this meta-analysis contribute to current research on childhood violence and its impact on mental health. Lack of data can hinder efforts to reveal the pervasive nature of violence in childhood. This in turn limits the effectiveness of initiatives to prevent it. To further elucidate the strength of the association between violence in childhood and mental health outcomes, further high-quality follow-up studies conducted to include a greater representation of sub-Saharan African countries and include examination of national social and mental health programs and supportive child protection service policies are warranted. It is imperative that the public health and the

research community are in the forefront of national and international efforts to prevent VAC, and ensure psychological and social support systems are provided to children.

Figure 2

Figure 3


Suicidal ideation
Study
ID
ES (95% CI)
%
Weight
Physical Violence
Liang et al.(2007) 1.54 (1.24, 1.84) 21.07
Belinda (2014) 1.70 (1.30, 2.30) 7.58
Subtotal (I-squared = 0.0%, p = 0.600) 1.59 (1.33, 1.84) 28.65
Sexual Violence
Belinda (2014) 2.60 (0.60, 10.60) 0.08
Subtotal (I-squared = .%, p = .) 2.60 (-2.40, 7.60) 0.08
Other
Lucie (2015) 1.16 (1.00, 1.35) 61.91
Belinda (2014) 0.80 (0.50, 1.40) 9.36
Subtotal (I-squared = 53.2%, p = 0.144) 1.11 (0.95, 1.28) 71.27
Heterogeneity between groups: p = 0.009
Overall (I-squared = 66.5%, p = 0.018) 1.25 (1.11, 1.39) 100.00
-10.6
0
10.6


Suicidal ideation
Study
ID
ES (95% CI)
%
Weight
Physical Violence
Liang et al.(2007) 1.54 (1.24, 1.84) 27.28
Belinda (2014) 1.70 (1.30, 2.30) 18.88
Subtotal (I-squared = 0.0%, p = 0.600) 1.59 (1.33, 1.84) 46.16
Sexual Violence
Belinda (2014) 2.60 (0.60, 10.60) 0.39
Subtotal (I-squared = .%, p = .) 2.60 (-2.40, 7.60) 0.39
Other
Lucie (2015) 1.16 (1.00, 1.35) 32.67
Belinda (2014) 0.80 (0.50, 1.40) 20.78
Subtotal (I-squared = 53.2%, p = 0.144) 1.04 (0.71, 1.37) 53.45
Overall (I-squared = 66.5%, p = 0.018) 1.30 (0.98, 1.61) 100.00
NOTE: Weights are from random effects analysis
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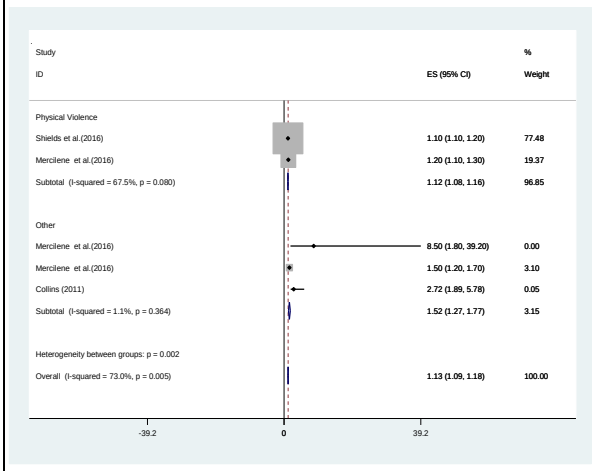
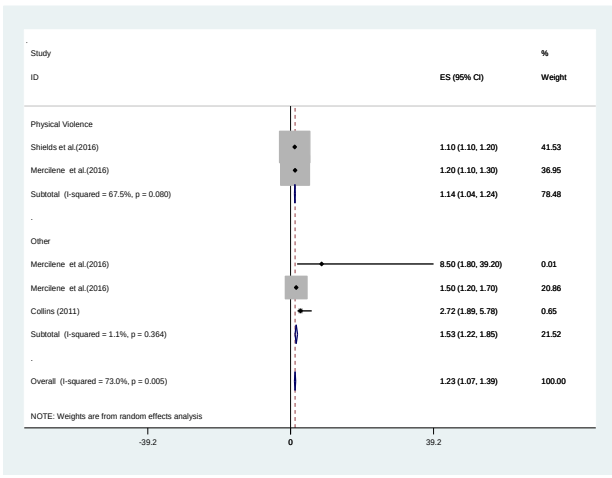
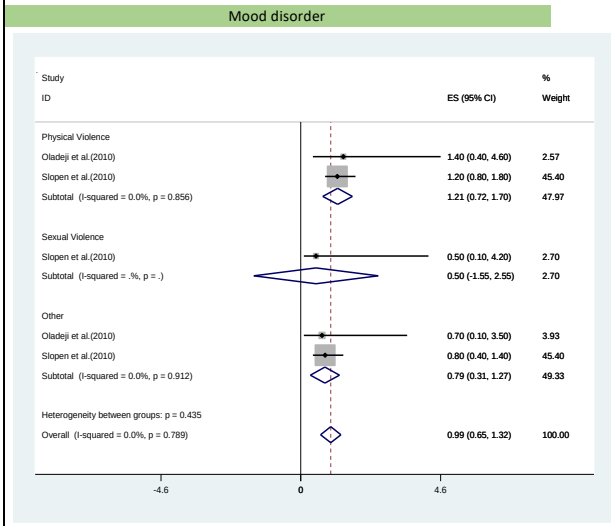
0
10.6


PTSD
Study
ID
ES (95% CI)
%
Weight
Physical Violence
Shields et al.(2016) 1.10 (1.10, 1.20) 77.48
Mercilene et al.(2016) 1.20 (1.10, 1.30) 19.37
Subtotal (I-squared = 67.5%, p = 0.080) 1.12 (1.08, 1.16) 96.85
Other
Mercilene et al.(2016) 8.50 (1.80, 39.20) 0.00
Mercilene et al.(2016) 1.50 (1.20, 1.70) 3.10
Collins (2011) 2.72 (1.89, 5.78) 0.05
Subtotal (I-squared = 1.1%, p = 0.364) 1.52 (1.27, 1.77) 3.15
Heterogeneity between groups: p = 0.002
Overall (I-squared = 73.0%, p = 0.005) 1.13 (1.09, 1.18) 100.00
-39.2
0
39.2


PTSD
Study
ID
ES (95% CI)
%
Weight
Physical Violence
Shields et al.(2016) 1.10 (1.10, 1.20) 41.53
Mercilene et al.(2016) 1.20 (1.10, 1.30) 36.95
Subtotal (I-squared = 67.5%, p = 0.080) 1.14 (1.04, 1.24) 78.48
Other
Mercilene et al.(2016) 8.50 (1.80, 39.20) 0.01
Mercilene et al.(2016) 1.50 (1.20, 1.70) 20.86
Collins (2011) 2.72 (1.89, 5.78) 0.65
Subtotal (I-squared = 1.1%, p = 0.364) 1.53 (1.22, 1.85) 21.52
Overall (I-squared = 73.0%, p = 0.005) 1.23 (1.07, 1.39) 100.00
NOTE: Weights are from random effects analysis
-39.2
0
39.2


Mood disorder
Study
ID
ES (95% CI)
%
Weight
Physical Violence
Oladeji et al.(2010) 1.40 (0.40, 4.60) 2.57
Slopen et al.(2010) 1.20 (0.80, 1.80) 45.40
Subtotal (I-squared = 0.0%, p = 0.856) 1.21 (0.72, 1.70) 47.97
Sexual Violence
Slopen et al.(2010) 0.50 (0.10, 4.20) 2.70
Subtotal (I-squared = .%, p = .) 0.50 (-1.55, 2.55) 2.70
Other
Oladeji et al.(2010) 0.70 (0.10, 3.50) 3.93
Slopen et al.(2010) 0.80 (0.40, 1.40) 45.40
Subtotal (I-squared = 0.0%, p = 0.912) 0.79 (0.31, 1.27) 49.33
Heterogeneity between groups: p = 0.435
Overall (I-squared = 0.0%, p = 0.789) 0.99 (0.65, 1.32) 100.00
-4.6
0
4.6

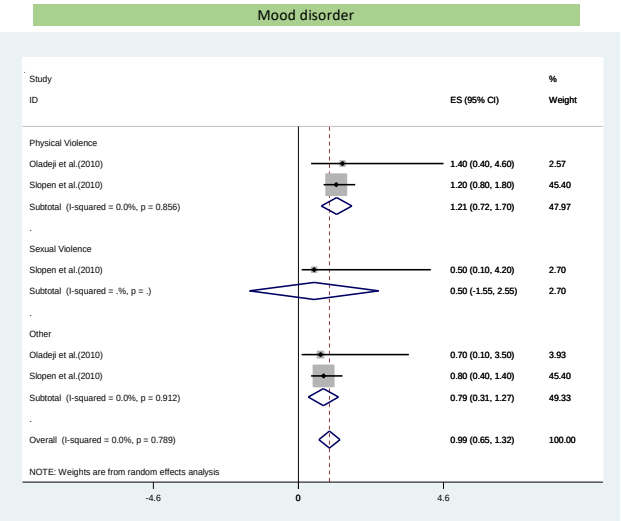
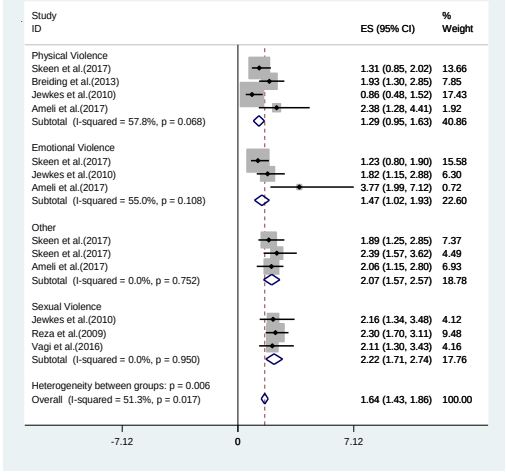

Mood disorder
Study
ID
ES (95% CI)
%
Weight
Physical Violence
Oladeji et al.(2010) 1.40 (0.40, 4.60) 2.57
Slopen et al.(2010) 1.20 (0.80, 1.80) 45.40
Subtotal (I-squared = 0.0%, p = 0.856) 1.21 (0.72, 1.70) 47.97
Sexual Violence
Slopen et al.(2010) 0.50 (0.10, 4.20) 2.70
Subtotal (I-squared = .%, p = .) 0.50 (-1.55, 2.55) 2.70
Other
Oladeji et al.(2010) 0.70 (0.10, 3.50) 3.93
Slopen et al.(2010) 0.80 (0.40, 1.40) 45.40
Subtotal (I-squared = 0.0%, p = 0.912) 0.79 (0.31, 1.27) 49.33
Overall (I-squared = 0.0%, p = 0.789) 0.99 (0.65, 1.32) 100.00
NOTE: Weights are from random effects analysis
-4.6
0
4.6

Figure 4

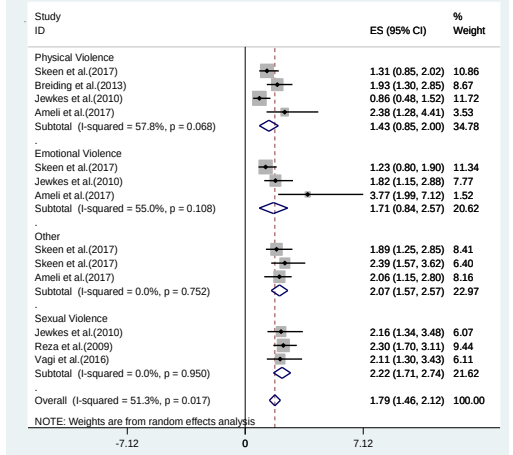
Fixed effect

Depression



Random effect

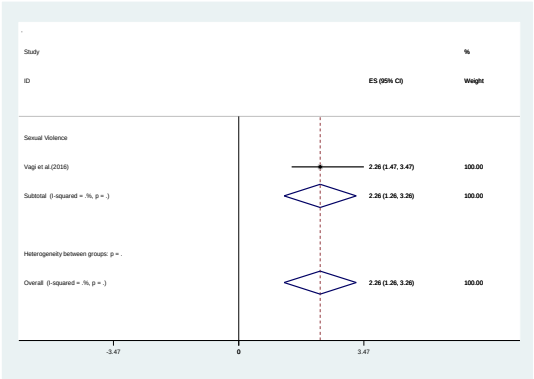
Depression



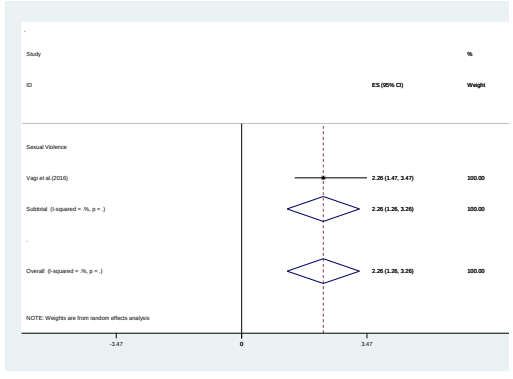
Anxiety

only one study(below)

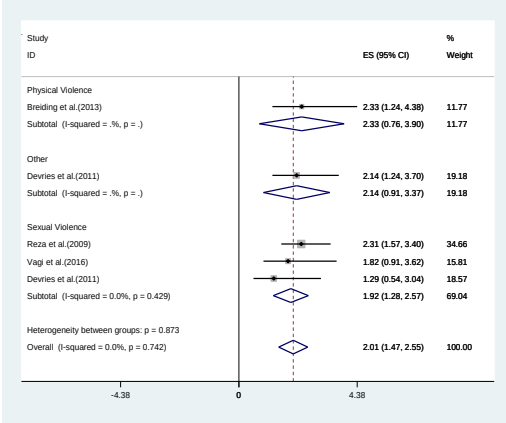
study	authors_nev	yearofpub	samplesiz	violencety	conseqcat	mthl_type	aorsample	sample_ll	sample_ul	aormales	male_ll	male_ul	controlled	aorfemale	female_ll	female_ul	me
15	Vagi et al.(2(	2016	3739	Sexual Vio		1 anxiety								2.26	1.47	3.47	



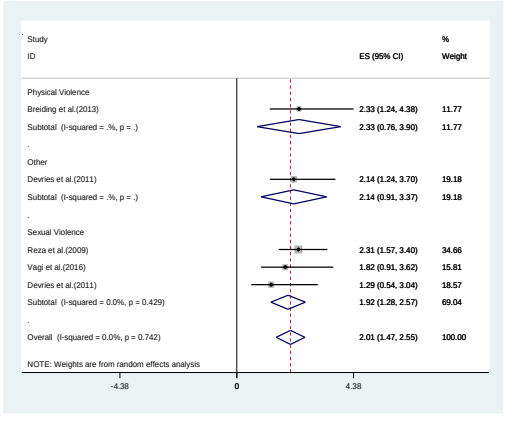
Anxiety



Suicidal ideation



Suicidal ideation



PTSD

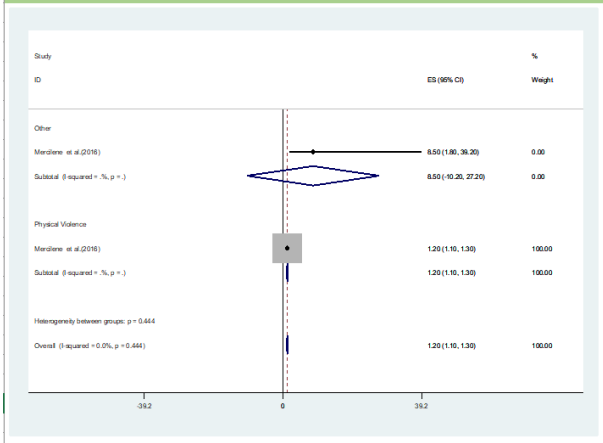
no studies

PTSD

Figure 5


Fixed effect
Depression
Study
ID
ES (95% CI)
%
Weight
Emotional Violence
Ameli et al.(2017) 2.91 (1.44, 5.90) 0.05
Jewkes et al.(2010) 3.41 (1.87, 6.20) 0.05
Subtotal (I-squared = 0.0%, p = 0.753) 3.17 (1.61, 4.72) 0.10
Other
Ameli et al.(2017) 2.37 (1.19, 4.73) 0.08
Mercilene et al.(2016) 1.50 (1.20, 1.70) 3.82
Subtotal (I-squared = 0.0%, p = 0.340) 1.52 (1.27, 1.76) 3.89
Physical Violence
Ameli et al.(2017) 2.51 (1.27, 5.00) 0.07
Mercilene et al.(2016) 1.10 (1.10, 1.20) 95.45
Subtotal (I-squared = 54.4%, p = 0.139) 1.10 (1.05, 1.15) 95.52
Sexual Violence
Vagi et al.(2016) 1.50 (0.96, 2.36) 0.49
Subtotal (I-squared = .%, p = .) 1.50 (0.80, 2.20) 0.49
Heterogeneity between groups: p = 0.000
Overall (I-squared = 72.0%, p = 0.002) 1.12 (1.07, 1.17) 100.00
-6.2
0
6.2
Random effect
Depression
Study
ID
ES (95% CI)
%
Weight
Emotional Violence
Ameli et al.(2017) 2.91 (1.44, 5.90) 2.88
Jewkes et al.(2010) 3.41 (1.87, 6.20) 3.04
Subtotal (I-squared = 0.0%, p = 0.753) 3.17 (1.61, 4.72) 5.92
Other
Ameli et al.(2017) 2.37 (1.19, 4.73) 4.37
Mercilene et al.(2016) 1.50 (1.20, 1.70) 32.08
Subtotal (I-squared = 0.0%, p = 0.340) 1.52 (1.27, 1.76) 36.45
Physical Violence
Ameli et al.(2017) 2.51 (1.27, 5.00) 3.98
Mercilene et al.(2016) 1.10 (1.10, 1.20) 36.62
Subtotal (I-squared = 54.4%, p = 0.139) 1.48 (0.25, 2.71) 40.60
Sexual Violence
Vagi et al.(2016) 1.50 (0.96, 2.36) 17.03
Subtotal (I-squared = .%, p = .) 1.50 (0.80, 2.20) 17.03
Overall (I-squared = 72.0%, p = 0.002) 1.53 (1.14, 1.92) 100.00
NOTE: Weights are from random effects analysis
-6.2
0
6.2
Anxiety
Anxiety
Suicidal ideation
Suicidal ideation

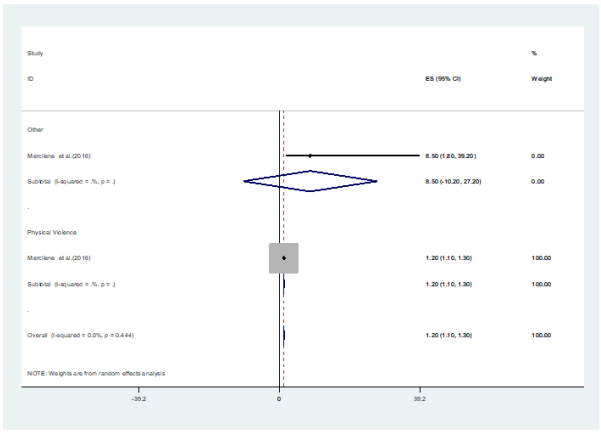
PTSD



Mood disorder

no studies

PTSD



Mood disorder

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