Association between maternal depression and child socio-emotional and cognitive development at Mnazi Mmoja Hospital Dar-Es Salaam

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ASSOCIATION BETWEEN MATERNAL DEPRESSION AND CHILD SOCIO-EMOTIONAL AND COGNITIVE DEVELOPMENT AT MNAZI MMOJA HOSPITAL DAR-ES SALAAM

By

Rachel Jared Mtei

A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Science (Clinical Psychology) of

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CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Science a dissertation entitled; **"Association between maternal depression and child socio-emotional and cognitive development at Mnazi Mmoja Hospital Dar-es Salaam"**, in (partial) fulfillment of the requirements for the degree of Masters of Science (Clinical Psychology) of Muhimbili University of Health and Allied Sciences

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Date

DECLARATION AND COPYRIGHT

I, **Rachel Jared Mtei,** declare that this **dissertation** is my own original work and that it has not been presented and will not be presented at any other university for a similar or any other degree award.

Signature …… **Date** ……

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MAY THE ALMIGHTY GOD BLESS YOU!

DEDICATION

I thankfully dedicate this work to my family, my mother; Mrs. Jared Mtei and my late father; Mr. Jared Mtei. My dear sisters Florence, Glory, Gillian and Matilda; and my brother Honest for their love and support.

ABSTRACT

Background

Infancy is a crucial time in the course of human development as a determinant for health and wellbeing, a healthy child is expected to meet developmental milestones for cognitive, socio-emotional and physical development. This strongly influences basic learning, school success, economic participation, social citizenry, and health. It is estimated that 43% of children in low and middle- income countries do not attain their potential development. Globally the prevalence of maternal depression is 10-15% and has been associated with adverse effects on child cognitive, behavioral and physical development. In most developing countries the prevalence of maternal depression is high and there are no national statistics on child cognitive and socio-emotional development. There are no retrievable studies on the association between maternal depression and child socio-emotional and cognitive development that have been conducted in Tanzania.

Aim of the study

The aim of this study is to determine the association between maternal depression and socio-emotional and cognitive development.

Materials and Methods

This was a hospital-based descriptive cross-sectional study where quantitative methods were used to collect information from March to April 2019. The study was conducted at Mnazi Mmoja Hospital, Dar es Salaam RCH clinic amongst 422 mothers with their children aged 6-12 months; mothers were assessed for maternal depression using PHQ-9 and children for child socio-emotional and cognitive development using the Tanzanian validated Caregiver-Reported Early Development Index (CREDI). Other potential predictors of child socio-emotional and cognitive development were measured including socio-demographic characteristics, the child's environmental stimulation through parents' involvement in child's activities and the presence of intimate partner violence. Data were analyzed by SPSS version 23 and bivariate association was calculated by using the chi-square test with a significance level of $p<0.2$. Logistic regression (multivariates regression) was used to determine independent predictors of

child development using a full effects model and odds ratio used to determine the strength of associations.

Results: A total of 420 mother-child dyads were studied 63% of the children being female, and 32.5% had low socio-emotional scores. The mother's mean age (SD) was 27.4 years (6.98) and the prevalence of maternal depression was 36%. Multivariate analysis showed maternal depression was significantly associated with child cognitive development (AOR 0.50; 95% CI 0.28, 0.75; p=0.002) and parental stimulation was found to be associated with child cogniti ve the mean age (SD) was 9.5 months (2.09); 31% of the children had low cognitive scores development (AOR 0.50; 95%CI 0.31, 0.80; 0.004); maternal depression was associated with socio-emotional development (AOR 0.47; 95% CI 0.29, 0.77;p=0.003).

Conclusion: Maternal depression is high and it is associated with adverse child socio-emotional and cognitive development. It is recommended that screening and early interventions for maternal depression should be done at the RCH clinics. Parental stimulation seen as a protective factor for child cognitive development should, therefore, be emphasized at the RCH clinic education sessions.

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LIST OF ABBREVIATIONS

CREDI	Caregiver-Reported Early Development Instruments
HIV	Human Immunodeficiency Virus
RCH	Reproductive and Child Health
SPSS	Statistical Package for Social Sciences
PHQ-9	Patient Health Questionnaire
WHO	World Health Organization

DEFINITION OF TERMS

Cognitive development refers to advances in mental processes associated with perception, memory, reasoning, problem-solving, language-learning and other aspects of brain development that occur with increasing age(Rao, 2014).

Social-emotional development refers to the developing capacity of the child from birth through 5 years of age to form close and secure adult and peer relationships; experience, regulate, and express emotions in socially and culturally appropriate ways; and explore the environment and learn—all in the context of family, community, and culture (Yates *et al.*, 2008)

Nurturing care is the care that is provided in a stable environment, that is sensitive to children's health and nutritional needs, with protection from threats, opportunities for early learning, and interactions that are responsive, emotionally supportive and developmentally stimulating (WHO).

Depression is a mental disorder characterized by low mood, loss of interest or enjoyment, and reduced energy, leading to increased fatigue, reduced activity, and marked functional impairment (WHO, 1990).

Maternal depression is defined as depression experienced from delivery to 1 year.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Infancy is a very crucial time in the development of any individual and a determinant of their later health and well-being. Healthy early child development includes the attainment of expected developmental milestones across physical, socio-emotional and cognitive domains. Attainment of developmental milestones is fundamental to success and happiness not only for the duration of childhood but throughout the life course. Early child development influences the individuals' well-being, obesity/stunting, mental health, literacy and numeracy skills, criminality, and economic participation throughout life (Irwin, Siddiqi and Hertzman, 2009).

Socio-emotional development refers to the developing capacity of the child from birth through 5 years of age to form close and secure adult and peer relationships; experience, regulate, and express emotions in socially and culturally appropriate ways; and explore the environment and learn—all in the context of family, community, and culture. Competency in this domain lays a foundation for future well being and academic skills (Yates *et al.*, 2008). Cognitive development refers to advances in mental processes associated with perception, memory, reasoning, problem-solving, language-learning and other aspects of brain development that occur with increasing age (Rao, 2014). Attainment of cognitive milestones offers a solid foundation for future academic and economic skills. Child socio-emotional and cognitive development have intense implications for the economic burden on countries and individuals. If the opportunity of attainment is missed during the early years, it becomes difficult in terms of both time and resources, to create a successful life course (Irwin, Siddiqi and Hertzman, 2009).

Globally more than 200 million children worldwide do not attain potential development, in low and middle-income countries estimated that 43% do not attain optimal development which leads to the loss of human capital in their countries (WHO, 2018). Early childhood physical developmental delay inhibits a child to interact with the environment it affects cognitive and social skills development that can lead to emotional dysregulation, poor attention, late school

enrollment, reduced educational attainment which will affect their income as adults (Murray *et al.*, 1996; Heckman, 2006; Fink *et al.*, 2016). Global estimates of early-life growth faltering in developing countries are seen to have caused a total loss of 69.4 million y of educational attainment per birth cohort(Fink *et al.*, 2016).

There are many factors that are suggested to be are associated with early childhood development such as poverty, illnesses such as malaria, violence, parents' bad behaviors and maternal depression (Grantham-McGregor *et al.*, 2007; Walker, Susan *et al.*, 2007; De Moura *et al.*, 2010). Depression is a mental disorder characterized by low mood, loss of interest or enjoyment, and reduced energy, leading to increased fatigue, reduced activity, and marked functional impairment (WHO, 1990). Maternal depression is depression experienced from delivery to 1 year. It affects about 10-15% of women worldwide (Beck, Records and Rice, 2006). The symptoms of depression affect the mother's daily ability to provide nurturing care to an infant (Goodman *et al.*, 2011). Maternal depression leads to lower cognitive and psychomotor development, behavioral problems (socio-emotional) and is a risk factor for the development of psychiatric disorders during adolescence (Pawlby *et al.*, 2008).

1.3 Problem Statement

Children are expected to grow and attain milestones in cognitive and socio-emotional aspects so as to have better health and well being in the future, however, some do not attain potential cognitive and socio-emotional development and this affects their learning process, their ability in school, their behaviors and mental health. In low and middle-income countries the number of children who do not attain cognitive and socio-emotional development is higher (Grantham-McGregor *et al.*, 2007); in Tanzania statistics for child cognitive and socio-emotional development are not available. Studies suggest that maternal depression is one of the factors associated with delays in cognitive and socio-emotional development; and the prevalence of maternal depression in low and middle income is reported to be higher than that of high-income countries as shown in several studies (Beck, Records and Rice, 2006). This study aims to determine the association between maternal depression and child socio-emotional and cognitive development.

1.2 Theoretical Framework

According to Bowlby's theory of attachment, infants have an innate need to form a bond with their primary caregiver. The role of the caregiver is to be available and responsive when wanted and they are to intervene when a child is heading for trouble the fulfillment of these roles enables a healthy mental development. The disruption of the attachment bond due to loss or separation of the mother (maternal deprivation), could affect the infants' cognitive, social and emotional development and can lead to emotional distress, emotional detachment and personality disturbances in adulthood. Maternal depression is one form of maternal deprivation where the mother loses interest in the child which disrupts the mother-infant interaction leading to poor child development (Bowlby, 1977).

The study's conceptual framework follows the bio-psychosocial model there are biological, psychological and social factors that are associated with child social-emotional and cognitive development and maternal depression being one of them (Walker *et al.*, 2007). These factors can have a direct impact on the child's development or an indirect impact on maternal depression as a mediating factor.

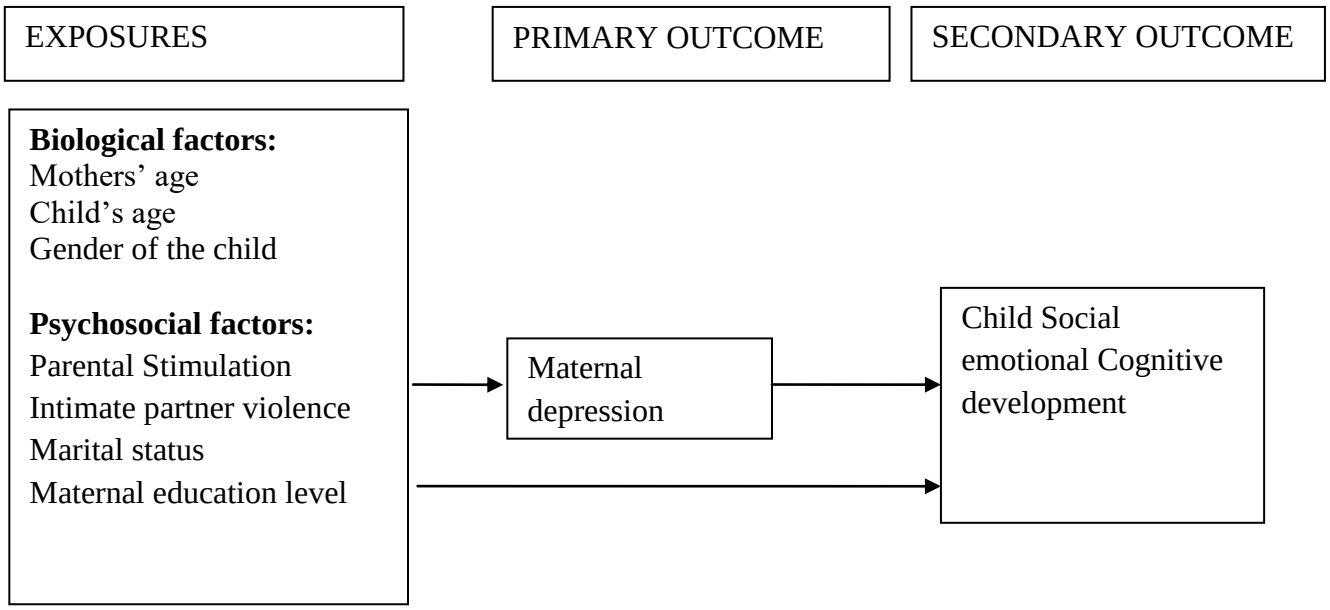


Figure 1: Conceptual Framework

1.3 Rationale for the study

This study hopes to increase knowledge by assessing associations between maternal depression and child cognitive and socio-emotional development. This knowledge will help inform the development of intervention or improvements in the clinic settings.

1.4 Research Question

Is maternal depression associated with child Cognitive and Socio-emotional development among mothers and children attending RCH clinic at Mnazi Mmoja Hospital Dar es salaam?

1.5 Objectives

1.5.1 Broad Objective

To determine the prevalence of maternal depression and its association to child social-emotional and cognitive development.

1.5.2 Specific Objectives

1. To determine the prevalence of maternal depression among mothers attending RCH clinic at Mnazi mmoja hospital, Dar es Salaam.
2. To determine child social-emotional and cognitive development scores among 6-12 months children of mothers attending RCH clinic at Mnazi mmoja hospital, Dar es Salaam.
3. To determine the associations between maternal depression and child social-emotional and cognitive development among mother-child dyads attending Mnazi Mmoja hospital, Dar es salaam.
4. To determine the associations between socio-demographic factors (infants age, mothers' age, marital status, educational level, employment status and gender of the child), other psychosocial factors (intimate partner violence and parental stimulation) and child social-emotional and cognitive development among mother-child dyads attending Mnazi Mmoja Hospital, Dar es salaam.

1.6 Literature Review

The purpose of this literature is to examine the magnitude of maternal depression and delayed child cognitive and socio-emotional development and their associations.

1.6.1 Prevalence of Maternal depression

About 10% of pregnant women and 13% of mothers who have just given birth experience a mental disorder, mainly depression. Several studies in high-income countries reveal the same a study in Canada among 6,421 mothers that assessed postpartum depression using the Edinburgh Postnatal Depression Scale (EPDS) had a prevalence of 8.69% for major depression (Lanes, Kuk and Tamim, 2011).

A study in the United States of America reported 10% of mothers experienced depression. In this study psychiatric disorders were assessed with the Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV), a structured interview protocol that allows diagnoses based on the Diagnostic and Statistical Manual of Mental Disorders, Revised 4th edition, depression was the main outcome in the study (Rich-edwards *et al.*, 2011). A study among Pakistani mothers living in Britain reported 36.6% of the mothers had depression using EPDS as an instrument to measure depression.

In developing countries, the prevalence of maternal depression is observed to be 15.6% during pregnancy and 19.8% after childbirth (Beck, Records and Rice, 2006). A study in Ghana among mothers who were within 12 months after delivery using the PHQ-9 as an instrument, reported the prevalence of depression to be 7% which is low when compared to other African countries(Anokye *et al.*, 2018). A study in rural South Africa among pregnant women attending the HIV clinic reported a 47% prevalence of depression which was high, the assessment of depression was completed using a structured clinical interview method and DSM-IV diagnostic criteria (Rochat *et al.*, 2011). A study in Zimbabwe among mothers with HIV reported that 64% of mothers experienced mild or moderate depression, with 10% categorized as having severe depression the EPDS was used as a tool for assessing depression (Mebrahtu *et al.*, 2018).

In Tanzania, a study conducted in the northern regions among 134 pregnant women 33.8 % had maternal depression used the EPDS as a tool to screen depression this tool does not give a diagnosis (Rwakarema *et al.*, 2015). A study in Dar es salaam among mothers attending postnatal care reported a 13.6% prevalence of maternal depression as captured by the PHQ-9 (Mahenge *et al.*, 2018). Another study in Morogoro among 1031 women reported 2% to be severely depressed and 6.3% mildly to moderately depressed in this study they used PHQ-9 to measure depression (Neamah *et al.*, 2018). In a study among mothers with HIV infection, the prevalence of depression was 31% (Kapetanovic *et al.*, 2009).

1.6.2 Prevalence of delayed early child cognitive and socio-emotional development

A cohort study in an urban-suburban community in the southern United States among 1503 mother-infant dyads reported that 21.2% of the children that were followed up to two years had socio-emotional problems/delays. Child socio-emotional development was measured by the Brief Infant-Toddler Social Emotional Assessment at 2 years of age. Mothers reported their own behavioral and mental health, temperament, parenting stress, and potential for child abuse during gestation and/or when their child was 1 year of age (Palmer *et al.*, 2018).

Among 3353 children aged 0-3 years from rural China were recruited in the study and assessed using the Bayley Scales of Infant and Toddler Development-III (BSID-III) showed that 85% of them had developmental delayed they further specified and reported that 49% had cognitive delays, 52% had language delays, 53% had socio-emotional delays and 30% of them had motor delays (Wang *et al.*, 2019).

A study in Ulaanbaatar Mongolia among 7908 children which used Ten questions screening method to detect developmental delay in children of chosen age which is recommended by WHO and UNICEF with a specialist team reported that out of 25.8% of the total children who were found to have developmental delay, 7.7% were discovered to have potential developmental delay in cognitive skills (Narantuya, Chimedsuren and Ts, 2017).

A study in Iran among 680 children aged 4-60 months reported that 11.8% of them were suspected to have a developmental delay that was measured using the Persian version of ages and stages questionnaires (ASQ) (Iranian version). The developmental delay by its items; 5%

in problem-solving (cognitive domain); 4.9% in the fine motor; 3.2% in gross motor, 2.2% (physical domain) and 1.2% in personal – social and communication domains (socio-emotional domain), respectively (Yaghini *et al.*, 2015). A study conducted in urban North India among 150 children aged 12-30 months reported that 17.3% of them had delayed cognitive development in this study they used the Developmental Assessment Scales for Indian Infants (DASII). The Mental Development Index (MDI) scale of the Developmental Assessment Scales for Indian Infants (DASII, the Indian adaptation of Bayley Scales of Infant Development) was used to assess the cognitive development of the children (Malhi *et al.*, 2018).

For most developing countries National statistics on young children's cognitive or social-emotional development are not available**.** The estimated prevalence of low cognitive and socio-emotional development in low and middle-income countries (LMICs) is 32.9% and it is estimated to be the highest sub-Saharan Africa that is 43.8% (McCoy *et al.*, 2016). About 66% of children under the age of five who are in the risk of cognitive and socio-emotional impairment are found in ten countries namely India, Nigeria, China, Bangladesh, Ethiopia, Indonesia, Pakistan, Democratic Republic of Congo, Uganda, and Tanzania (Grantham-McGregor *et al.*, 2007)

1.6.3 Associations of maternal depression and child cognitive and socio-emotional development

A study in high income country among mother-infant dyads who were followed up to nine months post-delivery reported that infants of depressed mothers had low social engagement and emotion regulatory skills to get child development scores they used the Early Development Instrument, a tool which measures five domains of school readiness partway through the kindergarten year (Comaskey *et al.*, 2017).

While fewer, studies in low and middle-income countries suggest associations between maternal depression and child cognitive and socio-emotional development as well as potential interventions to improve child cognitive development. A longitudinal study of 226 well-nourished mother-child dyads in Barbados, with assessments at 7 weeks, three and six months

of maternal mood using the General Adjustment and Morale and Zung Depression and Anxiety Scales; and child cognitive development using the Griffiths Mental Development Scales. Infants of mothers with mild to moderate depression (n=18) at three and six months follow-up assessments had significantly lower Griffith's scores than infants of non-depressed mothers after adjusting for background variables (Galler *et al.*, 2000). In Pakistan, a study among 420 that measured mothers depression with a validated screening instrument- Aga Khan University Anxiety and Depression Scale was used and diagnostic confirmation was done through a psychologist's interview, based on DSM IV criteria with regards to child development an Early Childhood Development tool that consists of five subscales; socio-emotional, language, cognitive, gross motor, and fine motor development was used. The study reported a significant association of postpartum anxiety and depression with delayed development on child socio-emotional, language, cognitive, gross motor and fine motor skills (Niloufer *et al.*, 2013). In another study in Iran on 1053 mothers and their infants' age 6 to18 month-old who were attending a medical centre at a university using the Age Stages Questionnaire to assess child development(including cognitive and socio-emotional development) and Beck Depression Inventory (BDI) to assess maternal depression the study showed that there was a correlation between mothers depression and child developmental delay (Vameghi *et al.*, 2016).

Maternal depression was seen to be associated with poor mother-infant interactions, as well as longer-term disruption of emotional and cognitive development of the infant due to the poor quality of care that children receive. Depressed mothers were seen to be less sensitive in the interaction with their infants and showed less engagement with their children that can affect the development of social engagement skills to the infant (Cooper *et al.*, 2009). Another follow up study observed that most of the child's behaviors are related to maternal depression at an early age, also child-mother diminished responsiveness and behavioral disturbances in different settings were significantly associated with the mother's postpartum depression. The children are also at risk of developing depression at a young age(Murray *et al.*, 1996; Murray, Fearon and Cooper, 2014). In a cohort study where mothers and children were followed up to when the child was five years old showed that mothers with severe depression for a long

duration had an increase in complaints about the child's behavioral and language problems. In this study, they used the Beck Depression Inventory (BDI) to assess depression and the Child Behavior Checklist to assess child development (Brennan *et al.*, 2000). A study in rural Bangladesh among 221 women the prevalence of depressive symptoms was 52% which were assessed depressive symptoms were measured using the 20-item Center for Epidemiologic Studies – Depression Scale, (which addresses six aspects of depression: depressed mood, guilt/worthlessness, helplessness/hopelessness, lethargy/fatigue, loss of appetite, and sleep disturbance) the study reported that maternal depressive symptoms were associated with lower scores of child development on different levels cognitive, motor and engagement skills which were assessed by the Bayley Scales of Infant Development, Version II (Black *et al.*, 2007). In a study done in Ethiopia on parental symptoms of common mental illness (anxiety and depression) were measured using the Hopkins Symptom Checklist (HSCL), used inventory of symptoms of anxiety and depression; and child development was assessed using a developmental test that was created from a set of measures that were selected from a sample of items from the Denver II test, the study reported that it was observed that there was no association between the father's symptoms and the child's development but there was a strong association between the mother's anxiety and depressive symptoms and the child's development (Hadley *et al.*, 2008). In a study in Tanzania children exposed to maternal depression (was measured using the Patient Health Questionnaire-9 (PHQ-9)) and intimate partner violence had lower scores on cognitive skills, expressive communication, receptive communication and motor skills which were assessed by the Bayley Scales of Infant Development and anthropometric measures (Neamah *et al.*, 2018).

1.6.4 Association between child cognitive and socio-emotional development and socio-demographic factors and other psychosocial factors

Research supports the presence of certain socio-demographic factors that are associated with child cognitive and socio-emotional development. Older maternal age is observed as a protective factor against adverse cognitive development (Tearne, 2015). A cohort study in Australia reported a positive association between increasing maternal age and lesser risk of developmental vulnerability for children born to mothers aged 15 years to about 30 years.

Maternal age has a positive association with cognitive ability, fewer social and emotional difficulties child development was assessed using the Australian Early Development Census (AEDC), which collects teacher-reported information about a child's development on the following domains: physical health and well-being, social competence, emotional maturity, language, and cognitive skills, and communication skills and general knowledge (Falster *et al.*, 2018). Maternal education was associated with high child development scores in Brazil among 3869 mother-child dyads, child development was measured using the Battelle Screening Developmental Inventory (BSDI) to capture suspected developmental delay in all aspects including cognitive and socio-emotional domains (De Moura *et al.*, 2010). A study that compared children whose mothers had maritally been through a divorce or never married with children whose mothers have been married showed that there was an association between divorce or never being married and low scores cognitive stimulation and emotional support; marital status affects the child's developmental environment. The HOME assessment was used it consisted of interviewer observations of mother-child interaction and the safety and appearance of the home, the items of the tool differ with the age of the child (Miller and Davis, 2017).

Other factors shown to be independently predictive of child cognitive and socio-emotional development were intimate partner violence. Mothers exposure to physical and sexual violence affects the development of children, a study in Tanzania reported children exposed to maternal depression and intimate partner violence had lower scores on cognitive skills, expressive communication, receptive communication and motor skills (Neamah *et al.*, 2018). Another factor is parental stimulation, the accessibility of materials that stimulate the child's learning in the home environment and the parents' engagement in child activities improves cognitive and socio-emotional development. of the child (Walker *et al.*, 2007; De Moura *et al.*, 2010; Jeong *et al.*, 2016). A study in India showed children whose parents talked to them and were more interactive had a significant improvement in their cognitive skills while those with limited parental responsiveness were observed to have lower cognitive skills scores. The StimQ Questionnaire (toddler version) is a 39 items scale which assesses the kind of stimulation which the primary caregiver provides to the child, it has four subscales including

availability of learning materials (ALM), READ scale, parental involvement in developmental advance (PIDA), and parental verbal responsivity (PVR) (Malhi *et al.*, 2018).

Several interventions have been recommended to help combat maternal depression such as publication of the Thinking Healthy manual for maternal depression (WHO, 2015) that can be used by peers to help others. Another intervention is the use of cost-effective psychological interventions that can be offered by community health workers or lay counselors through task sharing (Ammerman *et al*,. 2017). There are suggested interventions from developed and developing countries for child development these interventions are focused on parental support, early stimulation and education of the child, nutritional and health also comprehensive interventions that includes parenting education, preschool education and nutrition interventions all these are seen to help improve child development in all aspects including cognitive and socio-emotional development (Rao, 2014).

CHAPTER TWO

2.0 METHODOLOGY

2.1 Study Design

The study was a hospital-based cross-sectional study that used a quantitative approach to explore the association between maternal depression and social-emotional and cognitive development in children.

2.2 Study area and setting

The study was conducted in Dar es salaam, Tanzania. It is a major city and commercial port on Tanzania's Indian Ocean coast and has a population estimate of 4,364,541 according to the 2012 national census. There are several districts however the study was conducted in Mnazi Mmoja Hospital at the Reproductive and Child Health clinic (RCH), Ilala Municipal. Mnazi Mmoja Hospital was selected because it is located at the city center receiving mothers from different parts of the city and most likely with different socio-psychological contexts. Mnazi Mmoja Hospital provides outpatient health services to 634,924 citizens in the municipality**.**

2.3 Study Population

The population was mothers with a child of 6-12 months attending the RCH clinic at Mnazi mmoja hospital, Dar es salaam Tanzania.

2.3 Target Population

The target population was mothers and children between 6-12 months attending the RCH clinic at Mnazi mmoja Hospital during the time of the study.

Convenient sampling was used to recruit the participants in the RCH clinics they would arrive at the clinic while waiting for the services they were approached and asked to participate in the study.

Participant consenting procedures: Mothers were given the study's information verbally and a written consent form to sign.

Data collection procedures: All mothers who had consented for their study participation having been informed about the objectives of the study, its risks, benefits and measures to ensure anonymity, were recruited as participants.

2.5 Inclusion Criteria

1. Mothers with a child of 6-12 months attending RCH clinic and who voluntarily agreed to participate in the study.

2.6 Exclusion Criteria

1. Mothers who were physically weak or with a sick child during the time of the study.

2.7 Sample Size Calculation

An estimated sample size of the study was calculated by using the following formula derived by Wayne W. Daniel and Chad L. Cross, 2013.

Sample size

$n = Z^2P(1-P)/d^2$

Where;

Z=confidence interval 95% (standard value of 1.96)

P= Proportion 43.8% (0.438) Estimated 43.8% of both low cognitive and socio-emotional scores in sub-Sahara countries, that did not meet their age-specific cognitive and socio-emotional developmental milestones (McCoy *et al.*, 2016).

E= margin of error=5% (0.05)

$N= (1.96)^2 *0.438(1-0.438)/ (0.05)^2$

=378+20% adjusting for non response

=378+76

N=454.

2.8 Variables

Independent variable: Social-demographic information; Age, level of education, occupation, marital status, parental stimulation and intimate partner violence.
Maternal depression (Primary outcome)

Dependent variables: Child social-emotional and cognitive development (Secondary outcome).

2.9 Data collection tools

Socio-demographics: A structured questionnaire was used to collect the social demographic characteristics that are; child's age, mothers' age, marital status, educational level, employment status, and gender of the child.

Maternal depression: The questionnaire was attached with the 9-item Patient Health Questionnaire (PHQ-9) that was used to screen for maternal depression the tool was translated and validated in our context participants with a score >9 considered to be depressed and those with scores <9 non-depressed with Cronbach's alpha coefficients calculated suggested acceptable internal consistency (α=0.83) (Smith *et al.*, 2019).

Child socio-emotional and Cognitive development: Caregiver-Reported Early Development Instrument (CREDI) screening tool was used to assess the child's social-emotional and cognitive development. It focuses on milestones and behaviors that the caregiver can understand observe and describe easily. It is designed for children aged 0 to 3 years. The tool has questions to explore 70 items from three dimensions of child development including 16 items for gross and fine motor development, 27 items for cognitive and 27items for socio-emotional development. In this study items from the cognitive and social-emotional domains were used for the study, raw scores for social-emotional and cognitive domains were obtained from the summation of the scores from the responses, physical development was not assessed due to lack of financial support however the tool can be used to assess a specific domain/ domains of interest without affecting the results. CREDI had Cronbach's alpha coefficients

calculated suggested acceptable internal consistency/inter-item reliability for motor (α =0.68), cognitive (α = 0.90), and socio-emotional (α = 0.68) items (McCoy *et al.*, 2017).

Parental stimulation: CREDI also assessed caregiver stimulation activities with the child whereby stimulation items reflected whether an adult household member had engaged the child in six different activities (e.g. reading, counting, playing, and singing) over the preceding 3 days. An extra point was offered to those who reported having one or more adults and one or more children remain with the index child during the day, attending daycare, having one or more books for the child and having one or more toys for the child. Parental stimulation activities were grouped into low (<9 activities) and high (9≥ activities).

Intimate partner violence: Physical and sexual violence was determined by asking a woman if her partner had ever physically hurt her or physically forced her to have acts of sexual intercourse when she was unwilling respectively, those who said yes to any item were regarded as having experienced either physical or sexual violence.

Score distributions: Tests for normality for cognitive and socio-emotional scores showed that their distributions were not normal. Mean sum scores of cognitive development scores were 8.14 (SD=4.30) and socio-emotional development had a mean score of 11.83 (SD= 4.07). Equal categories using tertiles were computed for further analyses, to represent low, moderate and high scores for each measure which gave an opportunity to show effect relationships. Tertiles scores were categorized as follows for cognitive development; <6=low, 6-8=moderate, and ≥9=high, these were later dichotomized; moderate and High tertiles were combined to form one variable thus cognitive development had <6 for low and ≥6 as high. For socio-emotional development tertile scores were; <11=low,11-12=moderate and 13≥=high, they were also dichotomized, moderate and high tertiles were combined to form two levels <11 for low and ≥11 as high.

Research assistant training

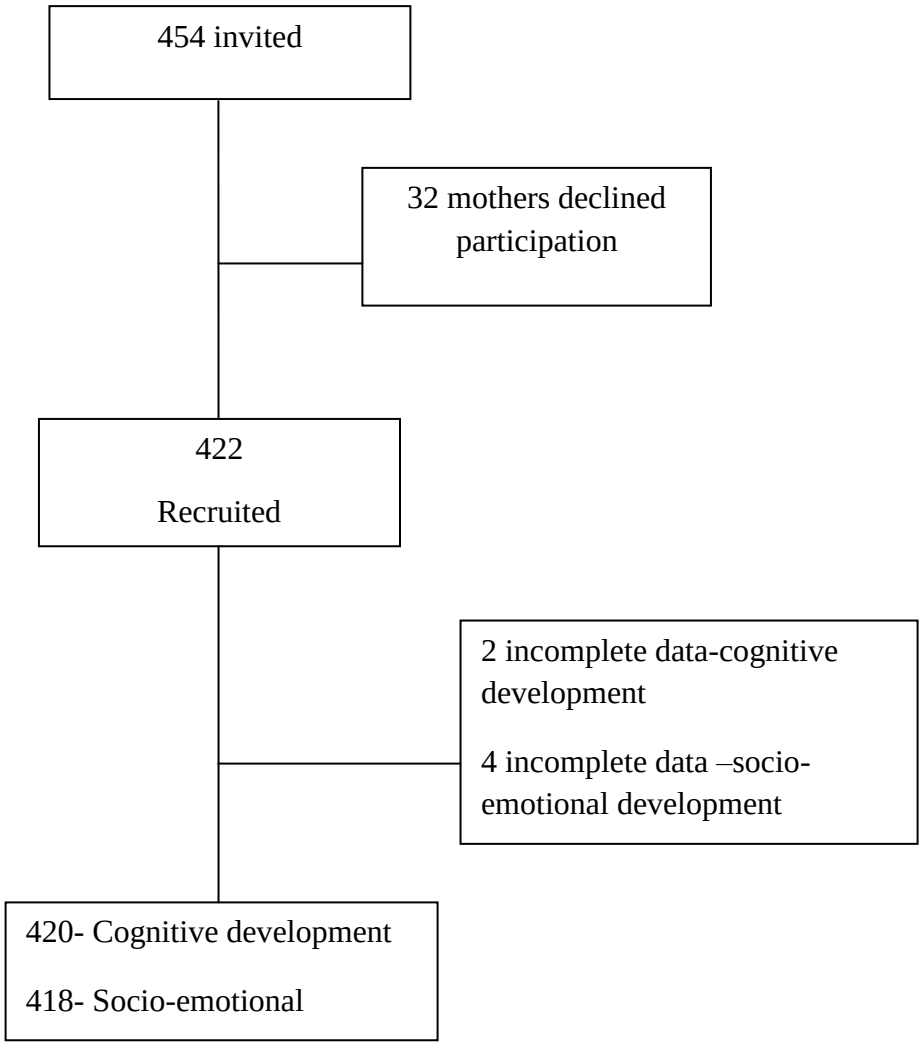
One week prior to data collection two research assistants were recruited they were diploma students in social work with interest in research. They were trained on the objective of the

study, details of the data collection tool (questionnaire) and ethical issues. Their roles were to recruit participants, to interview the participants and fill in the questionnaires.

Data collection process

Eligible participants were given a full explanation and the importance of the study. The research assistants administered a questionnaire in Swahili for data collection, they were later collected and submitted to the principal investigator for data entry and later for analysis.

Figure 2: Recruitment of participants



2.10 Data Analysis

The data collected were entered in the computer and analyzed by using Statistical Package for Social Sciences (SPSS) database program version 23. The analysis included reviewing and cleaning the data, preparing variables for analysis and conducting the analyses as outlined below:

Bivariate analyses conducted on all demographic factors and risk factors with the summarized tertiles of the child cognitive and socio-emotional development scales and variations summarized as chi-square with relevant p-values. Multinomial logistic regression used to determine the strength of associations as well as the independence of association of risk factors with p-values <0.2 and the outcome child cognitive and socio-emotional development from the bivariate analyses. Odds ratios and 95% confidence intervals are reported. All the analyses were two-tailed and the significance level was set at 0.05.

2.11 Ethical Considerations

Research clearance was requested from the MUHAS Senate Research and Publications Committee. All participants were informed about the study verbally and voluntarily asked to participate in the study. It was clearly communicated that refusal to participate in the study will not bear any consequences to the recruits and that they are free to agree or refuse.

CHAPTER THREE

3.0 RESULTS

3.1 Descriptive Statistics

3.1.1 Description of mother participants:

A total of 422 mother-infant dyads consented and were eligible for participation in the study. The mean age (SD) of the mothers was 27.39 years (6.98), 1 participant didn't know her age. Mother's ages were dichotomized into two, below 30 years for young mothers (64.2%) and 30 years and above for older mothers (35.3%).

Table 1 shows the socio-demographic distribution and development characteristics of the participants, a large proportion of the mothers were married or cohabiting (60.9%) compared to those who were single or divorced or separated or widows. Most of the mothers had a secondary school education (48.3%). With regards to occupation, most of the mothers were housewives (58.3%), 31.5% were self-employed in agricultural work or business and 10.2% were employed. The majority of the mothers had experienced either physical or sexual intimate partner violence (65%), of this 61.1 % of the mothers had experienced physical intimate partner violence and 39.6% had experienced sexual violence in the past six months.

It was observed that 57.2% of mothers reported they have high involvement in activities (like playing, counting, etc.) with the index child, while 41.4% less involved respectively in these activities with their children.

3.1.2 Description of children participants:

More than half (63%) were female while 37% were male. The mean age (SD) of the children was 9.47 months (2.09), the majority of children (65.2%) were aged 10-12 months, and 34.8% were aged 6-9 months.

With regards to cognitive development, 31.1% of the participants scored less than 6 on the cognitive scale that is considered as low cognitive development, 67.1% scored 6 and above that is considered high development. The sample size for cognitive development reduced to 420 due to incomplete responses of the items on the cognitive scale and could not be analyzed.

For socio-emotional development, 32.5% of the participants scored less than 11 which is considered low socio-emotional development and 65.2% had 11 and above that is considered high socio-emotional development. The sample size for socio-emotional development reduced to 418 due to incomplete responses of the items on the socio-emotional scale.

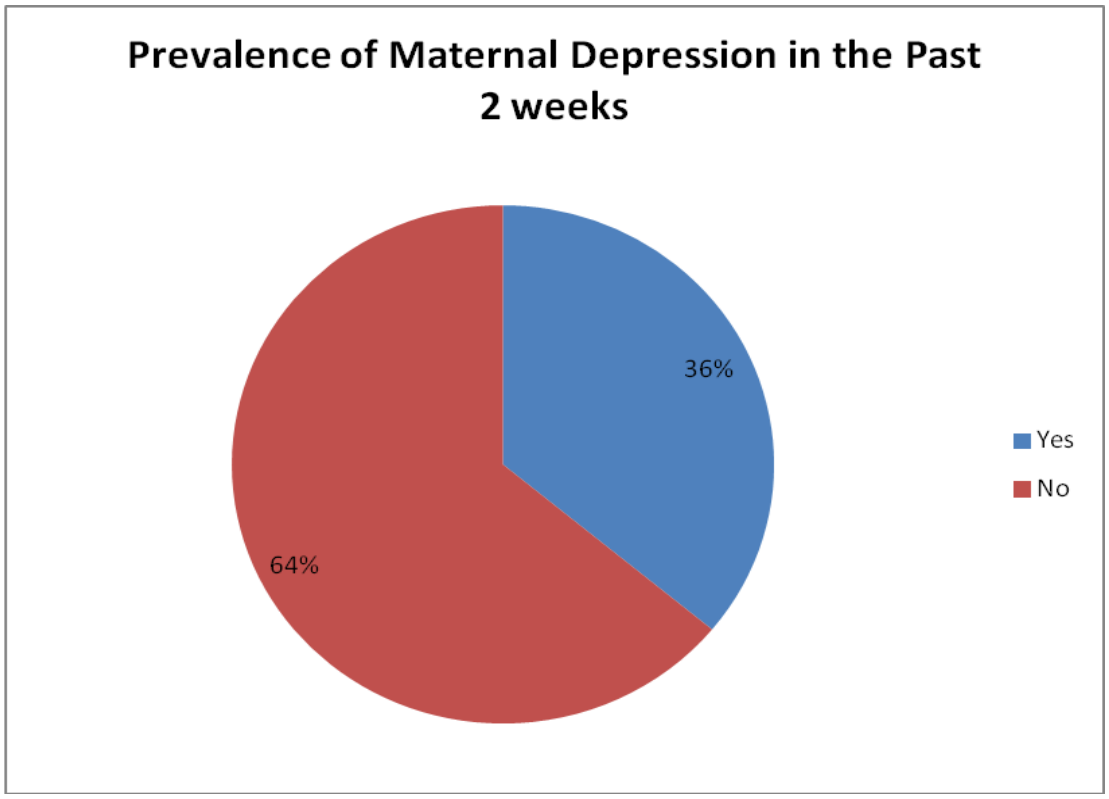
Table 1: Distribution of socio-demographic and development characteristics

Variables	Mean (SD)	N (%)
Child characteristics		
Sex Female		266 (63)
Mean age (in months)	9.47 (2.09)	
Childs's Current Cognitive Development		
<6 Low		133(31.7)
6> High		287(67.3)
Childs's Current Socio-emotional Development		
<11Low		139(33.3)
11> High		279(66.7)
Mothers characteristics		
Mean age (years)	27.39 (6.98)	
Marital Status		
Married/cohabiting		257(60.9)
Single		134(31.8)
divorced/separated		21(5)
Widow		10(2.4)
Education		
No Education		24(5.7)
Primary Education		158(37.4)
Secondary Education		204(48.3)
College/university		36(8.5)
Occupation		
Self-employed		133(31.5)
Employed		43(10.2)
Housewife		246(58.3)
IPV in Past 6months		
Physical IPV		258 (61.1)
Sexual IPV		167 (39.6)
Either physical or sexual IPV		276 (65)
Both physical and sexual IPV		149 (35.3)
Parental stimulation		
Low		66(15.6)
Moderate		205(48.6)
High		151(35.8)

3.1.3 Prevalence of maternal depression

Among the mothers attending RCH clinic at Mnazi Mmoja Hospital who participated in the study 36% of them reported depressive symptoms in the past two weeks (Fig 3)

Figure 3: Magnitude of maternal depression



3.1.4 Distribution of child Cognitive and Socio-emotional development scores by age.

Cognitive and socio-emotional development scored varied across 6 months of age-groups in the expected directions – that is a larger proportion of younger children scoring in the low and a larger proportion of older children with high scores. As evident in (Figure 3, figure 4) 39.8% of the youngest children's age group demonstrating cognitive scores in the lowest Tertiles as opposed to only 22.9% of the oldest children and, 36.7% of the young children had low socio-emotional scores as opposed to 28.9% of older children.

Figure 4: Distribution of child cognitive development scores by age

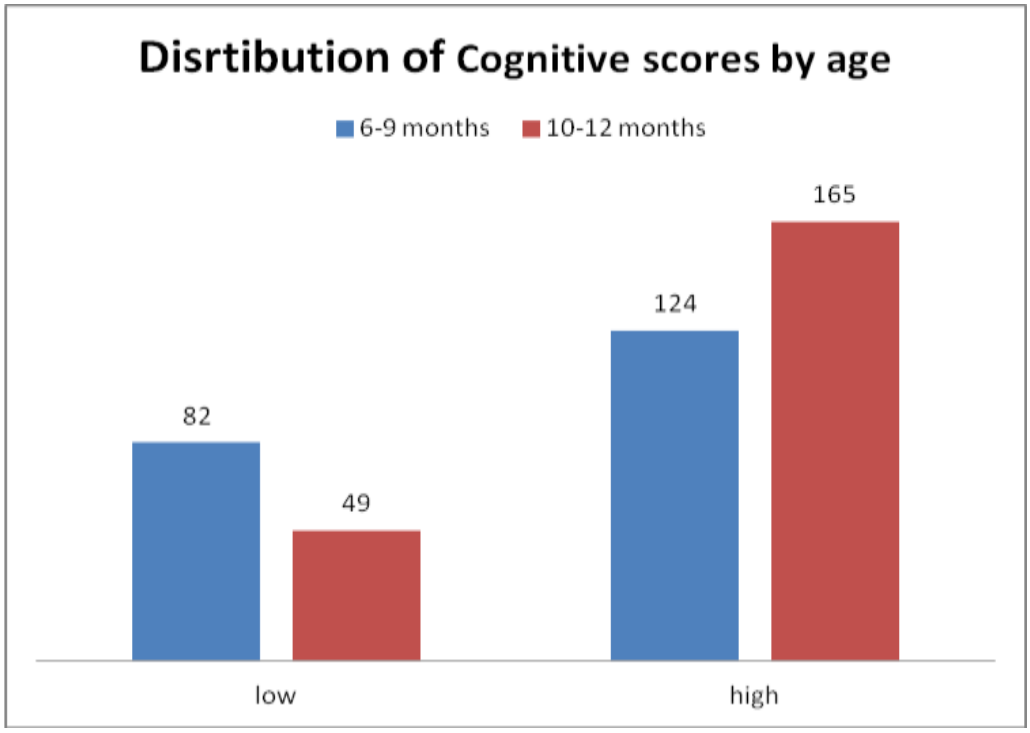
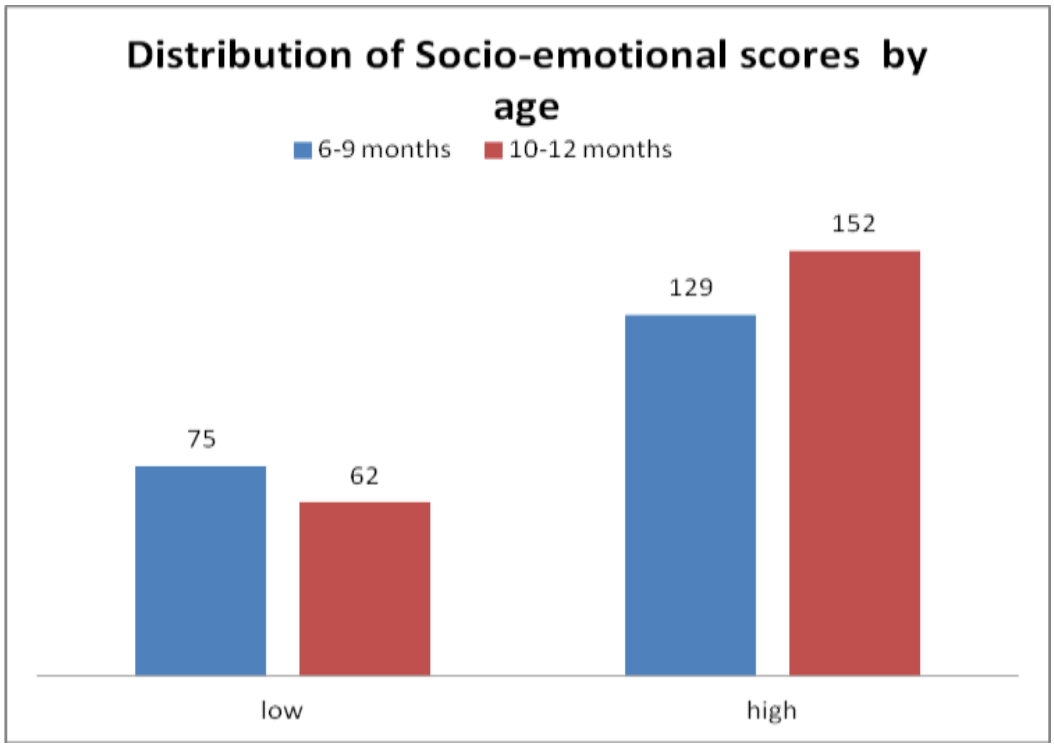


Figure 5: Distribution of child socio-emotional development scores by age



3.2 Bivariate analyses

3.2.1 Factors associated with child cognitive development

Table 3 shows factors that are associated with child cognitive development, child's sex was not associated with cognitive development (p=0.931), mother's age was significantly associated with child cognitive development (p=0.032), (75%) of children whose mothers were 30 years and above had high cognitive development scores. Mother's level of education was not associated with child cognitive development (p=0.852), There was a significant association between marital status and child cognitive development (p=0.003), (74.2%) of children who had married/cohabiting parents had high cognitive development scores. Mother's exposures to physical intimate partner violence on the mothers were significantly associated with the level of child cognitive development (p=0.028), exposure to sexual violence was associated with child cognitive development (p=0.137). With regards to the mother's occupation, there was an association with cognitive scores (p= 0.086), with self-employed

mothers showing higher proportions (75.9%) of children with high cognitive scores. There was a significant association between child cognitive development and maternal depression ($p<0.001$), mothers who were not depressed had higher proportions (77.6%) of children with higher cognitive development scores. Parental stimulation/activity involvement with the child was significantly associated with child cognitive development ($p<0.001$), 77.6 % of children with higher parent activity involvement had high cognitive development scores.

Table 2: Association of child cognitive development with socio-demographic and other factors characteristics (N=420)

Variables	Total cognitive development scores		Total N=420 (%)	Chi-square	p-value
	<6 n=133(%)	**6 + =287(%)**			
Child sex					
Male	49(31.4)	107(68.6)	156(100)	0.008	0.931
Female	84(31.8)	180(68.2)	264(100)		
Mothers age group (years)				4.590	**0.032***
<30	95(35.2)	175(64.8)	270 (100)		
≥30	37 (25.0)	111 (75.0)	149 (100)		
Mothers education				0.789	0.852
Nil	6(25.0)	18(75.0)	24 (100)		
Primary	49(31.2)	108(68.8)	157 (100)		
Secondary	66(32.5)	137(67.5)	203 (100)		
College /university	10(27.8)	26(72.2)	36 (100)		
Mother's marital status				8.938	**0.003***
Married/cohabiting	66(25.8)	190(74.2)	256 (100)		
Single/Divorced/separated /widowed	65 (39.6)	99(60.4)	164 (100)		
Past 6 months physical violence				4.804	**0.028***
No	41(25.0)	123(75.0)	164 (100)		
Yes	90(35.2)	166(64.8)	256 (100)		
Past 6 months sexual violence				2.213	**0.137***
No	72 (28.5)	181 (71.5)	253 (100)		
Yes	59 (35.3)	108(64.7)	167 (100)		
Occupation				4.898	**0.086***
Housewife	86(35.1)	159(64.9)	245(100)		
Employed	13(31.0)	29(69.0)	42(100)		
Self-employed	32(24.1)	101(75.9)	133(100)		
Parental stimulation				20.935	**<0.001***
Low	76(43.4)	99(56.6)	175 (100)		
High	55(22.4)	190(77.6)	245 (100)		
Current Maternal Depression				26.735	**<0.001***
Absent	60(22.4)	208(77.6)	268 (100)		
Present	71(46.7)	81(53.3)	152 (100)		

Key *** p<0.2**

3.2.1 Factors associated with child socio-emotional development

As evident in table 3, child's sex was not associated with socio=emotional development, maternal age was not associated with child socio-emotional development (p=0.230), mother's level of education was not significantly associated with child socio-emotional development (p=0.437), there was a significant association between marital status (p=0.067) mothers who were married or cohabiting had higher proportions of children with high socio-emotional scores than those who were not. Mothers' exposure to physical intimate partner violence was not significantly associated with the level of child socio-emotional development (p=0.345), Sexual violence was not associated with child socio-emotional development (p=0.630). There was a significant association between child socio-emotional development and maternal depression (p<0.001) 73.8% of children whose mothers were not depressed had high socio-emotional scores, mother's occupation was not associated with child socio-emotional development (p=0.264), parent's activity involvement to child was significantly (p=0.017) with child socio-emotional development with higher proportions (71.8%) of children with higher activity involvement with high socio-emotional development scores.

Table 3: Association of child socio-emotional development with socio-demographic characteristics and other factors (N=418)

Variables	Total socio-emotional development score		Total	Chi-square	p value
	<11 n=137(%)	**11+ n=103(%)**	**N=418(%)**		
Child sex				0.580	0.446
Male	48(31.0)	107(69.0)	155(100)		
Female	91(34.6)	172(65.4)	263(100)		
Mothers age group (years)				5.140	0.230
<30	98(36.6)	170(63.4)	268(100)		
≥30	38(25.7)	110(74.3)	148(100)		
Mothers education				2.717	0.437
Nil	10(41.7)	14(58.3)	24 (100)		
Primary	52(33.3)	104(66.7)	156 (100)		
Secondary	67(32.2)	135(66.8)	202 (100)		
College /university	8(22.2)	28(77.8)	36 (100)		
Mother's marital status				3.357	**0.067**
Married/ cohabiting	75(29.4)	180(70.6)	255(100)		
Single/Divorced/separated/Widowed	62(38.0)	101(62.0)	163(100)		
Physical violence				0.89	0.345
No	49(30.1)	114(69.9)	163(100)		
Yes	88(34.5)	167(65.5)	255(100)		
Sexual violence				0.232	0.630
No	80(31.9)	171(68.1)	251(100)		
Yes	57(34.1)	110(65.9)	167(100)		
Maternal depression				14.43	**<0.001**
Absent	70(26.2)	196(73.8)	267(100)		
Present	67(44.4)	84(55.6)	151(100)		
Occupation				2.66	0.264
Housewife	87(35.5)	158(64.5)	245(100)		
Employed	10(23.8)	32(76.2)	42(100)		
Self employed	40(30.5)	91(69.5)	131(100)		
Parental stimulation				5.71	**0.017**
Low	68(39.3)	105(60.7)	173(100)		
High	69(28.2)	176(71.8)	245(100)		

Key: *p<0.2

3.3 Multivariate analysis

Multivariate Logistic Regression was used to determine the directions and strength of independent associations between selected identified factors (bivariate analyses associations at p-values <0.2 with the child cognitive development outcome) Table 4 summarizes the findings.

3.3.1 Factors associated with cognitive development

Among risk factors that were thought to be independently associated with child cognitive development, only two factors had an independent association with child cognitive development these were maternal depression and parental stimulation. Maternal depression was associated with child cognitive development scores children of depressed mothers were a half times less likely to have high cognitive development scores than of those who are not depressed (AOR 0.50; 95% CI 0.28, 0.75; p=0.002) this observation being statistically significant. Children of mothers with low parental involvement in child activities were a half times less likely to have high cognitive scores than those with high parental involvement (AOR 0.50; 95%CI 0.31, 0.80; 0.004) as evident in Table 4. Other factors such as maternal age, mother's occupation, marital status, mother's exposure to physical and sexual violence were not independently associated with child cognitive development in the multivariate analysis.

Table 4: Independent strength of associations between cognitive development scores and selected identified risk factors (N=422)

Risk factors child development	N	Crude Odds Ratio (95% CI)		Adjusted Odds Ratio (95% CI);	p value
Mother's age (years)			1.576		
< 30	270	1.58(1.01,2.47)		1.33(0.813,2.180)	0.255
≥ 30	148	Ref		Ref	
Marital status					
Single/divorced/separated/Widowed	133	0.53(0.35,0.81)	0.003	0.64 (0.401,1.028)	0.065
Married/ Cohabiting	255	Ref		Ref	
Physical violence					
Yes	256	0.62(0.39,0.95)	0.029	1.06 (0.609,1.858)	0.829
No	164	Ref		Ref	
Sexual violence					
Yes	167	0.73(0.48,1.11)	0.137	0.97(0.587,1.608)	0.911
No	253	Ref		Ref	
Maternal depression					**0.002**
Present	152	0.33(0.21,0.51)	**<0.001**	0.46(0.276,0.753)	
Absent	268	Ref		Ref	
Parent-child activity involvement			**<0.001**		**0.004**
Low	175	0.38(0.28,0.58)		0.50(0.312,0.800)	
High	245	Ref		Ref	
Occupation					
Housewife	244	0.59(0.36,0.94)	0.028	0.859(0.507,1.455)	0.571
Employed	41	0.71(0.33,1.52)	0.374	0.691(0.310,1.541)	0.366
Self-employed	133	Ref		Ref	

Key: Key: CI=confidence interval, OR=odds ratio, AOR=adjusted odds ratio, *p<0.05

3.3.2 Factors associated with child socio-emotional development

Logistic regression analysis provided the optimal model for determining which socio-demographic factors and other factors that are independently associated with child socio-emotional development. As evident in Table 5 only maternal depression was associated with child socio-emotional development, children of mothers who were depressed were approximately a half times less likely to have high socio-emotional scores (AOR 0.47;95% CI 0.29,0.77;p=0.003). Factors such as maternal age, marital status, mother's occupation, mother's exposure to physical and sexual violence, and parental stimulation were not associated with child socio-emotional development.

Table 5: Independent strength of associations between socio-emotional development scores and selected identified risk factors (N=418)

Risk factors child development	**N**	**Crude Odds Ratio (95% CI)**	***P value***	**Adjusted Odds Ratio (95% CI)**	***P value***
Mother's age (years)					0.055
< 30	268	1.67(1.07,2.60)	0.024	1.594 (0.989, 2.568	
≥ 30	148	Ref		Ref	
Marital status					0.409
Single/divorced/separated/Widowed	163	0.68(0.45,1.03)	0.068	0.825 (0.522,1.303)	
Married/ Cohabiting	255	Ref		Ref	
Physical violence					0.401
Yes	255	0.82(0.53,1.25)	0.041	1.258 (0.737 ,2.147	
No	163	Ref		Ref	
Sexual violence					0.808
Yes	167	0.90(0.59,1.37)	0.561	1.062(0.652, 1.732)	
No	251	Ref		Ref	
Maternal depression					**0.003**
Present	151	0.45(0.29,0.68)	**<0.001**	0.472 (0.287, 0.774)	
Absent	267	Ref		Ref	
Parental stimulation					0.314
Low	175	0.61(0.40,0.92)	0.017	0.789(0.497,1.252)	
High	245	Ref		Ref	
Occupation					
Housewife	245	0.79(0.51,1.26)	0.331	1.016(0.617, 1.675))	0.949
Employed	42	1.41(0.63,3.13)	0.404	1.431 (0.630, 3.254)	0.392
Self employed	131	Ref		Ref	

Key: CI=confidence interval, OR=odds ratio, AOR=adjusted odds ratio, *p<0.05

CHAPTER FOUR

4.0 DISCUSSION

The broad objective of this study was to assess associations between maternal depression and child cognitive and socio-emotional development among mothers and children attending the clinic at mnazi mmoja hospital, Dar es Salaam. Specifically, the current study examined the effect of depressive symptomatology, on child cognitive and socio-emotional development. The discussion will include findings of univariate descriptive statistics, bivariate and multivariate analysis based on the specific research questions of the study.

Prevalence of maternal depression

The findings of this study revealed that depressive symptoms were common among mothers attending the postnatal clinic at Mnazi mmoja Hospital, 36% of the participants reported experiencing depressive symptoms in the past two weeks. These results are almost similar to the findings of another study, conducted in Tanzania among pregnant women with a 33.8 % prevalence of depression (Rwakarema *et al.*, 2015). In another study conducted in Morogoro among women with HIV 31% had depression (Kapetanovic *et al.*, 2009). The prevalence of maternal depression is observed to be higher than that in other countries such as Ghana 7% and Ethiopia 26.7% (Anokye *et al.*, 2018; Gebremichael *et al.*, 2018).

Child cognitive and socio-emotional development scores

In answering the second objective, cognitive and socio-emotional development scores ranged from low to high these scores varied by age with the increase in scores as age increase similar to other studies. 31% of the children had low scores in the cognitive development and 32.5% of the children had low socio-emotional scores there results are almost similar to Nigeria 21.1% and 33.2% of low cognitive and socio-emotional scores respectively; and it is less than the estimated prevalence for low cognitive and socio-emotional development in sub-Saharan countries which is 43% (McCoy *et al.*, 2016).

Association between child cognitive and socio-emotional development and maternal depression

In response to the third objective maternal depression was found to be significantly associated with child cognitive and socio-emotional development scores among mothers who brought their children for a regular postnatal clinic (RCH clinic) follow up. On multivariate analysis, maternal depression had a significant association with cognitive scores and socio-emotional scores similar to other studies (Patel, DeSouza and Rodrigues, 2003; Hadley *et al.*, 2008; Quevedo *et al.*, 2012; Comaskey *et al.*, 2017). These findings are similar to other studies such as one in Pakistan were maternal depression was associated with delayed with child cognitive development (Niloufer.Sultan *et al.*, 2013). Also, a study in Tanzania among 1031 mother-infant dyads mild depressive symptoms were associated with low cognitive, receptive and expressive communication (Neamah *et al.*, 2018).

Socio-demographic characteristics and psychosocial factors associated with cognitive and socio-emotional development

Socio-demographic factors like gender, maternal age, marital status and mother's occupation revealed no association with cognitive scores and socio-emotional scores. These findings are similar to other studies were cognitive development and socio-emotional development was not associated with gender, mother's occupation, maternal age and marital status (Patel, DeSouza and Rodrigues, 2003; Metwally *et al.*, 2016). A study in America revealed the same for all the other factors except for mother's education which was significantly associated with child cognitive and socio-emotional development (Palmer *et al.*, 2018). Different from a study in Australia that showed an association between increased maternal age and lesser developmental risks (Falster *et al.*, 2018). There are other studies that report different findings with respect to socio-demographic variables (De Moura *et al.*, 2010; Tearne, 2015; Miller and Davis, 2017) which were associated with child cognitive and socio-emotional development.

Intimate partner violence was not associated with cognitive and socio-emotional development these findings differ from a study conducted in Morogoro, Tanzania that revealed an association between intimate partner and child cognitive development among 1031mother-

child dyads (Neamah *et al.*, 2018). This difference could have been due to the social support and having other family members that play an alternative role in the caretaking of the child may protect the child from adverse psychological effects of intimate partner violence.

Parental stimulation was associated with cognitive development; these findings are corresponding with other findings that showed parental stimulation as a predictor for high cognitive, activity involvement with a child promotes environmental stimulation of the child which has a positive impact on child development as found in this study, similar to findings showing that children with high psychosocial stimulation scored significantly higher on cognitive development than those who received poor psychosocial stimulation (Walker *et al.*, 2007; Malhi *et al.*, 2018). However, in this study findings do not support parental stimulation as a predictor for socio-emotional development.

CHAPTER FIVE

5.0 CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

5.1 Conclusion

The study aimed to assess the magnitude of maternal depression and its association with child socio-emotional and cognitive development among mother-child dyads attending RCH clinic at Mnazi Mmoja Hospital. The findings revealed that maternal depression was high (36%) among mothers attending also, the prevalence of mothers reporting experiencing intimate partner violence in the past six months was high (65%) the magnitude of low cognitive and socio-emotional development was also high (31% and 32.5% respectively) almost similar to other sub Saharan countries. This study showed an association between maternal depression and child cognitive, and socio-emotional development. Parental stimulation was associated with child cognitive development. The results do not support some of the theories that associate socio-demographic factors with child socio-emotional and cognitive development such as marital status, mother's occupation and mother's exposure to physical and sexual partner violence.

5.2 Recommendations

From the findings of this study we recommend the following;

- Screening and early intervention of maternal depression among mothers when attending RCH clinics.
- Screening and early intervention of children for cognitive and socio-emotional development routinely as they attend RCH clinic.

5.3 Study Limitations

- Recall bias could have interfered with the results in answering time-framed questions such as two weeks for depression and six months for intimate partner violence.
- During the time of the study, a number of studies were continuing at the site this contributed to low concentration in answering questions.
- Lack of enough rooms with privacy might have contributed to mothers being hesitant to provide sensitive information.
- The questionnaire had two questions on Intimate partner violence which could have not captured other forms of intimate partner violence hence underestimate its prevalence.
- The targeted sample size of 454 was not reached due to a limited time for the data collection.

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APPENDICES

Appendix I: Informed Consent Form - English

To be read and questions answered in a language in which the study subject is conversant (English or Kiswahili)

My name is Rachel Jared Mtei, I am a pursuing master's degree in Clinical Psychology at the University of Health and Allied Sciences. I am doing a study on Prevalence of maternal depression and child development and its association as part of my degree award fulfillment. Being one among the mothers attending RCH clinic at Mnazi Mmoja hospital; I would like to ask you to participate in this study. First I will explain to you about the study and I will be ready to answer any question that you have.

The aim of this study is to determine the prevalence and association between maternal depression and child development

This study will be conducted by me under my supervisor.

This is an academic research and you are required to understand the following which apply to all in the research

Your participation is completely voluntary and you may withdraw consent at any time in the course of the interview

Refusal to participate will not in any way affect your health services/benefits which you are entitled

After reading the explanation, don't hesitate to ask any questions in case you need clarifications

I will assess you using an instrument which will take about 30 minutes

No invasive procedures such as drawing blood will be involved

All information obtained from this study will remain confidential. Code numbers instead of your name will be used.

Risks and Benefits

If you would like to talk with counselors or mental health personnel after this interview it can be arranged for you.

There will be no direct benefits to you. However, the overall study will be of benefit for providing information that can be used to develop interventions and comprehensive care to mothers who have depression and children who have a delayed development.

If you have any questions related to this study, or your health you can contact the principle researcher Rachel Jared Mtei 0688-802093 or my supervisor Dr. Ester Steven 0788-202020. You can also contact the chairperson of the Research Senate and Publication committee, Dr.Bruno Sunguya- 0685-217272

P.O. Box 65001 Dar es Salaam

I the undersigned do hereby volunteer to participate in this study. The nature and purpose have been fully explained to me.

I understand that all information obtained will be used for this study only.

SIGNED----------DATE ----------

WITNESSED----------SIGNATURE----------DATE…….

Appendix II: Informed Consent Form - Swahili

FOMU YA RIDHAA KUSHIRIKI KWENYE UTAFITI KUHUSU KIWANGO NA UHUSIANO ULIOPO KATI YA SONONA NA MAENDELEO KATIKA UKUAJI WA MTOTO.

Jina langu ni Rachel Jared Mtei

Ninatokea chuo kikuu cha tiba na afya Muhimbili katika idara ya afya na magonjwa ya akili ninafanya, utafiti kuhusu kiwango na uhusiano kati ya sonona na maendeleo ya ukuaji wa mtoto katika kliniki ya afya ya uzazi , mama na mtoto hospitali ya Mnazi Mmoja.

Ikiwa huu ni utafiti wa sayansi ya tiba unapaswa ufahamu yafuatayo kabla ya kushiriki;

Dhumuni la Utafiti huu

Kama nilivyo sema hapo awali dhumuni ni.kufanya utafiti kuhusu kiwango na uhusiano wa sonona na maendeleo ya ukuaji wa mtoto katika kliniki ya afya ya uzazi, mama na mtoto katika hospitali ya Mnazi Mmoja.

Namna ya kushiriki

Ushiriki wako kwenye utafiti huu ni wa hiyari kabisa na unaweza kukataa kushiriki au kusitisha mahojiano wakati wowote. Kukataa kushiriki hakutaingilia huduma zako za tiba wala faida unazotakiwa kuzipata hapa kliniki.

Usisite kuuliza swali lolote pale unapoona kuna sababu. Kama ukikubali kushiriki mahojiano yataendeshwa kwa kutumia dodoso maalum.

Madhara

Ikiwa wakati unajieleza ukipata kikwazo na kuona unahitaji mshauri nasaha au mtoa huduma wa afya ya akili kwa mazungumzo zaidi tutakuwa tayari kusaidia

Usiri

Taarifa zako utakazozitoa hazitawekwa hadharani kwa namna yeyote ile kwa hiyo ushiriki wako hautafahamika. Jina lako au taarifa zozote zinazokutambulisha hazitaambatanishwa na taarifa zako utakazozitoa.

Mwisho wa ufafiti taarifa hizi zitafungiwa na baadaye kuharibiwa baada ya kuwekwa na kutunzwa kwenye mfumo wa elektroniki

Kumbuka

Hakutakuwa na faida ya moja kwa moja kwako kutokana na utafiti huu ila matokeo ya utafiti yatasaidia katika mpango wa tiba kwa wagonjwa wa sonona na watoto walioathirika katika maendeleo ya ukuaji wao.

Nani wa kumuuliza

Kama una maswali zaidi ambayo ungependa kuuliza kuhusiana na utafiti huu, tafadhali wasiliana na

Mtafiti Mkuu

Rachel Jared Mtei 0688802093

Idara ya magonjwa ya akili

Chuo Kikuu cha afya Muhimbili

Dr. Bruno Sunguya- 0685217272

Mwenyekiti wa kamati ya utafiti na machapisho ya chuo

S.L.P. 65001 Dar es salaam, Tanzania

Sahihi…….

Unakubali Kushiriki?.....

Mshiriki amekubali…….

Nimesoma au nimeambiwa kuhusu yaliyomo humu ndani. Maswali yangu yamejibiwa. Nakubali kushiriki katika utafiti huu.

Appendix III: Questionnaire

Questionnaire- English version

Please fill the answer the correct answers.

1. GENERAL INFORMATION

Date of interview: {...../...../2019} Questionnaire serial No: .....

Name of interviwer: .....

II. DEMOGRAPHIC CHARACTERISTICS OF RESPONDENT

1. Number of interviewee:.....
2. Age of the mother in years.....
3. Age of the child in months.....
4. Sex of the child
    1. Male
    2. Female
5. What is your marital status?
    1. Married
    2. Unmarried
    3. divorced/separated
    4. Widow
    5. Cohabiting
6. What is your highest level of education?
    1. Never went to school
    2. Primary school
    3. Secondary school
    4. College/University
    5. Postgraduate/Masters
    6. Adult education

7. If employed, what do you do to earn an income?
    1. Self employed agricultural work
    2. Wage earning agricultural work
    3. Self employed business/trade
    4. Wage earning unskilled job (paid per day or per week)
    5. Wage earning skilled job (paid per day or per week)
    6. Salary earning unskilled job (paid per month)
    7. Salary earning skilled/professional job (paid per month)
    8. House wife
    9. Student
    10. Others(specify):) Mention:.....

III Magnitude of depressive symptoms (PHQ-9)

Over the past two weeks how often have you been bothered by the following problems?

10. Little interest or pleasure in doing things
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

11. Feeling down, depressed, or hopeless
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

12. Trouble falling or staying asleep, or sleeping too much
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday
13. Feeling tired or having little energy
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday
14. Poor appetite or overeating
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

15. Feeling bad about yourself, or that you are a failure or have let youself or your family down
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

16. Trouble concentrating on things, such as reading the newspaper or watching TV
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

17. Being so fidgety and restless that you have been around a lot more than usual
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

18. Thought you would better be dead or of hurting yourself in some way
    a. Not at all
    b. Several days
    c. More than half the days
    d. Nearly everyday

19. If you checked off any problems, how diificult have these problems made it for you to do your work, take care of things at home, or get along with other people?
    1. Not difficult at all
    2. Somewhat difficult
    3. Very difficult
    4. Extremely difficult

IPVA Have you been involved in an intimate relationship, such as marriage, living with someone, or dating since you delivered this baby?

1. Yes
2. No

If YES, go to Q. IPV1

If NO fill SECTION IV items as 9 and skip to SECTION V.

IV. RELATIONSHIP WITH INTIMATE PARTNER

NOW, I WILL ASK ABOUT DIFFERENT SITUATIONS THAT EXIST IN INTIMATE RELATIONSHIPS. PLEASE TELL ME IF ANY OF THE FOLLOWING HAS HAPPENED IN THE RELATIONSHIP WITH YOUR PARTNER IN THE PAST 6 MONTHS.

IPVB	During the last six months, did your husband/partner (or any other partner that you've had) ever physically hurt you (this includes pushing, shaking, throwing something at you or hitting you with it, slapping, twisting your arm, pulling your hair, punching, kicking, choking, among other physical acts that hurt you)?	Yes……..……1 No……..……..2	
IPVC	During the last six months, did your husband/partner (or any other partner that you've had) ever physically force you to have sexual intercourse or perform other sexual acts with him even when you did not what to?	Yes……..……1 No……..……..2	

V. CHILD DEVELOPMENT

Children learn to do things over time. Now I will ask you a few things about what your child can do, starting with a few very basic things, and later asking about more difficult things. If the child does not currently do these things, but has in the past, you should answer 'yes' to the question."

20. Cognitive & Language Development	Yes	No	Don't know	
21.1Does the child look for an object when it falls on the ground or is taken away?	☐ 1	☐ 2	☐ 8	LOOKOBJ
21.2 Does the child say one or more words (e.g.,	☐ 1	☐ 2	☐ 8	ONEWORD

20. Cognitive & Language Development	Yes	No	Don't know	
names like Mama or objects like cup)?				
21.3 Does the child recognize you or other family members (e.g., smile when they enter a room or move toward them)?	☐ 1	☐ 2	☐ 8	RECOGNIZE
21.4 Does the child explore new objects (like clothes or toys) by picking them up or putting them in his/her mouth?	☐ 1	☐ 2	☐ 8	EXPLORE
21.5 Does the child point or make sounds when he/ she wants something?	☐ 1	☐ 2	☐ 8	POINT
21.6 Does the child answer simple questions (e.g., "Do you want this?") by saying yes or no, or nodding his/her head?	☐ 1	☐ 2	☐ 8	QUESTION
21.7 Does the child say five or more words (e.g., names like Mama or objects like cup)?	☐ 1	☐ 2	☐ 8	FIVEWORD
21.8 Does the child follow simple directions (e.g., "Stand up or Come here")?	☐ 1	☐ 2	☐ 8	SIMPDIRECT
21.9 Does the child speak using short sentences of two words (e.g., "Mama go" or "Dog eat")?	☐ 1	☐ 2	☐ 8	SHORTSENT
21.10 Does the child ask for something (e.g., food, water) by name when he/she wants it?	☐ 1	☐ 2	☐ 8	ASKFOOD
21.11 Does the child follow complex directions with more than one step (e.g., "Stand up, go outside, and bring me…")	☐ 1	☐ 2	☐ 8	COMPDIRECT

20. Cognitive & Language Development	Yes	No	Don't know	
21.12 Does the child say ten or more words (e.g., names like Mama or objects like cup)?	☐ 1	☐ 2	☐ 8	TENWORD
21.13 Does the child get distracted easily?	☐ 1	☐ 2	☐ 8	DISTRACTED
21.14 Can the child correctly say the names of at least two family members (e.g., Mama, name for brother/sister)?	☐ 1	☐ 2	☐ 8	NAMEFAMILY
20.15 Does the child speak using longer sentences of more than 3 or 4 words?	☐ 1	☐ 2	☐ 8	LONGSENT
20.16 Does the child sing songs or repeat rhymes from memory?	☐ 1	☐ 2	☐ 8	RHYMESONG
20.17 Does the child know the names of at least two body parts (e.g., arm, eye, or nose)?	☐ 1	☐ 2	☐ 8	NAMEBODY
20.18 Does the child pay attention when someone is talking to him/her?	☐ 1	☐ 2	☐ 8	ATTENTION
20.19 When asked what common objects (like a cup or a knife) are for, does the child explain correctly?	☐ 1	☐ 2	☐ 8	EXPLAINOBJ
20.20 Does the child play by pretending objects are something else?	☐ 1	☐ 2	☐ 8	PRETEND
20.21 Does the child correctly use the words I, you, or he?	☐ 1	☐ 2	☐ 8	PRONOUN
20.22 Does the child know any numbers (e.g., one,	☐ 1	☐ 2	☐ 8	NUMBER

20. Cognitive & Language Development	Yes	No	Don't know	
two, three)?				
20.23 Does the child turn a spoon or bottle right side up if you give it to him/her upside down?	☐ 1	☐ 2	☐ 8	UPSIDEDOWN
20.24 Does the child know the difference between the words "big" and "small"?	☐ 1	☐ 2	☐ 8	OPPOSITE
20.25 Does the child ask questions using the words what, which, where, and who?	☐ 1	☐ 2	☐ 8	ASKQUEST
20.26 Does the child know the names of any letters (e.g., A, B, C)?	☐ 1	☐ 2	☐ 8	ALPHABET
20.27 Does the child talk about or explain things that have happened in the past (e.g., what the child did yesterday)?	☐ 1	☐ 2	☐ 8	STORIESPAST

"Children behave differently as they learn and grow. Now I will ask you a few things about your child's behavior. You should answer these questions based on what the child usually does now, not what he or she used to do."

21. Socioemotional Development	**Yes**	**No**	**Don't know**	
22.1 Does the child smile when others smile at him/her?	☐ 1	☐ 2	☐ 8	SMILE
22.2 Does the child act differently (e.g., shy or afraid) with strangers than he/she does with you and other familiar people?	☐ 1	☐ 2	☐ 8	STRANGER

21. Socioemotional Development	**Yes**	**No**	**Don't know**	
22.3 Does the child get along well with other children most of the time?	☐ 1	☐ 2	☐ 8	GETALONG
22.4 Does the ever child kick, bite, or hit other children or adults?	☐ 1	☐ 2	☐ 8	KICKBITEHIT
22.5 Is the child frequently irritable or fussy?	☐ 1	☐ 2	☐ 8	IRRITABLE
22.6 Does the child demand you to be with him/her constantly?	☐ 1	☐ 2	☐ 8	DEMANDATTEN
22.7 Does the child greet neighbors or other people he/she knows without being told (e.g., by saying hello or gesturing hello)?	☐ 1	☐ 2	☐ 8	GREET
22.8 Does the child wake up frequently at night?	☐ 1	☐ 2	☐ 8	WAKEFREQ
22.9 Does the child ask you for help when he/she cannot do something on his/her own (e.g., to reach an object up high)?	☐ 1	☐ 2	☐ 8	ASKHELP
22.10 Does the child have trouble falling asleep on his/her own?	☐ 1	☐ 2	☐ 8	FALLASLEEP
22.11 Does the child become very upset by loud sounds (e.g., a loud bang, scream)?	☐ 1	☐ 2	☐ 8	UPSETLOUD
22.12 Does the child show affection toward others (e.g., hugging parents, brothers, or sisters)?	☐ 1	☐ 2	☐ 8	AFFECTION
22.13 Does the child cry or complain when he/she is made to wait for something he/she wants (e.g., toy, food)?	☐ 1	☐ 2	☐ 8	CRYWAIT

21. Socioemotional Development	**Yes**	**No**	**Don't know**	
22.14 Does the child follow rules and obey adults?	☐ 1	☐ 2	☐ 8	FOLLOWRULE
21.15 Does the child have trouble sitting still when asked to by an adult (e.g., for two minutes)?	☐ 1	☐ 2	☐ 8	SITSTILL
21.16 Does the child share things (e.g., food, toys) with others?	☐ 1	☐ 2	☐ 8	SHAREOTHERS
21.17 Does the child act impulsively or without thinking?	☐ 1	☐ 2	☐ 8	IMPULSIVE
21.18 Does the child stop immediately when told "no" or "stop that?"	☐ 1	☐ 2	☐ 8	INHIBIT
21.19 Does the child show sympathy or look concerned when others are hurt or sad?	☐ 1	☐ 2	☐ 8	SYMPATHY
21.20 Does the child sit or play quietly on his/her own for at least several minutes?	☐ 1	☐ 2	☐ 8	INDEPENDENT
21.21 When the child is upset, is he/she able to calm down by him/herself?	☐ 1	☐ 2	☐ 8	SELFREG
21.22 Is the child frequently sad or upset?	☐ 1	☐ 2	☐ 8	SADUPSET
21.23 Is the child sometimes impatient or unwilling to wait or hold still when you ask him/her to?	☐ 1	☐ 2	☐ 8	IMPATIENT
21.24 Is the child able to do two things at the same time (e.g., play a game and listen to you)?	☐ 1	☐ 2	☐ 8	TWOTHINGS
21.25 Is the child able to focus on one task (e.g., playing with friends, eating meal) for more	☐ 1	☐ 2	☐ 8	FOCUS

21. Socioemotional Development	Yes	No	Don't know	
than a few minutes, ignoring other things around him/her?				
21.26 Does the child put objects or toys back where they belong after using them?	☐ 1	☐ 2	☐ 8	OBJBACK
21.27 Does the child sometimes save things like candy or new toys for the future?	☐ 1	☐ 2	☐ 8	SAVE

22. Environmental Stimulation

22.1 Who is the person who takes care of the child most of the time? ✓ *Mark only one.*				PRIMCARE
Child's mother	☐ 1	Other relative	☐ 6	
Child's father	☐ 2	Neighbour/friend	☐ 7	
Child's brother	☐ 3	Orphanage	☐ 8	
Child's sister	☐ 4	Other	☐ 9	
Child's grandparent	☐ 5	DK	☐☐ 88	

22.2 When that person is working or away from the home, who else takes care of the child? *Mark as many as needed.*			✓
Child's mother	☐ 1	Other relative	☐ 6
Child's father	☐ 2	Neighbour/friend	☐ 7
Child's brother	☐ 3	Orphanage	☐ 8
Child's sister	☐ 4	Other	☐ 9
Child's grandparent	☐ 5	DK	☐☐ 88

SECCARE

22.3 How many adults are usually at home during the day? ☐☐

ADTHOME

22.4 How many children are usually at home during the day?

CHLDHOME ☐

22.5 Does the child attend child care or an early learning centre

ATTENDECE

outside of the home? 1=Yes, 2=No, 8=Don't know ☐☐

22.6 [*If yes:*] For how many hours per week?

HOURSECE

Activities	Yes	No	Don't know	
In the past 3 days, has an adult done any of the following with the child?				
22.7 Read books or looked at picture books?	☐ 1	☐ 2	☐ 8	READBOOK
22.8 Told stories?	☐ 1	☐ 2	☐ 8	TELLSTORY
22.9 Taken him/her outside the home, compound, yard or enclosure?	☐ 1	☐ 2	☐ 8	TAKEOUT
22.10 Played with him/her?	☐ 1	☐ 2	☐ 8	PLAYWITH
22.11 Named, counted, or drew things with him/her?	☐ 1	☐ 2	☐ 8	NAMECOUNT
22.12 Talked with him/her while working or doing housework?	☐ 1	☐ 2	☐ 8	TALKTO
22.13 Yelled at or scolded him/her?	☐ 1	☐ 2	☐ 8	YELLSCOLD
22.14 Spanked or hit him/her?	☐ 1	☐ 2	☐ 8	SPANKHIT
22.15 Praised him/her for doing something well?	☐ 1	☐ 2	☐ 8	PRAISE
22.16 Showed affection for him/her?	☐ 1	☐ 2	☐ 8	AFFECTION

Appendix IV: Questionnaire (Kiswahili version)

Tafadhali jaza jibu ambalo unaona ni sahihi kwako upande wa kulia.

I. MAELEZO YA AWALI

Tarehe ya mahojiano: {...../...../2019} Namba ya dodoso: .....

Jina la msaili: .....

II. MAELEZO BINAFSI

1**.** Namba ya mshiriki anayehojiwa:.....

2. Umri wake (Miaka) .....

3. Umri wa mtoto (Miezi)

3. Jinsia ya mtoto

1. Mume
2. Mke

4.Nini hali yako ya ndoa

3. Nimeoa/Nimeolewa
4. Sijaoa/Sijaolewa
5. Tumeachana/Tumetengana
6. Mjane
7. Naishi na mwanamke/bwana

5. Una watoto wangapi?.....

6. Je una kiwango gani cha elimu?

1. Sijasoma
2. Elimu ya msingi

3. Elimu ya sekondari
4. Elimu ya chuo/chuo kikuu
5. Nina shahada ya pili/sitashahada
6. Elimu ya watu wazima
1.

7. Kama umeajiriwa/Jiajiri unafanya kazi gani?

1. Shughuli binafsi za kilimo
2. Shughuli binafsi za kilimo
3. Biashara binafsi
4. Kibarua(Malipo kwa siku/wiki)
5. Malipo kwa utaalamu (malipo kwa siku/wiki)
6. Malipo ya mshahara kwa zisizo za ujuzi kwa mwezi
7. Malipo ya mshahara wa kiujuzi kwa mwezi
8. Mama/baba wa nyumbani
9. Mwanafunzi
10. Nyingine (taja):

III. Ukubwa wa dalili za sonona (PHQ-9)

Kwa juma mbili zilizopita, mara ngapi umesumbuliwa na matatizo haya: Weka alama √ kuonyesha jibu lako.

10. Mwelekeo mdogo au kukosa raha kufanya vitu

1. Hapana kabisa
2. Siku kadhaa
3. Zaidi ya nusu siku hizi
4. Karibu kila siku

11.Kujisikia kama huwezi kuchangamka, huzuni au kukosa tumaini

1. Hapana kabisa
2. Siku kadhaa
3. Zaidi ya nusu siku hizi
4. Karibu kila siku

12.Tatizo kupata usingizi au tatizo kuendelea kulala baada ya usingizi ama kula kupita kiasi

1. Hapana kabisa
2. Siku kadhaa
3. Zaidi ya nusu siku hizi
4. Karibu kila siku

13. Kujisikia kuchoka au kuwa na nguvu kidogo

1. Hapana kabisa
2. Siku kadhaa
3. Zaidi ya nusu siku hizi
4. Karibu kila siku

14. Kupunguwa kwa hamu ya kula au kula kupita kiasi

1. Hapana kabisa
2. Siku kadhaa
3. Zaidi ya nusu siku hizi
4. Karibu kila siku

15. Kujisikia vibaya mwenyewe, au kusikia kama umeshindwa, au umejishusha, au umeshusha chini familia yako

a. Hapana kabisa
b. Siku kadhaa
c. Zaidi ya nusu siku hizi
d. Karibu kila siku

16. Tatizo kwenye kutuliza akili kwenye vitu kama kusoma gazeti au kangalia runinga

a. Hapana kabisa
b. Siku kadhaa
c. Zaidi ya nusu siku hizi
d. Karibu kila siku

17. Kusogea au kuzungumza polepole sana hata ingeweza kuonekana kwa watu wengine. Ama kinyume kuwa na mashaka/wasiwasi au kutotulia kiasi hata umekuwa ukitembea tembea sana kuliko kawaida

e. Hapana kabisa
f. Siku kadhaa
g. Zaidi ya nusu siku hizi
h. Karibu kila siku

18. Fikira kwamba ni heri ukifa, au fikira za kujiumiza kwa njia fulani?

i. Hapana kabisa
j. Siku kadhaa
k. Zaidi ya nusu siku hizi
l. Karibu kila siku

19. Kama umejibu maswali yote, kwa kiasi gani haya matatizo yamefanya vigumu kufanya kazi zako, kutunza vizuri vitu nyumbani au kuelewana na watu wengine?

1. Sio vigumu hata kidogo
2. Vigumu kiasi
3. Vigumu sana
4. Kwa shida zaidi

IV. *UHUSIANO*

IPVA. Je, katika miezi 6 iliyopita ulikuwa kwenye ndoa au mahusiano mengine ya kimapenzi kwa kuishi kinyumba au uchumba?

Ndiyo……1

Hapana……2

(KAMA NDIO, NENDA SWALI 21 IPV1) (KAMA HAPANA, RUKIA SEHEMU YA V)

Sasa nitauliza kuhusu matukio tofauti tofauti yanayotokea katika mahusiano ya ndani. Tafadhali niambie kama mojawapo ya matukio haya yamewahi kukutokea katika mahusiano yako na mwenzi wako katika kipindi cha miezi sita iliyopita.

IPVB	Katika kipindi cha miezi sita iliyopita, je mumwe/mwenzi wako (au mwenzi yeyote uliyewahi kuwa naye) alishawahi kukuumiza kimwili (hii inahusisha kusukumwa, kutingisha, kukurushia au kukupiga na kitu, kukupigia kofi,kupindisha mkono wako, kukuvuta nywele, kukupiga ngumi, kukupiga teke, kukukapa koo, na matukio mengine yaliyokuumiza kimwili)	Ndiyo……..1 Hapana……2	
IPVC	Katika miezi sita iliyopita je, mume/mwenzi wako (au mwenzi yeyote uliyewahi kuwa naye) amewahi kukulazimisha kufanya naye ngono au kukukulazimisha kufanya naye kitendo chochote cha kimapenzi wakati wewe hukutaka?	Ndiyo…….1 Hapana…….2	

“Mtoto hujifunza kufanya vitu kwa kadiri ya muda unavyoendelea. Sasa nitakuuliza vitu vichache ambayo mtoto wako anaweza kuvifanya, kwa kuanzia na vitu vichache na virahisi sana, na baadaye nitakuuliza vitu vigumu zaidi. Kama mtoto wako kwa sasa hafanyi vitu hivi, lakini hapo zamani amewahi kuvifanya,utatakiwa kujibu ‘ndio’ kwenye swali hilo.”

1. Kukua kwa akili na lugha	Ndiyo	Hapana	Sijui	
21.1 Je, mtoto hukiangalia/kukifuatil kwa macho kitu kinapodondoka chini au kuchukuliwa mbali ?	☐ 1	☐ 2	☐ 8	LOOKOBJ
21.2 Je, mtoto huwa anatamka neno halisi moja au zaidi (mfano; mama, baba, maji)?	☐ 1	☐ 2	☐ 8	ONEWORD
21.3 Je, mtoto anaweza kukutambua wewe au mwanafamilia ye yote? (kwa kutabasamu wanapoingia chumbani au kuwafuata)?	☐ 1	☐ 2	☐ 8	RECOGNIZE
21.4 Mtoto anapoona vitu (kama nguo au mdoli), Je, huwa anavichukua na kupeleka mdomoni au anavichunguza tu	☐ 1	☐ 2	☐ 8	EXPLORE
21.5 Je, mtoto anapokitaka kitu huwa anakinyooshea mkono au kutoa sauti?	☐ 1	☐ 2	☐ 8	POINT
21.6Je, mtoto anaweza kujibu maswali rahisi (kama, “Unakitaka hiki?”) kwa kujibu ndiyo au hapana au kutingisha kichwa?	☐ 1	☐ 2	☐ 8	QUESTION
21.7 Je, mtoto anatamka maneno 5 au zaidi (mfano; mama, baba, maji)?	☐ 1	☐ 2	☐ 8	FIVEWORD
21.8 Je, mtoto huwa anaelewa maelekezo rahisi (kama, “Simama au Njoo hapa”)?	☐ 1	☐ 2	☐ 8	SIMPDIRECT
21.9 Je, mtoto huwa anaweza kuongea kwa kutumia sentensi fupi fupi za maneno mawili2 (kama, “Mama nenda” au “Mbwa kula”)?	☐ 1	☐ 2	☐ 8	SHORTSENT
21.10 Je, mtoto huwa anaombakitu (kama, chakula, maji) kwa jina lake anapokihitaji?	☐ 1	☐ 2	☐ 8	ASKFOOD

21.11B Je, mtoto anafuatamaelekezo mchanganyiko yenye hatua zaidi ya moja (kama, “Simama, nenda nje, na uniletee…”)	☐ 1	☐ 2	☐ 8	COMPDIRECT
21.12 Je, mtoto anatamka maneno 10 au zaidi (mfano; mama, baba, maji)?	☐ 1	☐ 2	☐ 8	TENWORD
21.13 Je, mtoto huwa anapoteza umakini kirahisi?	☐ 1	☐ 2	☐ 8	DISTRACTED
21.14 Mtoto anaweza kutamka sawasawa majina ya angalau wanafamilia wawili (kama, Mama, jina la kaka/dada yake)?	☐ 1	☐ 2	☐ 8	NAMEFAMILY
21.15 Je, mtoto huwa anazungumza kwa kutumia sentensi ndefu za maneno zaidi ya 3 au 4?	☐ 1	☐ 2	☐ 8	LONGSENT
21.16 Je, mtoto huwa anaimba nyimbo au kurudia vina alivyokariri?	☐ 1	☐ 2	☐ 8	RHYMESONG
21.17 Je,mtoto anajua majina ya angalau sehemu mbili za mwili (kwa mfano mkono, jicho au pua)?	☐ 1	☐ 2	☐ 8	NAMEBODY
21.18 Je,mtoto huwa anakuwa msikivu mtu anapozungumza naye au anapomsemesha ?	☐ 1	☐ 2	☐ 8	ATTENTION
21.19 Anapoulizwa vitu vya kawaida kama kisu au kikombe, ni kwa ajili ya matumizi gani, je, mtoto anaweza kuelezea kwa usahihi?	☐ 1	☐ 2	☐ 8	EXPLAINOBJ
21.20 Je, mtoto huwa anacheza kwa kuchukulia vitu kuwa tofauti na uhalisia wake kwa mfano kubeba jiwe na kulichukulia kama mtoto?	☐ 1	☐ 2	☐ 8	PRETEND
21.21 Je, mtoto huwa anatumia kwa usahihi maneno: mimi, wewe au yeye?	☐ 1	☐ 2	☐ 8	PRONOUN

21.22 Je, mtoto anajua namba zo zote (kama 1, 2 ,3)?	☐ 1	☐ 2	☐ 8	NUMBER
21.23 Je, ukimpa mtoto kijiko au chupa chini juu huwa anageuza juu chini?	☐ 1	☐ 2	☐ 8	UPSIDEDOWN
21.24 Je, mtoto anajua tofauti kati ya maneno “kubwa” na “ndogo”?	☐ 1	☐ 2	☐ 8	OPPOSITE
21.25 Je, mtoto huwa anauliza maswali kwa kutumia maneno nini, kipi, wapi, na nani?	☐ 1	☐ 2	☐ 8	ASKQUEST
21.26 Je, mtoto anajua herufi zo zote (kama A, B, C)?	☐ 1	☐ 2	☐ 8	ALPHABET
21.27 Je, mtoto anazungumzia au kuelezea matukio yaliyopita (kwa mfano, jambo alilofanya jana)?	☐ 1	☐ 2	☐ 8	STORIESPAST

“Watoto huwa na tabia tofauti wanapoendelea kujifunza na kukua. Sasa nitakuuliza mambo machache kuhusiana na tabia ya mtoto wako. Utatakiwa kujibu maswali haya kulingana na kile ambacho mtoto anakifanya *mara kwa mara*, na siyo kitu ambacho alikuwa akikifanya zamani”.

2. Ukuaji wa hisia na uchangamfu	Ndiyo	Hapana	Sijui	
22.1 Je, mtoto huwa anatabasamu wenzake wanapotabasamu kwake?	☐ 1	☐ 2	☐ 8	SMILE
22.2 Je mtoto huwa anawafanyia wageni tofauti (anaona aibu au anaogopa)na anavyofanya unapokuwa nae au anapokuwa na watu aliowazoea?	☐ 1	☐ 2	☐ 8	STRANGER
22.3 Je, mtoto huwa anaelewana vizuri na watoto wenzake	☐ 1	☐ 2	☐ 8	GETALONG

muda mwingi?				
22.4 Je, mtoto huwa anawapiga, kuwang'ata au kuwagonga watoto wenzake au watu wazima?	☐ 1	☐ 2	☐ 8	KICKBITEHIT
22.5 Je, mtoto hukasirika au kuudhika mara kwa mara?	☐ 1	☐ 2	☐ 8	IRRITABLE
22.6 Je, mtoto huwa anakutaka uwe nae muda wote?	☐ 1	☐ 2	☐ 8	DEMANDATTEN
22.7 Mtoto huwa anasalimia majirani au watu anaowajua bila kuambiwa?(kwa kusema shikamoo au kwa kutumia ishara yo yote ya salamu?)	☐ 1	☐ 2	☐ 8	GREET
22.8 Je, mtoto huwa anamka usiku mara kwa mara?	☐ 1	☐ 2	☐ 8	WAKEFREQ
22.9 Je, mtoto huwa anaomba msaada anaposhindwa kufanya kitu mwenyewe (kama, kufikia kitu kilichopo juu)?	☐ 1	☐ 2	☐ 8	ASKHELP
22.10 Je, mtoto huwa anapata shida kupata usingizi kwa urahisi mwenyewe?	☐ 1	☐ 2	☐ 8	FALLASLEEP
22.11B Je, mtoto huwa anakasirika kwa kupiga kelele (kama, sauti kubwa)?	☐ 1	☐ 2	☐ 8	UPSETLOUD
22.12 Je, mtoto huwa anaonesha upendo kwa wengine (kama kuwakumbatia wazazi, kaka, dada zake)?	☐ 1	☐ 2	☐ 8	AFFECTION
22.13 Je, mtoto huwa analia au kulalamika inapobidi kusubiria chakula au mdoli?	☐ 1	☐ 2	☐ 8	CRYWAIT
22.14 Je, mtoto anafuata masharti na kutii watu wazima?	☐ 1	☐ 2	☐ 8	FOLLOWRULE
22.15 Je, mtoto huwa anashidwa kukaa kwa utulivu anapoambiwa na watu wazima (kwa angalau dakika	☐ 1	☐ 2	☐ 8	SITSTILL

mbili)?				
22.16 Je, mtoto anachangia vitu (kama, chakula) na wenzake?	☐ 1	☐ 2	☐ 8	SHAREOTHERS
22.17 Je, mtoto huwa anafanya vitu kwa kukurupuka au bila kufikiria?	☐ 1	☐ 2	☐ 8	IMPULSIVE
22.18. Je, mtoto huacha hapo hapo kufanya anapoambiwa " hapana" au "acha kufanya hivyo"?	☐ 1	☐ 2	☐ 8	INHIBIT
22.19. Je, mtoto anaonyesha kuhuzunishwa au kujali wengine wanapoumia au kuhuzunika?	☐ 1	☐ 2	☐ 8	SYMPATHY
22.20. Je, mtoto anaweza kukaa au kucheza mwenyewe kwa utulivu angalau kwa dakika kadhaa?	☐ 1	☐ 2	☐ 8	INDEPENDENT
22.21. Mtoto anapoudhika, je anaweza kujituliza yeye mwenyewe?	☐ 1	☐ 2	☐ 8	SELFREG
22.22 Je, mara kwa mara mtoto huudhika ama huuzunika?	☐ 1	☐ 2	☐ 8	SADUPSET
22.23 Je wakati mwingine mtoto hukosa uvumilivu au hawi tayari kusubiri unapomtaka afanye hivyo?	☐ 1	☐ 2	☐ 8	IMPATIENT
22.24 Je, mtoto anaweza kufanya mambo mawili kwa wakati mmoja (kwa mfano kucheza na kukusikiliza)?	☐ 1	☐ 2	☐ 8	TWOTHINGS
22.25 Je, mtoto anaweza kutulia na jambo moja (mfano kucheza na wenzake, kula chakula) kwa zaidi ya dakika chache,bila kujali mambo mengine yanayomzunguka?	☐ 1	☐ 2	☐ 8	FOCUS

22.26 Je, mtoto hurudisha kitu au mdoli panapohusika baada ya kukitumia?	☐ 1	☐ 2	☐ 8	OBJBACK
22.27 Je, mtoto wakati mwingine anaweza kutunza peremende au mdoli kwa ajili ya baadae?	☐ 1	☐ 2	☐ 8	SAVE

3. KUSISIMULIWA NA MAZINGIRA

23.1 Ni nani huwa anamhudumia mtoto muda mwingi? *Weka alama kwa mmoja tu.*			✓	PRIMCARE
Mama yake	☐ 1	Ndugu mwingine	☐ 6	
Baba yake	☐ 2	Jirani/rafiki	☐ 7	
Kaka yake	☐ 3	Kituo cha yatima	☐ 8	
Dada yake	☐ 4	Mwingine	☐ 9	
Bibi/Babu yake	☐ 5	Sijui	☐☐ 88	

23.2 Huyo mtu anapokuwa kazini au mbali na nyumbani, ni nani mwingine huwa anamhudumia mtoto? *Weka alama wote wanaohusika.*			✓	SECCARE
Mama yake	☐ 1	Ndugu mwingine	☐ 6	
Baba yake	☐ 2	Jirani/rafiki	☐ 7	
Kaka yake	☐ 3	Kituo cha yatima	☐ 8	
Dada yake	☐ 4	Mwingine	☐ 9	
Bibi/Babu yake	☐ 5	Sijui	☐☐ 88	

23.3 Kwa kawaida mchana watu wangapi wazima wanakuwa nyumban? ☐☐ ADTH ADTHOME

23.4 Kwa kawaida mchana watoto wangapi huwa wanakuwa nyumbani? ☐☐ CHLDHOME

23.5 Mtoto huwa anaenda kituo cha malezi ya watoto au shule ya vidudu nje ya nyumbani? ATTENDECE

1=Ndiyo, 2=Hapana, 8=Sijui

23.6 [*Kama ndiyo:*] Kwa masaa mangapi kwa wiki? ☐☐ HOURSECE

Shughuli	Ndiyo	Hapana	Sijui	
Ndani ya siku 3 zilizopita, mtu mzima amewahi kufanya na mtoto lo lote kati yafuatayo?				
23.7 Kusoma nae kitabu au kutazama picha?	☐ 1	☐ 2	☐ 8	READBOOK
23.8 Kumsimulia hadithi?	☐ 1	☐ 2	☐ 8	TELLSTORY
23.9 Kutoka nae kwenda mbali na nyumbani?	☐ 1	☐ 2	☐ 8	TAKEOUT
23.10 Kucheza nae?	☐ 1	☐ 2	☐ 8	PLAYWITH
23.11 Kutaja, kuhesabu au kuchora nae vitu?	☐ 1	☐ 2	☐ 8	NAMECOUNT
23.12 Kuzungumza nae wakati akifanya kazi za nyumbani?	☐ 1	☐ 2	☐ 8	TALKTO
23.13 Kumfokea au kumgombeza?	☐ 1	☐ 2	☐ 8	YELLSCOLD
23.14 Kumzaba kibao au kumpiga?	☐ 1	☐ 2	☐ 8	SPANKHIT
23.15 Kumsifia kwa kuwa amefanya kitu vizuri?	☐ 1	☐ 2	☐ 8	PRAISE
23.16 Kuonesha mahaba kwake?	☐ 1	☐ 2	☐ 8	AFFECTION

23.17 Una vitabu vingapi nyumbani? ☐☐ BOOKSHOME

23.18[*Kama 1 au zaidi:*] Vingapi ni vya watoto? ☐☐ CHILDBOOKS

23.19 Nyumbani una midoli (ya kununua dukani au kutengeneza nyumbani) mingapi? ☐☐
TOYSHOME