Intimate Partner Violence, Depression, and Child Growth and Development

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abstract

BACKGROUND: Evidence on the relationship between maternal depression and exposure to intimate partner violence (IPV) with child physical growth and development is equivocal. Our aim in the current study is to examine these relationships among women and their children in Tanzania.

METHODS: The Bayley Scales of Infant Development and anthropometric measures were used to assess children 18 to 36 months of age (n = 1031). Maternal exposure to IPV and depression were assessed using the Tanzania Demographic and Health Survey questionnaire and the Patient Health Questionnaire-9, respectively. We used linear regression models to calculate standardized mean differences (SMDs) for developmental outcomes and generalized linear models to estimate the associations with nutritional status.

RESULTS: Mild depressive symptoms in mothers (Patient Health Questionnaire-9 ≥5) and exposure to physical and sexual IPV were associated with lower SMDs for motor skills (−0.14 [P = .023] and −0.23 [P < .01], respectively), expressive communication (−0.13 [P = .187] and −0.23 [P < .01], respectively), receptive communication (−0.19 [P < .009] and −0.16 [P = .03], respectively), and cognitive development (−0.08 [P = .245] and −0.12 [P = .07], respectively). Exposure to physical and sexual IPV was associated with higher risk for stunting (relative risk = 1.6; P < .001).

CONCLUSIONS: This study reveals that maternal depressive symptoms and IPV are associated with adverse child nutritional and developmental outcomes. Further research is needed to develop programs to address IPV and depression among women and enhance the growth and development of their children.

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WHAT'S KNOWN ON THIS SUBJECT: Studies have revealed mixed findings of the relationships between intimate partner violence and depression in mothers and their children's nutritional status and development. Studies on the association between sexual intimate partner violence and child development are lacking.

WHAT THIS STUDY ADDS: Findings from this study reveal that subclinical depression is associated with a significant decrease in motor as well as receptive and expressive language development. In addition, lifetime maternal exposure to both physical and sexual violence is significantly associated with stunting.

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During early childhood, acute as well as chronic malnutrition can have an effect on development, including cognitive, receptive, expressive, and motor functions, and can potentially lead to long-term health effects[1,2] that can have implications for educational and economic attainment.[3] Researchers addressing children's developmental and nutritional outcomes have increasingly recognized the importance of social determinants, including intimate partner violence (IPV) and depression, on poor growth and development.[4] The burden of these determinants is significant in Tanzania, with 44% of ever-married women reporting some form of physical and/or sexual violence and 13% experiencing both physical and sexual violence.[5] Additionally, depression accounted for 7.5% of mental disorders reported from 20 regions in Tanzania.[6]

Researchers in previous studies have reported mixed findings of the associations of maternal depression and IPV with child nutrition and development measures. Several studies have revealed an association between maternal depression and adverse birth outcomes,[7] decreased weight and length,[8,9] increased risk of stunting, adverse social development,[10] and delayed language and motor development,[11] whereas other studies have revealed no association with child growth parameters[12,13] or cognition.[11,14,15] As a result, further research in resource-limited settings is needed.

Given the high prevalence of IPV and depression in Tanzania, we examined the associations of exposure to maternal IPV and depression with early childhood physical growth and developmental outcomes. Our hypothesis is that maternal depression and exposure to IPV are negatively associated with children's development (cognitive, communication, and motor) and nutrition (stunting, wasting, and underweight).

METHODS

Study Design

We present data from an extended follow-up study of children who participated in a randomized, double-blind, placebo-controlled trial of neonatal vitamin A supplementation (Neovita) conducted among newborns in the Morogoro region of Tanzania with the Ifakara Health Institute from August 2010 to March 2014.[16] The follow-up study was focused on child development and conducted from February 2014 to October 2014. A total of 31 999 children were enrolled in the original trial. Children were selected for participation in the follow-up study if they lived in the town of Ifakara or surrounding villages, if they were 18 to 36 months of age at the time of assessment, and if the caregivers consented to participate. The total number of eligible infants was 2979, of whom we could contact and gain consent for 1031. For the follow-up study, we needed a sample of ≥902 (power = 80%; $\alpha = .05$) to detect a standardized mean difference (SMD) of 0.20.

Data Collection

Researchers collected data using a survey questionnaire at home and a clinic-based interview, and the data analyses were restricted to participants who completed both. Child development was assessed by using an adapted Swahili-translated version of the Bayley Scales of Infant Development, Third Edition (BSID-III),[17] which showed adequate interrater reliability (K = 0.7–0.82) and internal consistency (Cronbach's $\alpha = 0.90–0.92$).[18] Depressive symptoms for the mothers were assessed by using the Patient Health Questionnaire-9 (PHQ-9).[19] The PHQ-9 is a validated scale with a sensitivity approaching 0.82 (95% confidence interval [CI]: 0.73 to 0.87) in 1 meta-analysis.[20] It is found to be reliable in primary care settings of low-income countries,[21] including Sub-Saharan Africa,[22] with an estimated sensitivity of 90% to 94% and a specificity of 75% to 99% in various groups.[23,24] Validated cutoff scores of 9[25] and 5 were used for moderate-to-severe[25] and mild depressive symptoms,[19] respectively. Lifetime exposure to IPV was measured by using an abbreviated IPV module of the Tanzania Demographic and Health Survey.[5] Length of children (<24 months old) was measured by using a length board (Seca), whereas height (≥24 months old) was measured by using a portable stadiometer (Seca) to the nearest 0.1 cm. Weight was measured to the nearest 0.1 kg with a digital scale (Seca). Researchers used the World Health Organization standards for the distribution of height for age (HAZ), weight for age, and weight for height (WHZ) for child anthropometry.[26]

Statistical Analysis

We examined the cross-sectional association of child BSID-III scores for cognitive, communication (expressive and receptive, separately), and motor (gross and fine) skills combined in 1 scale as well as child nutritional measures (stunting, wasting, underweight) with exposure to depression and IPV. To facilitate comparison with studies in which researchers used other child development tools,[27] BSID-III scores were converted to *z* scores with a mean of 0 and an SD of 1. Stunting, wasting, and underweight were defined as having a *z* score of <−2 SDs below the mean according to World Health Organization standards. Depression in mothers was defined by using 2 cutoffs: PHQ-9 ≥9 for moderate-to-severe depression and PHQ-9 ≥5 for mild depression.[19] Regarding IPV, exposure to lifetime IPV was examined in 4 categories of

ever exposed to both physical and sexual IPV, any IPV, only sexual IPV, and only physical IPV. We used linear regression models to estimate SMDs in BSID-III *z* scores and generalized linear models to estimate the relative risk of wasting, stunting, and underweight for maternal exposure to depression and IPV at each cutoff point for depression and for each of the 4 categories of IPV, respectively. Robust empirical variance structures were used in linear regression models to overcome slight deviations from normality. Potential confounding factors (child age, maternal education, maternal age, wealth index quintile, BSID-III assessor, and random assignment to vitamin A) were selected on the basis of a priori consideration of their association with the respective exposures and independently related to the outcomes. The missing indicator method was used to retain observations of missing data. Given the impact of chronic medical conditions or acute illnesses on measures of children's growth and development, we collected information about any signs and/or symptoms that children might have experienced over the previous 30 days (Table 1). A scale of child morbidity was created by pooling "yes" responses, and we examined the mediating effect of this scale on all models. We also examined the mediating effect of parental alcohol use, positive–negative cognitive stimulation, the number of adults and/or children at home, the head of the household, and depression (only with IPV) in the adjusted models. We also added an interaction term for exposure to both physical and sexual violence to the IPV models. After preliminary analyses, it was deemed not possible to study the associations between wasting and/or underweight with depression and/or IPV because of the relatively small subgroup sample size. All analyses were conducted by using SAS version 9.3 (SAS Institute, Inc, Cary, NC).

TABLE 1 Descriptive Characteristics of Children

Characteristics (n = 1031)	N (%)
Age, mo	
18–19	208 (20.2)
20–23	188 (18.2)
24–29	253 (24.5)
30–36	382 (37.1)
Sex	
Female	489 (47.4)
Male	542 (52.6)
Children with disabilities (n = 1025)[a]	
Yes	42 (4.1)
No	983 (95.6)
Wasting (n = 999)	
Yes	15 (1.5)
No	984 (98.5)
Stunting (n = 1000)	
Yes	341 (34.1)
No	659 (65.9)
Underweight (n = 1015)	
Yes	90 (8.8)
No	931 (91.2)
Symptoms during last 30 d	
Cough	385 (37.3)
Refused to eat	36 (3.5)
Fever	396 (38.4)
Difficulty breathing	50 (4.9)
Chest recessions	15 (1.5)
Convulsion	7 (0.7)
Diarrhea	120 (11.6)
Vomiting	34 (3.3)

[a] Sample sizes <1031 are due to missing data.

Ethical Considerations

The institutional review boards of the Harvard T. H. Chan School of Public Health, Ifakara Health Institute, and Ethics Committee of The National Institute of Medical Research in Tanzania approved the parent trial and the extended follow-up study.

RESULTS

A total of 1031 children were included in the study population. The sample reflected a relatively low socioeconomic status. Approximately 74% of the households used pit latrines, and <25% had a household water connection. Only 7% of mothers completed secondary school. Approximately 40% of mothers reported having ever experienced physical and/or sexual IPV in their lifetimes, with 2% meeting the cutoff score for moderate-to-severe depression and 6.13% demonstrating at least mild depressive symptoms (Table 2). The primary caregiver was the mother in 99.81% of cases (the mother was deceased in 0.19%). History of depressive symptoms and IPV were elicited only from the mothers. Children were primarily between the ages of 30 and 36 months (37%) and 24 and 29 months (24.5%). Fifteen children (2%) were wasted, 90 (9%) were underweight, and 341 (34%) were stunted. Thirty-nine children (3.7%) were exposed to physical or psychological trauma. Over the month before the survey, a number of children suffered from symptoms including fever (38%), diarrhea (12%), difficulty breathing (5%), and chest retractions (1%; Table 1).

In the adjusted models in which we used a cutoff point of 9 for depression (Supplemental Table 5), children of mothers with depressive symptoms scored lower on BSID-III

TABLE 2 Descriptive Sociodemographic and Clinical Characteristics of Women and Households

Characteristics (n = 1031)	N (%)
Age, y	
15–24	440 (42.9)
25–34	476 (46.2)
35–44	111 (10.8)
Level of education (n = 1030)[a]	
Primary	954 (92.8)
Secondary	73 (7.1)
College	1 (0.1)
Occupation (n = 1029)	
Income-generating activity	892 (0.84)
No income-generating activity	137 (0.14)
Father stays with the family (n = 1026)	
Yes	857 (83.5)
No	169 (16.5)
Head of the household (n = 1029)	
Mother	59 (5.7)
Father	803 (78)
Grandmother	53 (5.2)
Grandfather	93 (9)
Other	21 (2)
No. children	
1	275 (26.7)
2–4	494 (47.9)
≥5	147 (14.3)
Source of household water (n = 1029)	
Pipe water	245 (23.8)
Public tap	280 (27.2)
Open well	51 (5)
Closed well	14 (01.4)
Surface water	12 (01.2)
Tube well, borehole, or hand pump	427 (41.5)
Latrine (n = 1029)	
Flush toilet	261 (25.3)
Pit latrine	760 (73.9)
Other	8 (0.8)
House is rented (n = 993)	
Yes	358 (36.1)
No	635 (64)
Household owns a car (n = 1000)	
Yes	15 (1.5)
No	985 (98.5)
Household owns a mobile phone (n = 1029)	
Yes	824 (82.4)
No	176 (17.6)
Exposure to IPV (n = 975)	
Physical only	206 (21)
Sexual only	114 (11.9)
Physical and sexual violence	64 (6.5)
Physical or sexual violence	256 (26.26)
No report	591 (60.6)
Missing	184 (13.14)
Depression score (n = 978)	
≥9	20 (2)
≥5	60 (6.13)

[a] Sample sizes <1031 are due to missing data.

motor (SMD = −0.19; 95% CI −0.38 to 0.01; P = .06), receptive (SMD = −0.18; 95% CI −0.40 to 0.06; P = .14), cognitive (SMD = −0.11; 95% CI −0.32 to 0.1; P = .29), and expressive (SMD = −0.14; 95% CI −0.36 to 0.08; P = .21) subscales. Children of mothers with at least mild depressive symptoms (cutoff ≥5) demonstrated a lower performance on receptive communication (SMD = −0.19; P < .009), expressive communication (SMD = −0.10; P = .187), and motor scales (SMD = −0.14; P < .023; Table 3).

In the adjusted models for IPV, children of mothers who suffered from both sexual and physical IPV during their lifetimes scored lower on receptive communication (SMD = −0.16; P = .03), expressive communication (SMD = −0.23; P < .001), motor (SMD = −0.23; P < .001), and cognitive subscales (SMD = −0.12; P = .07). Children of mothers who were subjected to only sexual IPV during their lifetimes scored lower on the motor subscale (SMD = −0.15; P < .01; Table 4). Moreover, children of mothers who experienced both physical and sexual and only sexual IPV were found to have a 1.6 and 1.5 (P < .01) times higher risk for stunting, respectively (Table 4). Mothers' exposure to either sexual or physical IPV was found to be associated with the motor scale (SMD = −0.07; 95% CI: −0.14 to −0.002; P = .04; not shown). The interaction between physical and sexual violence was associated with the expressive communication scales (SMD = −0.33; P = .003). No mediating effect was observed for any of the factors examined. The effects of the other variables that were controlled for in the models of child growth and development were not reported in the tables; as such, findings were published in detail in an earlier study.[28]

DISCUSSION

In this study, depression and physical as well as sexual IPV in mothers were found to be associated with children's lower motor and communication scores on the BSID-III. Concurrent exposure to physical and sexual IPV was marginally associated with lower cognitive scores. No association was found between maternal

TABLE 3 Relationship Between Maternal Depression and Dimensions of Child Growth and Development

Model	Univariate Analysis		Multivariate Analysis[a]	
	SMD	95% CI	SMD	95% CI
Child development, Bayley *z* scores				
Cognitive (n = 866)[b]	−0.25	−0.52 to 0.02	−0.08	−0.21 to 0.05
Receptive (n = 857)	−0.45**	−0.16 to 0.74	−0.19**	−0.33 to 0.05
Expressive (n = 854)	−0.23	−0.50 to 0.05	−0.13	−0.32 to 0.06
Motor (n = 868)	−0.26	−0.53 to 0.01	−0.14*	−0.27 to 0.02
Nutritional status	RR	95% CI	RR	95% CI
Stunting (n = 908)	1.01	0.70 to 1.50	1.07	0.73 to 1.56

Depression status was determined at the cutoff (≥5). RR, risk ratio.

[a] Models are controlled for maternal age category, maternal education, child's age, Bayley assessor, vitamin A random assignment, and wealth quintiles.

[b] Numbers might not reflect the sample size of 1031 because of missing values.

* $P < .05$;

** $P < .01$.

depression and child nutritional status; however, exposure to only sexual IPV and both physical and sexual IPV was associated with stunting. Reductions in cognitive skills, gross and fine motor skills, and language development can affect children's future educational and economic attainment; as such, capturing reductions in SMDs of developmental outcomes are helpful in planning treatment and enabling affected children to actualize their full potential.

In reviewing the literature, Galler et al[11] reported an association between maternal depression and the Griffiths motor (SMD −0.21) and social (SMD −0.12) scales; however, no relationships were observed for hearing or speech development in the 3-month-old children. Such findings for hearing and/or speech are expected in 3-month-old infants because they have limited abilities within the expressive language domain. Although the associations maintained the linear trend at 6 months, *P* values were reported to be >.05 at that point.[11] Researchers in another study from Ethiopia used the Denver II test of child development and reported associations between common mental disorders in mothers and their children's gross motor, fine motor, and personal and social subscales; however, this was not observed for the language subscale.[29] Patel et al[30] used the Developmental Assessment Scale for Indian Infants and found that the infants of mothers with depression scored lower for mental and motor quotients derived from their scores. It is important to note that Patel et al[30] used the Developmental Assessment Scale for Indian Infants, which is based on the second version of the Bayley Scales of Infant Development and included the language dimension within the cognitive scale. For the current study, we used the BSID-III, in which the expressive and receptive language subscales are separate from the cognitive subscale.[17] The researchers in the studies from India,[30] Ethiopia,[29] and Barbados[11] presented their results by using terms such as "cognitive development" and "language development"; however, they used different constructs in examining the cognitive and language scales. Therefore, the null finding for the cognitive scale in the current study may be the result of the difference in the assessment of cognitive and language subscales separately as compared with in other studies. These findings could also be explained by contextual and cultural differences in the relationships examined between various risk factors and child outcomes as well as variation in the resources available in these settings. The discrepancies from previous work reveal the need to consider these processes as distinct in different contexts and provide justification for future research.

We did not find an association between depression and nutritional outcomes. Evidence from the literature reveals mixed findings regarding this association. In a multicenter study conducted across India, Peru, Ethiopia, and Vietnam, an association was found with depression and stunting in India and underweight in Vietnam but not in other study populations.[31] Additionally, in a meta-analysis across a number of low- and middle-income countries, a positive association of maternal depression and child stunting was revealed.[32]

Although depressive symptoms in mothers was measured over the 2 weeks before the follow-up study, depression assumes a chronic course with a tendency to relapse.[33] The estimated recurrence rate for depression varies from 50%[34] and 66%[35] to 80%[36–38] of subjects with depression who sought medical attention. It is likely that many mothers who tested positive for at least mild depressive symptoms have endured chronic depression in the past. There are multiple potential mechanisms through which depression may affect the quality of life of the mother and her children. These factors include unemployment, poor stimulation, and child neglect. Compared with asymptomatic individuals, persons with minor and major depression have 1.6 and 4.8 times higher odds of disability, respectively.[39] Moreover, because of its greater prevalence, minor depressive symptoms contribute to 51% higher disability days compared with severe depressive symptoms.[39] Disability might lead to unemployment, which in turn may result in poverty and poor nutrition for mothers and children. Moreover, poor child stimulation

TABLE 4 Relationship Between Exposure to Sexual, Physical, and Both Sexual and Physical IPV and Dimensions of Child Development

Model	Sexual Violence				Physical Violence				Physical and Sexual Violence			
	Univariate		Multivariate[a]		Univariate		Multivariate		Univariate		Multivariate	
	SMD[b]	95% CI	SMD	95% CI	SMD	95% CI	SMD	95% CI	SMD	95% CI	SMD	95% CI
Child development, Bayley *z* scores												
Cognitive (n = 866)[c]	0.02	−0.19 to 0.23	−0.08	−0.19 to 0.02	−0.05	−0.21 to 0.12	−0.002	−0.08 to 0.08	−0.07	−0.34 to 0.20	−0.12***	−0.25 to 0.01
Receptive (n = 857)	0.01	−0.21 to 0.23	−0.07	−0.18 to 0.20	−0.07	−0.24 to 0.10	−0.02*	−0.11 to 0.07	−0.14	−0.43 to 0.15	−0.16*	−0.30 to −0.02
Expressive (n = 854)	0.07	−0.14 to 0.28	−0.09	−0.20 to 0.01	−0.04	−0.20 to 0.13	−0.02	−0.10 to 0.07	−0.09	−0.36 to 0.18	−0.23**	−0.37 to −0.09
Motor (n = 868)	0.02	−0.18 to 0.22	−0.15**	−0.25 to 0.06	−0.10	−0.26 to 0.05	−0.07	−0.14 to 0.004	−0.16	0.14 to −0.43	−0.23**	−0.35 to −0.11
Nutritional status	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
Stunting (n = 908)[c]	1.39**	1.12 to 1.8	1.5**	1.21 to 1.94	1.10	0.90 to 1.40	1.12	0.90 to 1.12	1.45**	1. 1 to 1.9	1.59**	1.20 to 2.23

RR, risk ratio.

[a] Models are controlled for maternal age category, maternal education, child's age, Bayley assessor, vitamin A random assignment, and wealth quintiles.

[b] Mean score differences were reported for continuous outcomes and RRs for categorical outcomes.

[c] Numbers might not reflect the sample size of 1031 because of missing values.

* P = .05;

** P < .01;

*** P = .07.

is 1 of the underlying mechanisms through which poverty affects child development.[40–42] Mothers who have depression are also less likely to positively interact with their children, limiting their exposure to adequate stimulation and play, which are associated with better child development.[43,44] Furthermore, a poor maternal–child relationship is associated with weight faltering and nonorganic failure to thrive.[4] Severe depression might lead to child maltreatment[45] or neglect, [46] which might place children at a higher risk of repeated infection and poor nutritional status. Mothers with depression were also found to be more likely to stop breastfeeding early compared with mothers without depression,[47,48] thereby limiting their infants' access to a rich resource of nutrition, immunity, and adequate bonding, which could contribute to adverse outcomes.

We found associations between exposure to both physical and sexual IPV in mothers and lower scores on the BSID-III motor as well as the receptive and expressive language subscales in their children. There is a paucity of literature in which researchers examine the relationship between IPV and developmental outcomes in children. This study revealed that exposure to only sexual and both sexual and physical IPV increased the risk of stunting. There was no relationship of maternal exposure to only physical IPV and stunting. These findings are well supported in the literature. For example, a study with a pregnancy cohort in Nicaragua revealed lower HAZ (−0.41) in infants evaluated at 40 to 46 months old with exposure to any controlling behavior during pregnancy; however, the association disappeared when stratifying by type of violence (sexual, physical, or emotional).[49] Another study revealed lower WHZ (−0.48; P < .05) and HAZ (−0.48; P < .05) adjusted mean scores in infants of mothers

exposed to only sexual IPV.[50] For the association with exposure to only physical IPV, WHZ was −0.2 (P = .07), and HAZ was −0.14 (P = .07).[50] Another multicenter study revealed a stronger association with stunting and sexual IPV in Honduras and Malawi than with exposure to IPV as a general category.[51] In a study of pooled data of 42 Demographic and Health Surveys from 26 developing countries, an association was found between stunting and exposure to physical, sexual, and both physical and sexual IPV (odds ratio 1.09–1.10).[52]

The mechanisms through which IPV contributes to child development are complex. IPV affects mothers through physical harm[53] and can lead to both depression and stress.[54,55] Developmental and nutritional outcomes for children might be adversely affected by their mothers' exposure to IPV during their intra- as well as extrauterine lives.[56] Stress can affect the hypothalamic-pituitary-adrenal axis in pregnant women,[57–59] leading to placental inadequacy, which in turn can result in premature labor and intrauterine growth restriction.[56,60] Children who are born small for gestational age are more likely to be stunted, wasted, or underweight.[60] Stress can also affect children in a poorly functioning family, leading to reduced growth hormone secretion,[47–49] which is vital to achieving adequate growth. Greater food intake is required to meet the higher energy demand because of stress. Failure to meet this level may be due to the potential withholding of food and/or money from the mother as a form of abuse.[61,62] Although lack of food because of poverty could place children at higher risk for adverse nutritional and developmental outcomes, the sample was randomly selected from a single low-middle–income community with closely similar sociodemographic characteristics across the board. Additionally, all models were controlled for wealth quintile index.

Several limitations are identified in this study. First, the cross-sectional design limits causal and temporal inferences between the relationships examined.[63] Moreover, the relationship with IPV is much stronger, potentially because of the timing of data collection because data on IPV included lifetime exposure, whereas depression was examined over the past 2 weeks in a cross-sectional fashion. This does not allow for an assessment of depressive symptoms in mothers over time. However, recurrence of depressive episodes is highly likely, with at least 50% and 80% having a history of 1 and 2 episodes, respectively.[64] In addition, exposure to IPV might increase the likelihood of developing depressive episodes. Regarding the assessment of child development, there are limitations to distinguishing different domains, as reflected in the language versus cognitive subscales of the BSID-III for infants and young children under the age of 3 years. Lastly, the sample was randomly selected from 1 community in the Morogoro region of Tanzania, which may limit the generalizability of our findings to similar settings in Sub-Saharan Africa.

Children's development and nutritional status are affected by multiple factors linked to complex psychosocial relationships. This study reveals evidence that depression and IPV are associated with some adverse nutritional and developmental outcomes for children within the context of Tanzania. It is worth noting that in this study population, at least mild depression in mothers was associated with reduced child motor and communication skills. Children with developmental delays must be appropriately referred for further evaluation, and physicians should be mindful not only of physiologic ailments but also of psychosocial determinants of health, such as depression and IPV, that might be hindering their growth and development.[65–67] Interventions to prevent and reduce the impact of IPV and depression in Tanzania and similar settings can improve health outcomes for women and may advance child development and nutritional outcomes, promoting educational attainment and economic security in the long-term.

ABBREVIATIONS

BSID-III: Bayley Scales of Infant Development, Third Edition
CI: confidence interval
HAZ: height for age
IPV: intimate partner violence
PHQ-9: Patient Health Questionnaire-9
SMD: standardized mean difference
WHZ: weight for height

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