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Jane E. Bigham Date

The Effects of Intimate Partner Violence on a Child's Cognitive, Social, and Behavioral Development in Jordan

By

Jane Bigham
Master's in Public Health
Global Health Department

_____

Dr. Kathryn Yount
Committee Chair

_____

Dr. Nafisa Halim
Committee Member

The Effects of Intimate Partner Violence on a Child's Cognitive, Social, and Behavioral Development in Jordan

By

Jane Bigham

B.A., Agnes Scott College, 2006

Thesis Committee Chairs: Kathryn Yount, PhD and Nafisa Halim, PhD

An abstract of
A thesis submitted to the Faculty of the Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of Master of Public Health in Global Health
2011

The Effects of Intimate Partner Violence on a Child's Cognitive, Social, and Behavioral Development in Jordan

Author: Jane Bigham
Thesis Advisor: Dr. Kathryn Yount

Background: Research shows that childhood exposure to Intimate Partner Violence (IPV) is detrimental to a child's social, cognitive, and behavioral development; however, the majority of research is conducted in western countries. For the first time, the 2007 Jordan Demographic Health Survey (JDHS) included a module on domestic violence as well as childhood development allowing for research on the association between maternal exposure to IPV and childhood development in a non-western, lower middle income setting.

Objective: This study examines the association between maternal exposure to IPV and six measures of childhood development through the use of the 2007 Jordan Demographic Health Survey.

Methods: The data for this analysis was drawn from the 2007 Jordan Demographic Health Survey (JDHS), a nationally representative cross-sectional study of households, which employed a two-stage stratified sample design. Univariate analyses were conducted initially to examine the distribution and completeness of the variables. Logistic regression was employed for binary outcomes to estimate the unadjusted and adjusted associations of measures for violence with child development.

Results: In this study, maternal exposure to physical, sexual or emotional intimate partner violence was associated with a lowered ability for a child to recognize his/her own name; to count over ten; to exercise proper hygiene behavior; and to manage disagreements with friends in a positive way.

Discussion: This study was the first to examine the association of maternal exposure to IPV with childhood development in the non-western setting of Jordan. The results confirm previous findings in western countries that exposure to IPV is negatively associated with childhood development. One limitation of this study is that the survey may not fully capture the frequency or magnitude of IPV in Jordan. The findings from this research can be used to inform policies regarding intimate partner violence and child welfare.

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Acknowledgments

I would like to extend a special thank you to my thesis advisor, Dr. Yount, for her guidance throughout this process, and to thesis committee member, Dr. Nafisa Halim. Also, I would like to acknowledge my family, friends, and colleagues at The Carter Center Mental Health Program for their continuous support.

Table of Contents

Chapter 1: Comprehensive Literature Review

Intimate partner violence (IPV) against women is an important public health concern and has been studied largely in western settings. The indirect and direct social, intellectual, and behavioral effects of childhood exposure to IPV, however, require further study, particularly in non-western cultures. The 2007 Jordan Demographic Health Survey (JDHS) is the first to include both a module on domestic violence and childhood development, providing the opportunity to explore the association between maternal exposure to IPV and childhood development in a lower middle income, Middle Eastern setting.

Intimate Partner Violence (IPV) refers to physical, sexual, or psychological harm or threats of physical or sexual harm by a current or former partner or spouse of the same or opposite sex (Saltzman, Fanslow, McMahon, & Shelley, 1999). IPV is a global problem, with 15-71% of women reporting physical and/or sexual IPV at some point in their lifetimes (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). Research shows that exposure to IPV can adversely affect the structure and health of a family unit, the health of women exposed to IPV, and the well-being of exposed children.

Holden (2003) classifies three main types of child exposure to IPV, including prenatal exposure, victimization, and witnessing of violence. The prevalence of child exposure to IPV varies widely, and is understudied in non-western countries. In the United States, 10-20% of children are estimated to be exposed to violence each year (Carlson, 2000) and approximately 30% of Canadian women report that their children witnessed violence at some point in their lives (Thomson, Saltzman, & Johnson, 2003). In addition to witnessing violence, children exposed to IPV have an increased risk of

experiencing maltreatment. In an estimated 45-70% of homes characterized by IPV, child abuse also is present (Holt, Buckley, &Whelan, 2008; Hughes, 1988).

Theoretical Pathways Linking Children's Exposure to IPV to their Development

The direct and indirect pathways linking children's exposure to IPV and child development are multiple as illustrated by *Figure 1*. The conceptual model in *Figure 1* demonstrates how the mother's experience of IPV can change the nature of the mother-child relationship and affect a child's cognitive, social and behavioral development. The important role of the mother-child relationship in influencing a child's development is explained by both the *spillover hypothesis* and the *emotional security theory* (EST) (Engfer, 1988; El-Sheikh, Cummings, Kouros, Elmore-Staton, & Buckhalt, 2008). The spillover hypothesis postulates that the intimate partner relationships of the mother influence other significant relationships the mother may have, such as with her children; therefore if the mother is experiencing IPV, she may allow for the stress from this experience to adversely affect the relationships she has with her children (Engfer, 1988). The EST, on the other hand, is directly applied to IPV and children's exposure to violence. According to the EST, threats to children's emotional security (*e.g.,* witnessing marital conflict) motivate and organize children's emotional and behavioral responses and their internal representations of the marital relationship (El-Sheikh, et al, 2008).

The conceptual model in *Figure 1* further illustrates the significance of this relationship and characterizes the indirect social and behavioral developmental effects of children's exposure to IPV by emphasizing the role of *parental stress* on the mother-child relationship (as opposed to life stressors related to environmental stressors) (Owen, et al, 2006). As *Figure 1* shows, parental stress mediates the relation between IPV and

internalizing and externalizing behaviors in children, suggesting that IPV influences children's adjustment both directly and indirectly through mother's experience of parenting stress. Parental stress would challenge a mother's ability to exhibit characteristics that are important to child adaptation, *e.g.* involvement, warmth or empathetic responding (Owen, et al, 2006).

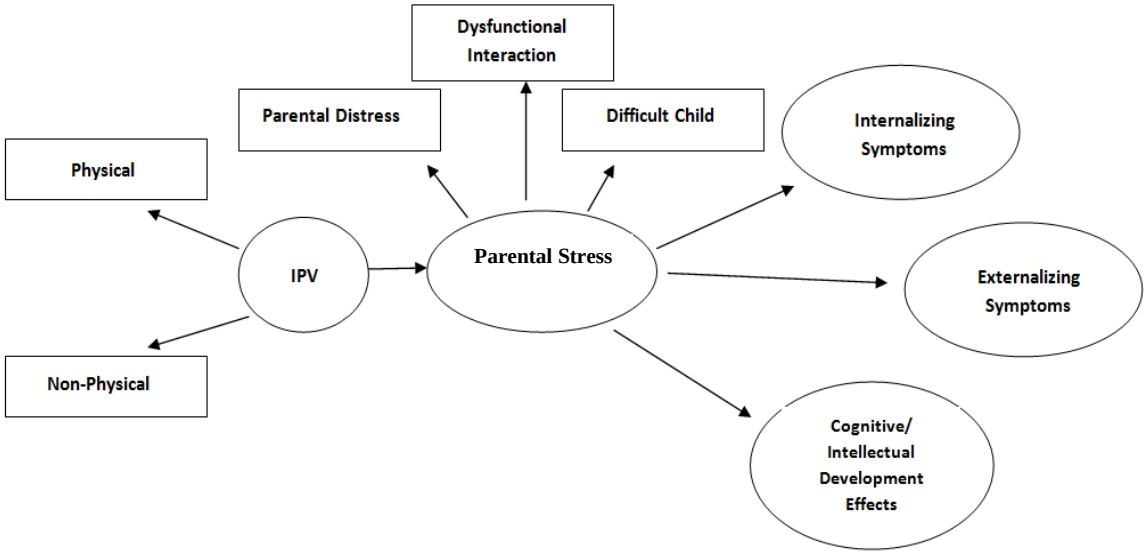

Figure 1. Conceptual model showing relations among intimate partner violence (IPV), parenting stress, a child's internalizing and externalizing symptoms, and a child's cognitive and intellectual development. (Owen, Kaslow and Thompson, 2006)

Mothers who experience IPV may suffer adverse psychological or physical outcomes, which compromise their parenting, and attachment with their children, including the social, emotional, and intellectual stimulation that young children need for optimal development (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003; Holden, 2003). In a review of the literature, an estimated 30-60% of women who experience IPV show signs of post-traumatic stress disorder, low self-esteem, depression and anxiety (Holtzworth-Munroe, Smutzler, & Sandin, 1997). Impaired maternal functioning may

also compound behavioral problems of the child that limit a child's intellectual achievement (Levendosky & Graham-Bermann, 1998). Conversely, strong parenting characterized by a positive mother-child relationship can mitigate the adverse effects of exposure to IPV, particularly for preschool-aged children (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003; Grych, Raynor, & Fosco, 2004).

The conceptual model discussed outlines just one of many potential mediating factors between IPV and child development. Literature suggests that other potential mediating factors include family size and structure (Cox, Kotch, & Everson, 2003), maternal and child age (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Cox, et al, 2003; Sternberg, Baradaran, Abbot, Lamb, & Guterman, 2006; Fantuzzo & Fusco, 2007; Graham-Bermann & Perkins, 2010), ethnic and regional differences (Deater-Deckard, Dodge, Bates, & Pettit, 1996; Bradley & Corwyn, 2000; Ybarra, Wilkens, & Lieberman, 2007; El-Sheikh, et al, 2008), SES and income/wealth index (Huth-Bocks, 2001; Repetti & Seeman, 2002; Cox, et al, 2003; Ybarra, et al, 2007), and maternal educational level (Cox, et al, 2003; Clark, Hill, Jabbar, & Silverman, 2009).

Evidence of the Direct Developmental Effects of Children's Exposure to IPV

As previously discussed, children's exposure to IPV has direct and indirect adverse effects on various aspects of their development and adjustment. The dimensions of IPV with potential implications for children's development include the type of violence, the nature of specific acts, its injurious effects, and the timing, frequency, duration, and child's age at exposure (Holden, 2003). Age of the child is of particular importance, as young children often lack the emotional maturity and coping mechanisms necessary to process the occurrence of violence, and because the majority of child

witnesses are younger than five years old (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 2007).

The direct effects of children's exposure to IPV include possible disruption of children's stress-related regulatory systems, impairing cognitive functioning and intellectual development, and causing physiological alterations of the brain, particularly in the neuroendocrine system (Repetti, Taylor, & Seeman, 2002; Holden, 2003). Overall, children's exposure to IPV may directly impair a child's ability to cope with stress and to process or regulate their emotions (Holden, 2003).

Evidence of the Indirect Developmental Effects of Children's Exposure to IPV

The indirect adverse effects of children's exposure to IPV are diverse and may include both short term and long term outcomes. Longitudinal studies show that children's exposure to IPV affects their intellectual functioning and internalizing or externalizing behavior (Huth-Bocks et al 2001; Koverola, Papas, Pitts, Murtaugh, Black, & Durowitz, 2005), which can lead to maladaptive emotional and behavioral development, specifically anxiety, depression, post-traumatic stress and aggressiveness (Edleson, 1999). Child witnesses are more likely to display academic deficits, such as weaker academic performance and impaired concentration, and may have more difficulty than their unexposed peers with the development of language-related skills (Carlson, 1984; Hughes, 1988; Jaffe, Wolfe, Wilson, & Zak, 1985).

Externalizing behaviors, such as displaying aggression, are positively related to more severe IPV and direct behavior modeling (Ybarra, Wilkens, & Lieberman, 2007), while internalizing difficulties, such as lower self esteem, anxiety, and depression are linked to the misattribution of blame by children for the occurrence of IPV (Grych,

Fincham, Jouriles, & McDonald, 2000). Other behavioral outcomes associated with children's exposure to IPV include noncompliance and delinquency (Cox, Kotch, & Everson, 2003). In addition to impairments in development and adjustment, children exposed to IPV and *adversity* more broadly are at higher risk for poorer care and morbidities across the life course, including lower immunization coverage (Felitti, et al, 1998; Bair-Merritt, Blackstone, & Feudtner, 2006), reduced physical growth (Yount, Ramakrishnan, DiGirolamo, epub., 2011), as well as ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease (Felitti, et al.,1998; El-Sheikh, Harger, and Whitson, 2001).

SETTING

This study examines the association between maternal exposure to IPV and childhood development in the country of Jordan. The Hashemite Kingdom of Jordan is a constitutional monarchy divided into three primary regions (the north, central and south) and 12 governorates with a population of over 6 million people (*See Picture 1*). Jordan shares its borders with the Red Sea, Israel and Palestine to the west and Syria, Iraq, and Saudi Arabia to the east. The majority of Jordan's population is Arab, and more than 92% of Jordanians are Sunni Muslims, and about 6% are Christians who live mainly in Amman, Madaba, Karak and Salt (CIA World FactBook, 2011).

Over the past two decades the country has experienced steady economic growth with a GDP of $25 billion in 2009 and a decreasing poverty rate from 21% in 1997 to 14% in 2002 (World Bank Country Data: Jordan, 2011). Considered one of the most modern countries in the Middle East, Jordan has high literacy rates among men (92%) and women (88%) and approximately 50% of the population has attended secondary

school or beyond (World Bank Country Data: Jordan, 2011). According to the 2007 DHS, the same percentage of women as men has attended higher than secondary school overall. The lowest rates of educational attainment are, as expected, among older age groups, specifically females, and in rural communities (JDHS, 2007).

Despite the high rates of literacy and educational attainment among women, nearly 90% of women do not work outside of the home. Of the women who do work outside of the home, most earn less than their husbands; however, more than 85% of married women report that they participate in decisions regarding their own health care and visits to family, and more than 70% say they contribute to decisions about making daily and major household purchases (JDHS, 2007).

Picture 1. Jordan (Jordan DHS, 2007)

Previous survey research in Jordan has found that nearly one in four women experience physical violence, primarily perpetrated by husbands, fathers, and brothers

(Nasser, Belbeisi, & Atiyat, 1998). Another survey in Jordan found that frequent physical violence was reported in 26% of households surveyed, with women and children being the most common victims (Clark, et al, 2009). In a survey of health clinics in Jordan, approximately 15% of women reported physical violence during pregnancy. The husband was the sole perpetrator in 83% of the cases (Clark, et al, 2009).

The occurrence of IPV has been gaining public visibility in Jordan. With the increasing globalization of the country, family violence has become a part of the public dialogue, as it is believed to be linked to a variety of social problems affecting the family (Shtaiwi, Shakhatreh, Gharaibeh, & Oweis, 2005). Various nongovernmental organizations have taken a prominent role in bringing attention to family violence, such as the National Council of Family Affairs, through offering public forums and publicizing these issues. Within local police departments, Family Protection Units (FPUs) have been established to provide a safe forum for women to talk about their abuse, which has contributed to an increase in reporting of family violence (Oweis, Gharaibeh, Al-Natour, & Froelicher, 2009).

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Although research on violence against women and the effects of violence on children is growing, there remains a reliance on small, purposive samples largely from the United States. Similarly, there is a lack of empirical evidence cross culturally. To fill these gaps, in this study we will explore the adjusted association of IPV with selected aspects of children's behavioral and cognitive or intellectual development among a national sample of 2,413 children aged 3-8 years in Jordan, a lower middle-income Middle Eastern country in which IPV is prevalent and the government has invested heavily in children's academic achievement. The purpose of this study is to examine the

effects of maternal exposure to IPV on childhood development. This study aims to address the following hypothesis:

- *Question 1*: Are children of women who have experienced IPV more likely to have poorer cognitive abilities, social skills, and hygiene behavior?
- *Null Hypothesis*: Children of women who have experienced IPV have the same cognitive abilities, social skills and hygiene behaviors as children of women who have never experienced IPV.

The data come from the 2007 Jordanian Demographic and Health Survey (JDHS), which is the first to collect data on IPV and selected aspects of childhood development. The findings provide important cross-cultural insights about the associations of IPV with selected aspects of child development.

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Contribution of Student

For the manuscript titled, *The Effects of Intimate Partner Violence on a Child's Cognitive, Social, and Behavioral Development in Jordan*, I performed a review of the literature, served as the principle writer, completed the data analysis, and created tables and figures for the manuscript.

Chapter 2: **Manuscript**

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Objective: This study examines the association between maternal exposure to IPV and six measures of childhood development through the use of the 2007 Jordan Demographic Health Survey.

Methods: The data for this analysis was drawn from the 2007 Jordan Demographic Health Survey (JDHS), a nationally representative cross-sectional study of households, which employed a two-stage stratified sample design. Univariate analyses were conducted initially to examine the distribution and completeness of the variables. Logistic regression was employed for binary outcomes to estimate the unadjusted and adjusted associations of measures for violence with child development.

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Discussion: This study was the first to examine the association of maternal exposure to IPV with childhood development in the non-western setting of Jordan. The results confirm previous findings in western countries that exposure to IPV is negatively associated with childhood development. One limitation of this study is that the survey may not fully capture the frequency or magnitude of IPV in Jordan. The findings from this research can be used to inform policies regarding intimate partner violence and child welfare.

INTRODUCTION

Intimate partner violence against women is an important public health concern that has been studied largely in western settings. The indirect and direct social, intellectual, and behavioral effects of exposure to IPV on children, however, require further study, particularly in non-western cultures. The 2007 Jordan Demographic Health Survey (JDHS) is the first to include both a module on domestic violence and childhood development, providing the opportunity to explore the effects of exposure to IPV on children in a lower middle income, Middle Eastern setting. Previous survey research in Jordan has found that nearly one in four women experience physical violence, primarily perpetrated by husbands, fathers, and brothers (Nasser, Belbeisi, & Atiyat, 1998). In this study, we expect that maternal exposure to IPV will be associated with poorer cognitive abilities, social skills and hygiene behaviors in children. This analysis provides a baseline for the impact of exposure on childhood development in the country of Jordan.

BACKGROUND

Definitions and Prevalence of IPV and Children's Exposure

Intimate Partner Violence (IPV) refers to physical, sexual, or psychological harm or threats of physical or sexual harm by a current or former partner or spouse of the same or opposite sex (Saltzman, Fanslow, McMahon, & Shelley, 1999). IPV is a global problem, with 15-71% of women reporting physical and/or sexual IPV at some point in their lifetimes (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). Research shows that exposure to IPV can adversely affect the structure and health of a family unit, the health of women exposed to IPV, and the well-being of exposed children.

Holden (2003) classifies three main types of child exposure to IPV, including prenatal exposure, victimization, and witnessing of violence. The prevalence of child exposure to IPV varies widely, and is understudied in non-western countries. In the United States, 10-20% of children are estimated to be exposed to violence each year (Carlson, 2000) and approximately 30% of Canadian women report that their children witnessed violence at some point in their lives (Thomson, Saltzman, & Johnson, 2003). In addition to witnessing violence, children exposed to IPV have an increased risk of experiencing maltreatment. In an estimated 45-70% of homes characterized by IPV, child abuse also is present (Holt, Buckley, &Whelan, 2008; Hughes, 1988).

Theoretical Pathways Linking Children's Exposure to IPV to their Development

The direct and indirect pathways linking children's exposure to IPV and child development are multiple as illustrated by *Figure 1*. The conceptual model in *Figure 1* demonstrates how the mother's experience of IPV can change the nature of the mother-child relationship and affect a child's cognitive, social and behavioral development. The important role of the mother-child relationship in influencing a child's development is explained by both the *spillover hypothesis* and the *emotional security theory* (EST) (Engfer, 1988; El-Sheikh, Cummings, Kouros, Elmore-Staton, & Buckhalt, 2008). The spillover hypothesis postulates that the intimate partner relationships of the mother influence other significant relationships the mother may have, such as with her children; therefore if the mother is experiencing IPV, she may allow for the stress from this experience to adversely affect the relationships she has with her children (Engfer, 1988). The EST, on the other hand, is directly applied to IPV and children's exposure to violence. According to the EST, threats to children's emotional security (*e.g.,* witnessing

marital conflict) motivate and organize children's emotional and behavioral responses and their internal representations of the marital relationship (El-Sheikh, et al, 2008).

[Figure 1]

The conceptual model in *Figure 1* further illustrates the significance of this relationship and characterizes the indirect social and behavioral developmental effects of children's exposure to IPV by emphasizing the role of *parental stress*[1] on the mother-child relationship (as opposed to life stressors related to environmental stressors) (Owen, et al, 2006). As *Figure 1* shows, parental stress mediates the relation between IPV and internalizing and externalizing behaviors in children, suggesting that IPV influences children's adjustment both directly and indirectly through mother's experience of parenting stress. Parental stress would challenge a mother's ability to exhibit characteristics that are important to child adaptation, *e.g.* involvement, warmth or empathetic responding (Owen, et al, 2006).

Mothers who experience IPV may suffer adverse psychological or physical outcomes, which compromise their parenting, and attachment with their children, including the social, emotional, and intellectual stimulation that young children need for optimal development (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003; Holden, 2003). In a review of the literature, an estimated 30-60% of women who experience IPV show signs of post-traumatic stress disorder, low self-esteem, depression and anxiety (Holtzworth-Munroe, Smutzler, & Sandin, 1997). Impaired maternal functioning may also compound behavioral problems of the child that limit a child's intellectual achievement (Levendosky & Graham-Bermann, 1998). Conversely, strong parenting

[1] Owens, Kaslow and Thompson (2006) define parenting stress as a type of maternal stress that relates specifically to the challenges associated with parenting, distinguishing it from general life stress.

characterized by a positive mother-child relationship can mitigate the adverse effects of exposure to IPV, particularly for preschool-aged children (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003; Grych, Raynor, & Fosco, 2004).

The conceptual model discussed outlines just one of many potential mediating factors between IPV and child development. Literature suggests that other potential mediating factors include family size and structure (Cox, Kotch, & Everson, 2003), maternal and child age (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Cox, et al, 2003; Sternberg, Baradaran, Abbot, Lamb, & Guterman, 2006; Fantuzzo & Fusco, 2007; Graham-Bermann & Perkins, 2010), ethnic and regional differences (Deater-Deckard, Dodge, Bates, & Pettit, 1996; Bradley & Corwyn, 2000; Ybarra, Wilkens, & Lieberman, 2007; El-Sheikh, et al, 2008), SES and income/wealth index (Huth-Bocks, 2001; Repetti & Seeman, 2002; Cox, et al, 2003; Ybarra, et al, 2007), and maternal educational level (Cox, et al, 2003; Clark, Hill, Jabbar, & Silverman, 2009).

Evidence of the Direct Developmental Effects of Children's Exposure to IPV

As previously discussed, children's exposure to IPV has direct and indirect adverse effects on various aspects of their development and adjustment. The dimensions of IPV with potential implications for children's development include the type of violence, the nature of specific acts, its injurious effects, and the timing, frequency, duration, and child's age at exposure (Holden, 2003). Age of the child is of particular importance, as young children often lack the emotional maturity and coping mechanisms necessary to process the occurrence of violence, and because the majority of child witnesses are younger than five years old (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 2007).

The direct effects of children's exposure to IPV include possible disruption of children's stress-related regulatory systems, impairing cognitive functioning and intellectual development, and causing physiological alterations of the brain, particularly in the neuroendocrine system (Repetti, Taylor, & Seeman, 2002; Holden, 2003). Overall, children's exposure to IPV may directly impair a child's ability to cope with stress and to process or regulate their emotions (Holden, 2003).

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The indirect adverse effects of children's exposure to IPV are diverse and may include both short term and long term outcomes. Longitudinal studies show that children's exposure to IPV affects their intellectual functioning and internalizing or externalizing behavior (Huth-Bocks et al 2001; Koverola, Papas, Pitts, Murtaugh, Black, & Durowitz, 2005), which can lead to maladaptive emotional and behavioral development, specifically anxiety, depression, post-traumatic stress and aggressiveness (Edleson, 1999). Child witnesses are more likely to display academic deficits, such as weaker academic performance and impaired concentration, and may have more difficulty than their unexposed peers with the development of language-related skills (Carlson, 1984; Hughes, 1988; Jaffe, Wolfe, Wilson, & Zak, 1985).

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Everson, 2003). In addition to impairments in development and adjustment, children exposed to IPV and *adversity*[2] more broadly are at higher risk for poorer care and morbidities across the life course, including lower immunization coverage (Felitti, et al, 1998; Bair-Merritt, Blackstone, & Feudtner, 2006), reduced physical growth (Yount, Ramakrishnan, DiGirolamo, epub., 2011), as well as ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease (Felitti, et al.,1998; El-Sheikh, Harger, and Whitson, 2001).

Gaps in Knowledge and Objectives for Study

Although research on violence against women and the effects of violence on children is growing, there remains a reliance on small, purposive samples largely from the United States. Similarly, there is a lack of empirical evidence cross culturally. To fill these gaps, in this study we will explore the adjusted association of sexual, physical, and emotional IPV with selected aspects of children's behavioral and cognitive or intellectual development among a national sample of 2,413, children aged 3-8 years in Jordan, a lower middle-income Middle Eastern country in which IPV is prevalent and the government has invested heavily in children's academic achievement. The data come from the 2007 Jordanian Demographic and Health Survey (JDHS), which is the first to collect data on IPV and selected aspects of childhood development. The findings provide important cross-cultural insights about the associations of IPV with selected aspects of child development.

[2] Childhood adversity is the occurrence of negative experiences in a child's life, including abuse, which contributes to morbidity and mortality in adult life (Felitti, et al, 1998)

SETTING

The Hashemite Kingdom of Jordan is a constitutional monarchy divided into three primary regions (the north, central and south) and 12 governorates with a population of over 6 million people. Jordan shares its borders with the Red Sea, Israel and Palestine to the west and Syria, Iraq, and Saudi Arabia to the east. The majority of Jordan's population is Arab, and more than 92% of Jordanians are Sunni Muslims, and about 6% are Christians who live mainly in Amman, Madaba, Karak and Salt (CIA World FactBook, 2011).

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Despite the high rates of literacy and educational attainment among women, nearly 90% of women do not work outside of the home. Of the women who do work outside of the home, most earn less than their husbands; however, more than 85% of married women report that they participate in decisions regarding their own health care and visits to family, and more than 70% say they contribute to decisions about making daily and major household purchases (JDHS, 2007).

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The occurrence of IPV has been gaining public visibility in Jordan. With the increasing globalization of the country, family violence has become a part of the public dialogue, as it is believed to be linked to a variety of social problems affecting the family (Shtaiwi, Shakhatreh, Gharaibeh, & Oweis, 2005). Various nongovernmental organizations have taken a prominent role in bringing attention to family violence, such as the National Council of Family Affairs, through offering public forums and publicizing these issues. Within local police departments, Family Protection Units (FPUs) have been established to provide a safe forum for women to talk about their abuse, which has contributed to an increase in reporting of family violence (Oweis, Gharaibeh, Al-Natour, & Froelicher, 2009).

SAMPLE AND DATA

The data for this analysis was drawn from the 2007 Jordan Demographic Health Survey (JDHS), a nationally representative cross-sectional study of households, which employed a two-stage stratified sample design. The sample of the 2007 JDHS was selected from the frame of cluster units provided by the Department of Statistics (DOS), which excluded the population living in remote areas (most of whom are nomads), as

well as those living in collective housing units, such as hotels, hospitals, work camps, and prisons (JDHS, 2007). In total, the survey included 930 clusters (637 urban and 293 rural) with 14,564 households (99% of households) and 10,876 ever-married women aged 15-49 (98% of women).

The JDHS covers a multitude of areas, including demographic and socioeconomic characteristics, reproduction, family planning, health care, breastfeeding and child health care, marriage and female employment, fertility preferences, nutritional status of children under five years of age, knowledge of Acquired Immune Deficiency Syndrome (AIDS) and sexually-transmitted infections (STIs), domestic violence and early childhood development.

The eligible sample for this analysis consists of 8,392 mother-child pairs in which the mother was selected for the domestic violence module and the youngest child between the ages of 3-8 was involved in the child development module. Observations were removed from the data if mothers did not participate in the domestic violence module (n=5,086) or responses were missing for the domestic violence module, child development module or any of the control variables (n=992). The final sample included 2,413 mother-child pairs.

The outcome variables included six measures of child development, which were divided into three developmental categories. In the first developmental category, *cognitive abilities*, the variables included child's ability to count (cannot count/can to 10/can count higher than 10) and child's ability to identify own name or the names of siblings or friends when child sees them in a story, a book, or elsewhere (yes/no). In the second developmental category, *hygiene behavior*, the variables included child brushes

teeth (yes/no) and child washes hands after using the toilet (yes/no). The third category encompassed *social skills* and included: child participates in family discussions (yes/no/not allowed to participate) and how child manages misunderstandings with friends in the neighborhood (discusses disagreement with friends in positive way/withdraws from situation/resorts to shouting and violence/other/don't know).

The main explanatory variables for IPV in the JDHS include: whether a woman's current/past husband has ever said or done something to humiliate her (yes/no) or ever threatened to hurt or harm her (yes/no); whether a woman's current/past husband had ever physically forced her to have sexual intercourse with him even though she did not want to (yes/no); and whether a woman's current/last husband had ever pushed, shaken or thrown something at her; slapped or twisted her arm; punched her with his fist or with something that could hurt her; kicked her, dragged or beaten her; tried to choke or hurt her on purpose; threatened her with a knife, gun or any other weapon; and/or, attacked her with a knife, gun or any other weapon (yes/no). These were combined to create a variable indicating overall experience of IPV (ever/never).

Eleven household, maternal, and child variables were included in the multivariate analysis to adjust for confounding of the relationship between maternal exposure to violence and measures of childhood development. Household attributes included household size, wealth quintile (five categories ranging from lowest to highest), region of residence (North, South, East, West), and residence in a Badia region. Attributes of the mother included number of living children, maternal age at birth of child, age at first marriage, number of other wives in the household, and highest level of education attained by mother (no education/elementary or preparatory level/secondary/intermediate

diploma/bachelors/higher than bachelors). Attributes of the child included the child's age and gender.

METHODS

Univariate analyses were conducted initially to examine the distribution and completeness of the variables. Logistic regression was used for binary outcomes to estimate the unadjusted and adjusted associations of measures for violence with child development. The appropriate region-by-urban/rural residence population weights and standard errors were used to compensate for the multistage, stratified, or cluster sample design. All analyses were conducted using SAS 9.2 software.

RESULTS

Characteristics of the Sample

Mother-child dyads are evenly distributed geographically throughout the northern (35.0%), central (36.3%) and southern (28.7%) regions of Jordan and nearly 15% of the mother-child dyads are from Badia regions. The mean number of individuals per household was nearly 7. The vast majority of mothers were currently married and in a monogamous relationship (95.9%) and, on average, mothers were 31.8 years of age (SD=5.5). The legal age of marriage in Jordan is 18 and nearly 23% of women reported their age at first marriage as below the legal limit. Within the mother-child dyads, all of the women reported having received some level of education, and 30.9% had received a diploma, bachelors degree or higher. The majority of children in the mother-child dyads are 3-4 years of age (79.40%) and male (90.9%).

[Table 1]

Prevalence of Developmental Outcomes in Children and IPV in their Mothers

Mothers were asked to report on six childhood development measures for their youngest child between the ages of 3 to 8 years old. Regarding measures for cognitive abilities, 76.8% of children could not count above the number ten. Nearly 27% of children could recognize their name or the name of a sibling in a book. In regards to measures for hygiene behavior, 86.8% of children washed their hands after using the toilet and only 47.3% brushed their teeth. In regards to social skills development, 80% of children participated in family discussions and only 5% of children responded to a fight with a friend in a positive manner by discussing the issue calmly.

Regarding experience of IPV, nearly 12% of women had experienced physical violence since they were 15 perpetrated by their mother or father. Nearly 30% of women reported having ever experienced a form of physical, sexual or emotional IPV.

Regression Results

Child's Cognitive Abilities. Maternal reporting of ever experiencing intimate partner violence (IPV) was associated with lower unadjusted (OR: 0.8; CI: 0.6, 0.9; p=0.01) and adjusted (OR: 0.8; CI: 0.6, 0.9; p=0.02) odds of a child's ability to count above the number ten. Also, maternal reports of ever experiencing IPV was associated with lower unadjusted (OR: 0.8; CI: 0.7, 1.0; p=0.11) and adjusted (OR: 0.9; CI: 0.7, 1.0; p=0.12) odds of a child's ability to recognize his/her name or the name of a sibling in a book.

Child's Hygiene Behavior. Maternal reporting of IPV was associated with lower unadjusted (OR: 0.7; CI: 0.6, 0.9; p<0.001) and adjusted odds (OR: 0.8; CI: 0.6, 0.9; p=0.002) of a child brushing his/her teeth. Maternal reporting of IPV was associated with

lower unadjusted (OR: 0.8; CI: 0.6, 1.0; p=0.09) and adjusted (OR: 0.9; CI: 0.7, 1.1; p=0.2) odds of a child washing his/her hands after using the toilet.

Child's Social Skills. Unexpectedly, maternal reports of IPV were not significantly associated with either a child's participation in family discussions or a child's management of disagreements with friends. Maternal reporting of IPV was associated with lower unadjusted (OR: 04; CI: 0.2, 0.7; p<0.001) and adjusted (OR: 0.5; CI: 0.3, 0.8; p=0.006) odds of a child responding positively to a disagreement with friends.

[Table 2]

DISCUSSION AND CONCLUSIONS

This study was the first to examine the effects of IPV on childhood development in the non-western setting of Jordan. We used the 2007 Jordan Demographic Health Survey to investigate the associations between violence experienced by women and the developmental effects of exposed children.

The results show that maternal exposure to IPV has a detrimental effect on multiple aspects of childhood development. In this study, children were significantly less likely to be able to count to ten, brush their teeth and manage disagreements with friends in a positive way. Also, children were less likely to wash their hands after using the toilet and recognize their own name or a name of a sibling in a book. Interestingly, maternal exposure to IPV did not appear to inhibit a child's participation in family discussions. The results reflect the overall findings in the literature that maternal exposure to IPV is associated with poorer childhood development.

This study experienced several limitations. In general, surveys may not measure the actual number of women who have been abused but rather the women disclosing that they suffered abuse (Boy and Kulczycki, 2008). Also, this survey did not target any ethnic minorities within Jordan, notably refugee populations (primarily Palestinian) residing in Jordan which typically have higher rates of IPV. For the childhood development module, mothers were asked to identify the youngest child between 3 and 8 which resulted in the majority of children being between 3 and 4 years of age. Although child age was factored into the logistic regression models as a control variable, the results, in part, may reflect the influence of age on a child's ability to complete certain tasks.

For future research using this dataset, it will be useful to examine the effects of each specific form of violence, physical, emotional and sexual, as well as the time at which it occurred, in the past 12 months versus not in the past 12 months, to better understand the association between violence and childhood development. For future research on this topic, in general, a longitudinal study on the long-term effects of childhood exposure to violence is highly needed.

The findings from this research can be used to inform policies regarding intimate partner violence and child welfare, as well as create a community dialogue in Jordan to address IPV in the most culturally appropriate manner.

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TABLES AND FIGURES

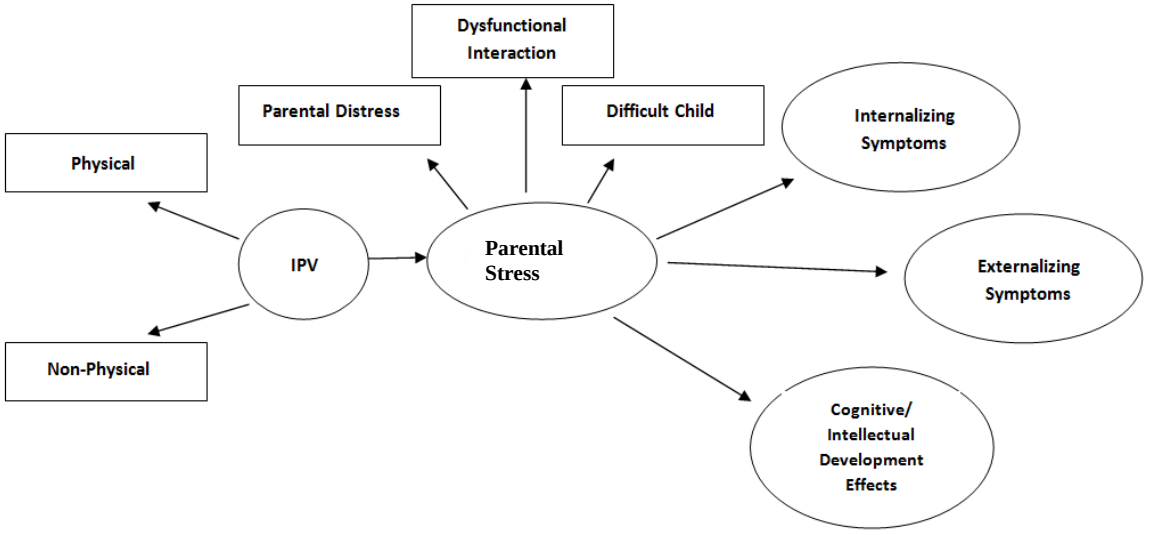

Figure 1. Conceptual model showing relations among intimate partner violence (IPV), parenting stress, a child's internalizing and externalizing symptoms, and a child's cognitive and intellectual development. (Owen, Kaslow and Thompson, 2006)

Table 1. Descriptive statistics, mothers 15-49 years & children 3-8 years, *n=2413* (Jordan 2007 DHS)

Variable	Mean/%	Std. Deviation	Min	Max
Maternal IPV Exposure				
Experience of Intimate Partner Violence	29.8			
Prior Exposure				
Childhood Development Variables				
Cognitive Abilities				
Child Can Recognize Name or Names of Siblings in Books	26.6			
Child Can Count Above Ten	23.2			
Child's Hygiene Knowledge				
Child Brushes Teeth	11.4			
Child Washes Hands	86.8			
Child's Social Skills				
Child Participates in Family Discussions	80.2			
Child Manages Disagreements with Friends in Positive Way	4.5			
Children's Attributes				
Age in Years				
3-4	79.1			
5-6	14.9			
7-8	5.9			
Gender				
Male	90.9			
Women's Attributes				
Age of Women	31.8	5.5	20	49
Married without Co-Wives	4.1			
Age at First Marriage				
Under 18	22.6			
Highest Educational Level Attained				
Elementary/Preparatory	30.1			
Secondary/Intermediate Diploma	38.9			
Bachelors or Higher	31.0			
Household Attributes			3	17
No of HH Members	6.5	2.1		
Wealth Index				
Low	58.0			
Middle	21.2			
High	20.8			
Regional Attributes				
North	35.0			
Central	36.3			
South	28.7			
Badia Population	14.8			

Table 2. Logistic regression statistics, mothers 15-49 years & children 3-8 years, *n=2413* (Jordan 2007 DHS)

	Unadjusted		Adjusted	
	OR	95% CI	OR	95% CI
Child's Cognitive Ability				
Child Recognizes His/Her Name or Names of Siblings in Books				
Ever Any IPV	0.8	(0.7, 1.0)	0.9	(0.7, 1.1)
Child Is able to Count Over 10				
Ever Any IPV	0.8	(0.6, 0.9)*	0.8	(0.6, 0.9)*
Child's Hygiene Behavior				
Child Brushes Teeth				
Ever Any IPV	0.7	(0.6, 0.9)*	0.8	(0.6, 0.9)*
Child Washes Hands				
Ever Any IPV	0.8	(0.6, 1.0)	0.9	(0.7, 1.1)
Social Skills				
Participates in Family Discussions				
Ever Any IPV	1.0	(0.8, 1.3)	1.1	(0.9, 1.3)
Manages Fights in Positive Way				
Ever Any IPV	0.4	(0.2, 0.7)*	0.5	(0.3, 0.8)*

*Indicates $p<0.05$

**Control variables included age of mother at birth of child, total number of children, Badia ethnicity, level of education of mother, wealth index, prior experience of violence, region of residence, gender of child, number of other wives in the household, and age at first marriage

Chapter 3: Discussion, Conclusion, and Recommendations

Intimate partner violence against women is an important public health concern that has been studied largely in western settings. The indirect and direct social, intellectual, and behavioral effects of exposure to IPV on children, however, require further study, particularly in non-western cultures. The 2007 Jordan Demographic Health Survey (JDHS) is the first to include both a module on domestic violence and childhood development, providing the opportunity to explore the effects of exposure to IPV on children in a lower middle income, Middle Eastern setting. Previous survey research in Jordan has found that nearly one in four women experience physical violence, primarily perpetrated by husbands, fathers, and brothers (Nasser, Belbeisi, & Atiyat, 1998). In this study, we expected that maternal exposure to IPV would be associated with poorer cognitive abilities, social skills and hygiene behaviors in children. The analysis provided a baseline for the impact of exposure on childhood development in the country of Jordan.

The data for this analysis was drawn from the 2007 Jordan Demographic Health Survey (JDHS), a nationally representative cross-sectional study of households, which employed a two-stage stratified sample design. The sample of the 2007 JDHS was selected from the frame of cluster units provided by the Department of Statistics (DOS), which excluded the population living in remote areas (most of whom are nomads), as well as those living in collective housing units, such as hotels, hospitals, work camps, and prisons (Jordan DHS, 2007). In total, the survey included 930 clusters (637 urban and 293 rural) with 14,564 households (99% of households) and 10,876 ever-married women aged 15-49 (98% of women).

The JDHS covered a multitude of areas, including demographic and socioeconomic characteristics, reproduction, family planning, health care, breastfeeding and child health care, marriage and woman employment, fertility preferences, nutritional status of children under five years of age, knowledge of Acquired Immune Deficiency Syndrome (AIDS) and sexually-transmitted infections (STIs), domestic violence and early childhood development.

The eligible sample for this analysis consists of 8,392 mother-child pairs in which the mother was selected for the domestic violence module and the youngest child between the ages of 3-8 was involved in the child development module. Observations were removed from the data if mothers did not participate in the domestic violence module (n=5086) or responses were missing for the domestic violence module, child development module or any of the control variables (n=992). The final sample included 2413 mother-child pairs.

Mothers were asked to report on seven childhood development measures for their youngest child between the ages of 3 to 8 years old. Univariate analyses were conducted initially to examine the distribution and completeness of the IPV variable and six measures of childhood development, ranging from cognitive abilities, hygiene behavior and social skills. Logistic regression was employed for binary outcomes to estimate the unadjusted and adjusted associations of measures for violence with child development.

Regarding measures for cognitive abilities, 76.8% of children could not count above the number ten. Nearly 27% of children could recognize their name or the name of a sibling in a book. In regards to measures for hygiene behavior, 86.8% of children washed their hands after using the toilet and only 47.3% brushed their teeth. In regards to

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