

FULL TITLE: Violence against Pregnant Women Can Increase the Risk of Child Abuse: A Longitudinal Study

RUNNING HEAD:

PREGNANCY VIOLENCE AND CHILD ABUSE

AUTHORS:

Ko Ling Chan, PhD,^a

Douglas A. Brownridge, PhD,^b

Daniel Y.T. Fong, PhD,^c

Agnes Tiwari, PhD, Agnes^c

Wing Cheong Leung, MBBS, FRCOG, FHKAM(O&G)^d

Pak Chung Ho, MBBS ; MD (HK) ; FRCOG ; FHKCOG ; FHKAM (O&G)^e

AFFILIATIONS:

^a Department of Social Work & Social Administration, The University of Hong Kong

^b Department of Family Social Sciences, University of Manitoba, Winnipeg, Canada

^c Department of Nursing Studies, LKS Faculty of Medicine, The University of Hong Kong

^d Department of Obstetrics & Gynaecology, Kwong Wah Hospital, Hong Kong

^e Department of Obstetrics & Gynaecology, LKS Faculty of Medicine, The University of Hong Kong.

CORRESPONDING AUTHOR:

Dr. Ko Ling Chan, Department of Social Work and Social Administration, The University of Hong Kong, Pokfulam, Hong Kong.

Phone no.: 852-2859 2077

Fax no.: 852-2858 7604

Email address: eklchan@hkucc.hku.hk

DECLARATION:

The manuscript has not been published elsewhere, and is not under consideration by any other journal.

FUNDING SOURCE & ACKNOWLEDGEMENT:

The work described in this paper was fully supported by a grant from the Central Policy Unit of the Government of the Hong Kong Special Administrative Region and the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. HKU7002-PPR-10).

Abstract

Objective. (a) To assess the impact of intimate partner violence (IPV) against pregnant women on subsequent perpetration of child abuse and neglect (CAN) by parents; and (b) to test the mediation effect of recent IPV on the link between IPV during pregnancy and subsequent CAN.

Method. This study was a longitudinal follow-up of a population-based study on pregnancy IPV conducted in antenatal clinics in 7 public hospitals in Hong Kong in 2005. Of all participants in the 2005 study, we recruited 487 women (with 184 having reported pregnancy IPV in the 2005 study) with newborn babies for a follow-up telephone interview in 2008. Participants responded to the Abuse Assessment Screen (AAS), the Parent-Child Conflict Tactics Scale, and some questions assessing demographic information.

Results. The most common form of physical violence was corporal punishment, with a prevalence rate of 75.1% in the preceding year and 75.4% over their lifetime. Physical maltreatment was less likely to be reported, accounting for 4.7% in the preceding year and 4.9% over their lifetime. The preceding-year and lifetime prevalence rates of neglect were 11.3% and 11.5%, respectively. Findings from logistic regression analyses showed that IPV experienced by participants during pregnancy was associated with greater odds of both lifetime (aOR = 1.74) and preceding-year child physical maltreatment (aOR = 1.78). Results of the regression analyses also provided supportive evidence for the mediation effect of recent IPV victimization on the relationship between IPV during pregnancy and recent CAN against children.

Conclusions. IPV against women during pregnancy predicted subsequent CAN on newborns in Chinese populations. This underscores the importance of screening

pregnant women for IPV in order to prevent CAN at an early stage. Home visitations are suggested to break the cycle of violence within a nuclear family.

Keywords:

pregnancy; intimate partner violence; child abuse and neglect

Existing studies on the relationship between child abuse and intimate partner violence (IPV) usually focus on child abuse and neglect (CAN) in childhood as a predictor of IPV in adulthood (Bank & Burraston, 2001; Heyman & Slep, 2002). Several longitudinal studies have established the causal relationship between childhood maltreatment and adulthood IPV in nationally representative samples (English, Marshall, & Stewart, 2003; Fang & Corso, 2008; White & Smith, 2009). More recent research has examined the co-existence of CAN and IPV within the same nuclear family and found that rates range from 19% to 60% (Casanueva, Kotch, & Zolotor, 2007; Edleson, 1999), depending on the definition of child abuse and sampling methods (Appel & Holden, 1998). Children living in families characterized by IPV are at risk for a variety of adjustment difficulties (Bourassa, 2007; Finkelhor, Orrarod, & Turner, 2007; Jouriles, Norwood, McDonald, & Peters, 2001; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003) and are more likely to be abused by parents physically or psychologically (Appel & Holden, 1998; Edleson, 1999; Tajima, 2000). Other studies have found that IPV correlates with all forms of CAN, including physical abuse, psychological aggression and neglect (Berger, 2005; Kerker, Horwitz, Leventhal, Plichta, & Leaf, 2000; Parkinson, Adams, & Emerling, 2001).

Despite the fact that IPV and CAN have been found to co-exist in the same families, these studies were mainly cross-sectional, so they could not determine whether or not IPV is a causal factor for CAN. The studies did not differentiate the temporal order of IPV and CAN episodes, so they could not determine whether IPV causes CAN. Two longitudinal studies have confirmed that IPV is a causal factor for child physical and sexual abuse, but not child neglect (Lee, Kotch, & Cox, 2004; Rumm, Cummings, Krauss, Bell, & Rivara, 2000). And one longitudinal study showed that IPV could predict later child physical abuse, psychological abuse and

neglect (McGuigan & Pratt, 2001).

Pregnant women are a vulnerable population for whom the connection between IPV victimization and subsequent CAN perpetration may be particularly salient. IPV against pregnant women greatly affects the quality of care newborn children receive. Studies have shown that IPV victims are more likely than non-victims to abuse their children (Casanueva & Martin, 2007; Milner, 1986).

There have been a growing number of studies attempting to derive possible mechanisms of how IPV influences CAN. Existing evidence has demonstrated that IPV during pregnancy is associated with poor maternal health (Huth-Bocks, Levendosky, & Bogat, 2002), negative prenatal representations of infants, insecure attachment of mothers to their infants and more negative affects expressed by mothers when talking about their infants (Huth-Bocks, Levendosky, & Bogat, 2004), which might be associated with more negative parenting behaviors on infants (McElwain & Volling, 1999). In addition, Huth-Bocks et al. (2004) has found that abused pregnant women are more likely than their non-abused counterparts to have negative prenatal maternal representations of infants, and these negative representations have recently been shown to be associated with more controlling and hostile parenting behaviors towards children (Dayton, Levendosky, Davidson, & Bogat, 2010).

IPV during pregnancy may also be related CAN in other ways. IPV victims may be preoccupied with their abusive situation and thus less able than non-IPV victims to attend to their children's needs, leading to possible child neglect (McKay, 1994). For example, research has shown that women abused during pregnancy are less likely to bring their newborn children for regular health checks; hence, their children are less likely to be fully immunized (Bair-Merritt et al., 2008).

Even though a few longitudinal studies have examined the causal relationship

between IPV and CAN, research to date has mainly been conducted in Western societies. It is unclear if the existing findings can be generalized to the Chinese populations, whose culture and traditions are very different with their Western counterparts. For example, the emphasis on the filial piety and absolute parental authority in the Chinese populations may lay the ground for child abuse to take place (Tang, 1998). Indeed, Chinese people have been found to be more tolerant to CAN, more likely to underreport CAN cases, more reluctant to regard neglect as “abuse”, and less likely to ask for investigation by protective agencies than Westerners (Elliott, Thomas, Chan, & Chow, 2000; Hong & Hong, 1991).

In addition, Chinese parents tend to view beating and slapping on children as non-abusive acts (Chan, Chun, & Chung, 2008), and to endorse aversive parenting styles like physical punishment or controlling behaviors (Lau, 2010; Wu et al., 2002). A traditional belief of Chinese parents is that strict disciplinary strategies and even physical aggression help build a competent child (Tang, 2006), in particular, a boy who is expected to be the inheritor of the family clan (Lam, 1992). Physical or corporal punishment, which refers to the use of physical force to inflict pain (but not injury) on children (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998), is therefore a very common practice in the Chinese societies in disciplining and controlling children. As in Western countries, the distinction between corporal punishment and physical abuse is not always clear in Chinese societies; yet, Chinese parents tend to distinguish the two by perpetrators’ intent (good versus bad) unless severe injuries are involved (Kwok & Tam, 2005).

The present study used a representative sample of pregnant Chinese women in Hong Kong for a longitudinal examination of IPV and CAN. With regard to the findings of previous studies that IPV may cause CAN, we hypothesized that IPV

against a woman during her pregnancy is a risk factor for subsequent CAN. In addition, based on the literature which suggests the recurrence of IPV (e.g. MacFarlane, Parker, Soeken, & Bullock, 1992; Sonis & Langer, 2008), we hypothesized that IPV during pregnancy would be related to subsequent IPV, and the former would mediate the association between the former and subsequent CAN.

Method

This investigation was a longitudinal follow-up study to one previously conducted by the authors between July 2005 and April 2006 (hereafter referred to as “the 2005 Study”). The 2005 Study was the first population-based survey on IPV against pregnant women in Hong Kong, and it involved the obstetrics and gynaecology departments in seven hospitals. A total of 3,245 women (≥ 18 years old) between 32 and 36 weeks of pregnancy were recruited for the study. A complete description of the research design and sampling has been published elsewhere (Tiwari, et al., 2008). The study assessed the prevalence and risk factors of IPV, as well as its impact on pregnant women. Among the 3,245 female subjects, 296 (9.1%; 95% CI: 8.2%–10.2%) reported that they were abused by their intimate partners in the year preceding the study. The current study follows up with a sub-sample of the subjects who participated in the 2005 Study to investigate the impact of pregnancy violence on child maltreatment.

Of the 296 abused pregnant women in the 2005 Study, 283 still had valid contact information, and 184 of them were successfully contacted for a phone interview. Demographic background of these participants ($n = 184$) was compared with that of the ones who had not participated due to refusal or loss of contact ($n = 112$). No statistically significant difference was found between the two groups in

terms of their age, marital status, educational level and number of children. We then randomly sampled 481 subjects from the non-abused group, and 303 were successfully recruited for the study. That means a total of 764 Chinese women with newborn babies were invited to participate in this study, and 487 were successfully interviewed over the telephone between September 2008 and March 2009 (hereafter called “the 2008 Study”), representing a 64% response rate. The non-responses included 27% non-successful contacts and 9% refusals. The characteristics of the women participating in the 2008 Study ($n = 487$) were compared with the remaining others who had participated in the 2005 Study ($n = 2758$). No significant differences were found between them in terms of age, education, employment status and income. All respondents provided informed consent prior to their interviews and were informed that they could refuse to answer any of the questions. Confidentiality of the data was guaranteed. The 2008 Study was approved by the institutional review board of the University of Hong Kong and Hospital Authority Hong Kong West Cluster.

Table 1 provides the demographic characteristics of the respondents. A great majority of the 487 respondents were married, while only 3.7% were divorced or separated. Most of the respondents had a small family with one (41.7%) or two (45.2%) children. Over half of the children were male (53.8%). The mean age of their children was 2.7. About 72% of mothers were aged 30 to 39, with the others more or less evenly spread across the 20-29 and 40-44 age groups. Over half of the fathers were aged 30-39, about 34% were aged 40-49, 7.2% were aged 20-29, and 4.8% were aged 50 or above. The mean age of the mothers (34.4) was slightly lower than the mean age of the fathers (37.9). Education levels between the mothers and fathers were similar, with the majority having been educated to the secondary-school level (64% and 59.2%, respectively). Far fewer respondents had attended tertiary schools (22.8%

and 28.4%, respectively).

An analysis of the prevalence of abuse among the respondents in the 2005 Study revealed that 37.8% reported having been abused in the preceding year and 26% reported having been abused during pregnancy. In the 2008 Study, 20.7% reported having been abused in the preceding year.

[Table 1 about here]

Measures

The questionnaire had three main components: an introductory section with demographic questions, the scales on child abuse, and the correlates of child abuse.

Partner violence. In this study, the Abuse Assessment Screen (AAS) (Soeken, McFarlane, Parker, & Lominack, 1998), which consists of six yes/no questions, was used to elicit the history of violence against pregnant women over their lifetime, during the year preceding the study, and during their pregnancy. The AAS has been used extensively in many different healthcare settings and has demonstrated satisfactory psychometric properties internationally (Soeken et al., 1998) and in Hong Kong (Leung, Kung, Lam, Leung, & Ho, 2002). For example, the AAS had satisfactory construct validity when the original authors compared it with other instruments such as the Conflict Tactics Scale and Index of Spouse Abuse (Soeken et al., 1998). The Chinese version of AAS was used to address emotional and physical violence separately for all three time periods (lifetime, the preceding year and during pregnancy). Developed with the permission of the original authors, the Chinese AAS demonstrated satisfactory measurement accuracy for identifying intimate partner violence among Chinese women in a previous study (Tiwari, et al., 2007).

Child maltreatment. The Parent-Child Conflict Tactics Scale (CTSPC) was used to measure child maltreatment (Straus et al., 1998). This scale is based on

conflict theory, and it covers physical assaults, as well as other tactics to deal with conflicts (e.g., neglect). In this study, we asked the mother respondents to report child abuse and neglect experiences (if any) of their newborn babies perpetrated by either the respondents or their partners using four subscales of the CTSPC: *corporal punishment* such as spanking and slapping on the bottom, hand, arm or leg, pinching and shaking (five items); *physical maltreatment* such as slapping, hitting, throwing and knocking children down (four items); and *severe physical maltreatment* such as beating, grabbing, burning and threatening with weapons (four items), as well as *neglect*, such as leaving children home alone, and withholding food and medical care when children are in need of them (five items). The psychometric characteristics of the instrument—including its reliability, discriminant validity and construct validity—have been well documented (Straus, et al., 1998). The CTSPC was translated into Chinese and examined by a group of experts, including a psychologist, a sociologist and social work scholars. It was validated using Hong Kong data and was found to have satisfactory reliability and validity (Chan, 2005). In the present study, the Chinese version of the CTSPC demonstrated satisfactory reliability, with Cronbach's alpha ranging from .77 to .88.

Socio-economic status and demographic characteristics. Demographic questions included age; education level; marital status; social and economic characteristics; social support; health status; family characteristics such as newly arrived members, single-parent family, remarriage or step-families, spousal age difference and family members with chronic illness, disability or mental illness; and family conditions such as receiving social security, unemployment, low income, poverty, dual-working parents, a parent working in Mainland China and young couples with a newborn baby.

Statistical analyses

The lifetime and preceding-year prevalence of CAN, including corporal punishment, physical maltreatment and neglect, was obtained through descriptive statistics and compared across gender using chi-square tests.

Logistic regression analyses were used to examine the associations of pregnancy IPV and demographic factors with subsequent child physical abuse and neglect. In these analyses, child physical abuse cases were defined as those who reported corporal punishment and/or physical maltreatment. Adequacy of all logistic regression models was assessed by the Hosmer-Lemeshow test. The nominal level of significance was taken as 5% and SPSS version 17 was used to carry out the statistical analysis.

To test whether current IPV (IPV reported in the 2008 Study) would mediate the associations between IPV during pregnancy (IPV reported in the 2005 Study) and current CAN (reported in the 2008 Study), we conducted a series of regression analyses using the steps recommended by Baron and Kenny (1986). In particular, a significant mediation effect required: (a) a significant relationship between the 2005 IPV and 2008 CAN; (b) a significant relationship between the 2005 IPV and 2008 IPV; (c) a significant relationship between the 2008 IPV and 2008 CAN; and (d) a non-significant or reduced relationship between the 2005 IPV and 2008 CAN with the presence of the 2008 IPV. In this case, if the relationship between the 2005 IPV and 2008 CAN is reduced substantially but remains significant, partial mediation is established; on the other hand, if the relationship is reduced to non-significance, full mediation is established.

Results

Table 2 shows the prevalence of corporal punishment, physical maltreatment

and neglect among children perpetrated by either the respondents or their partners. The most common form of physical violence was corporal punishment, with a preceding-year prevalence of 75.1% and a lifetime time prevalence of 75.4%. Physical maltreatment was reported less often, occurring among 4.7% of children in the preceding year and 4.9% over their lifetime. We did not find any cases of severe physical maltreatment in the preceding year; only 0.3% children experienced severe maltreatment over their lifetime. The preceding-year and lifetime prevalence rates of neglect were 11.3% and 11.5%, respectively. No significant gender differences were found in any kinds of CAN.

[Table 2 about here]

Table 3 shows the results of the logistic regression model that was used to test the impact of the demographic characteristics and pregnancy IPV on child physical abuse, which included corporal punishment and physical maltreatment, and neglect. IPV during pregnancy reported in the 2005 Study was significantly associated with higher odds of lifetime ($aOR = 1.74$ [95% $CI = 1.07, 2.83$], $p < .05$) and preceding-year physical child abuse ($aOR = 1.78$ [1.10, 2.90], $p < .05$). However, there was no significant association between abuse during pregnancy and child neglect in this study.

Family factors were associated with CAN. Families with only one child was found to be associated with higher odds of preceding-year child physical abuse ($aOR = 2.47$ [1.57, 3.88], $p < .001$) and lifetime physical abuse ($aOR = 2.40$ [1.53, 3.77], $p < .001$). That is, being the single child of a family was associated with higher odds of being physically abused. In addition, families with younger fathers had higher odds of child neglect in the preceding year ($aOR = 0.92$ [0.86, 0.99], $p < .05$) and over the children's lifetime ($aOR = 0.93$ [0.87, 1.00], $p < .05$).

IPV during pregnancy and having only one child in the family were also associated with postnatal IPV against mothers. In this study, higher odds of preceding-year IPV in 2008 Study were found among mothers who had been abused during pregnancy ($aOR = 4.24 [2.62, 6.85], p < .001$) and those who had only one child ($aOR = 1.27 [1.06, 2.80], p < .05$).

[Table 3 about here]

In regard to the significant association between IPV during pregnancy and physical child abuse, we conducted a series of logistic regression to test the mediation effect of IPV in 2008 Study in the association. Following Baron and Kenny's steps (1986), we found: (a) a significant association between IPV during pregnancy and physical child abuse ($B = 0.51, S.E. = .24, \text{Wald } Z = 4.47, p < .05$); (b) a significant association between IPV during pregnancy and IPV in 2008 Study ($B = 1.34, S.E. = .23, \text{Wald } Z = 33.12, p < .001$); (c) a significant association between IPV in 2008 Study and physical child abuse ($B = 0.68, S.E. = .30, \text{Wald } Z = 5.16, p < .05$); and (d) a non-significant association between IPV during pregnancy and physical child abuse after IPV in 2008 Study was controlled ($B = -0.40, S.E. = .25, \text{Wald } Z = 2.63, p = .11$). These results, which are presented in Figure 1, provided support to a full mediating effect of the IPV in 2008 Study on the relationship between IPV during pregnancy and physical child abuse.

[Figure 1 about here]

Discussion

The primary purpose of this study was to identify links between IPV during pregnancy and subsequent CAN perpetrated by either the respondents or their partners. The findings were largely consistent with previous research which found that violence

between partners is likely to spill over to the parent-child relationship and result in child abuse (Jouriles et al., 2008; Margolin & Gordis, 2003; McKay, 1994; Moore & Florsheim, 2008). Overall, the present findings that parental IPV predicted subsequent CAN provided supportive evidence for the possibility of interpersonal violence to continue within a family.

This longitudinal study confirmed that IPV during pregnancy was a significant factor predicting corporal punishment and physical maltreatment against children, but not neglect. Findings suggested that women abused during pregnancy had almost twice the odds of non-abused women to have their newborns abused physically. This finding is consistent with past research (Lee et al., 2004; Rumm et al., 2000), suggesting that IPV against women, either during pregnancy or at other times, predicts physical child abuse. The association between pregnancy IPV and CAN may be in part due to the close relationship between pregnancy IPV (2005) and postnatal IPV (2008) as well as that between IPV and CAN as shown in violence literature. In this study, the odds for women abused during pregnancy to experience IPV later in life was fourfold when compared to those non-abused. The distress, anxiety and fear might preoccupy the abused mothers (Campbell, Sullivan, & Davidson, 1995), making them undependable for protection of their children from abusive acts (Casanueva & Martin, 2007) or, even worse, hostile and aggressive to their children as a way to express their feelings.

This study also revealed supportive evidence for the mediation effect of recent (or postnatal) IPV victimization on the link between IPV during pregnancy and physical child abuse. Such finding provides insight for the underlying mechanism of how IPV affects CAN. Other than the possible mediators and moderators as found in past research including poor maternal health and negative parenting behaviors

(Dayton et al., 2010; Huth-Bocks et al., 2002; McElwain & Volling, 1999), recurrent IPV against mothers after the birth of child can be one factor directly accounts for the link between IPV during pregnancy and subsequent CAN. Yet, the analyses in this study, which were conducted on the basis of Baron and Kenny's steps (1986), were relatively preliminary. More systematic statistical procedures may be needed to confirm the mediation effect of recent IPV on the association. Future studies may include other possible mediators or moderators, e.g. postnatal maternal health, parenting styles, attachment styles and child health, in the model explaining the mechanism and test the model using more complicated path analyzing procedures such as structural equation modeling.

IPV during pregnancy was also found to be likely to recur after the delivery of the infant — a finding confirmed by another study (Rand & Saltzman, 2003). Nevertheless, research has shown that it is possible to stop the violence (Connelly, et al., 2006). Future studies can contribute to our understanding of how to stop IPV by analyzing IPV over time and by improving patient care for pregnant women. WHO has highlighted several important strategies such as “sensitizing health care providers, encouraging routine screening for abuse and drawing up protocols for the proper management of abuse (p.106-107, Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002).

Unique findings in the study may be the result of differences in samples, particularly regarding cultural factors. For example, physical child abuse in this study was found to be more common among families with a single child, which may not be consistent with some previous findings (Berger, 2005). This could be because expectations placed on single children are much higher in Chinese families and may induce more stress in parent-child relationships.

The present study also found that young fathers were more likely to neglect

their children, which was in line with previous findings that younger as compared to older parents were more likely to physical abuse their children (Tang, 2006). Prior research suggests that young fatherhood foreshadows the possibility of future child maltreatment (Guterman & Lee, 2005). The inordinate stress, fear and negative emotions resulted from the transition to parenthood and increased financial expenses, as well as limited parenting abilities, experience and knowledge can lead to negative and aggressive parenting attitudes and even withdrawal from the relationship with the mother and the baby as a method of coping with the stress (Guterman & Lee, 2005; Tang, 2006).

The longitudinal design of the present study offered the opportunity to study the temporal order of IPV during pregnancy and subsequent CAN perpetrated by either the respondents or their partners. Nonetheless, these findings are based on participants' self-reports, which can have several limitations, such as socially desirable responding, memory deterioration and denial. All of this can lead to the underestimation of violence. Despite these potential limitations, findings from this sample are particularly informative for child-abuse prevention. Increased awareness of the connection between IPV during pregnancy and subsequent CAN indicates the importance of early screening for IPV during pregnancy, as well as for corporal punishment or physical maltreatment during infancy. Clinical screening for violence should be provided during prenatal and postnatal care in order to prevent later child maltreatment. Some have argued that the AAS is a good tool to screen for IPV in a variety of healthcare settings. The Chinese AAS (Tiwari, et al., 2007) used in the present study has been improved by adding explicit examples of emotionally abusive acts in line with the improvements to the AAS suggested by Reichenheim and Moraes (2004). In addition to adopting effective screening measures, all healthcare

professionals must be trained to conduct screening for IPV and child abuse. Since women may be hesitant to disclose the IPV they have suffered for a number of reasons, including fear of the perpetrators or fear of having their children taken away, violence screening should be conducted in a sensitive manner (Casanueva & Martin, 2007). Although we have validated Chinese AAS (Tiwari, et al., 2007), IPV screening is still controversial in Hong Kong because of heavy workload and inadequate support for the proper management of abuse. Only in a few of emergency departments, and obstetrics and gynaecology departments in public hospitals can manage to conduct routine screening for IPV. In the long run, we should develop policy and protocol for universal screening.

After violence in the family is detected, victims should be provided with various types of interventions, such as mental health services, home visitation services, parent training services or domestic violence programs. Home visitation services (Olds, et al., 1999) have been proven effective in preventing child abuse. These services are generally provided as a one-/two-year course of fixed-scheduled home visitations by frontline service providers (e.g. nurses) involving screening of health, demographic background and history of family violence of women at an early stage of pregnancy, and frequent assessment of parenting behaviors, childcare and child's health. According to a 15-year follow-up study on a home visitation program, families receiving home visitations during pregnancy and infancy had significantly fewer child maltreatment reports involving the mother as perpetrator or the child as victim compared with those who received no home visitations (Echenrode, et al., 2000). With regard to its effectiveness, we suggest that home visitation services should be considered by healthcare professionals when IPV during pregnancy is detected.

This study found that IPV against women during pregnancy was associated

with subsequent child abuse. This underscores the importance of screening pregnant women for intimate partner violence in order to prevent child abuse at an early stage. Several effective measures, such as AAS and home visitation services, are suggested to help break the cycle of violence within the family.

References

- Appel, A. E., & Holden, G. W. (1998). The co-occurrence of spouse and physical child abuse: A review and appraisal. *Journal of Family Psychology*, 12(4), 578-599.
- Bair-Merritt, M. H., Crowne, S. S., Burrell, L., Caldera, D., Cheng, T. L., & Duggan, A. K. (2008). Impact of intimate partner violence on children's well-child care and medical home. *Pediatrics*, 121(3), E473-E480.
- Bank, L., & Burraston, B. (2001). Abusive home environments as predictors of poor adjustment during adolescence and early adulthood. *Journal of Community Psychology*, 29(3), 195-217.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Berger, L. M. (2005). Income, family characteristics, and physical violence toward children. *Child Abuse & Neglect*, 29(2), 107-133.
- Bourassa, C. (2007). Co-occurrence of interparental violence and child physical abuse and it's effect on the adolescents' behavior. *Journal of Family Violence*, 22(8), 691-701.
- Casanueva, C., Kotch, J., & Zolotor, A. (2007). Intimate Partner Violence and Child Abuse and Neglect. In K. A. Kendall-Tackett & S. M. Giacomoni (Eds.), *Intimate Partner Violence*. Kingston, New Jersey: Civic Research Institute.
- Casanueva, C. E., & Martin, S. L. (2007). Intimate partner violence during pregnancy and mothers' child abuse potential. *Journal of Interpersonal Violence*, 22(5), 603-622.
- Chan, K. L. (2005). *Study on child abuse and spouse battering: Report on findings of household survey*. Hong Kong: Department of Social Work & Social

Administration, The University of Hong Kong.

Chan, Y. C., Chun, P. K., & Chung, R. K. W. (2008). Public perception and reporting of different kinds of family abuse in Hong Kong. *Journal of Family Violence*, 23, 253-263.

Connelly, C. D., Hazen, A. L., Coben, J. H., Kelleher, K. J., Barth, R. P., & Landsverk, J. A. (2006). Persistence of Intimate Partner Violence Among Families Referred to Child Welfare. *Journal of Interpersonal Violence*, 21(6), 774-797.

Dayton, C. J., Levendosky, A. A., Davidson, W. S., & Bogat, G. A. (2010). The child as held in the mind of the mother: The influence of prenatal maternal representations on parenting behaviors. *Infant Mental Health Journal*, 31, 220-241.

Echenrode, J., Ganzel, B., Henderson, C. J., Smith, E., Olds, D. L., J., P., et al. (2000). Preventing child abuse and neglect with a program of nurse home visitation: The limiting effects of domestic violence. *JAMA*, 284(11), 1385-1391.

Edleson, J. L. (1999). the overlap between child maltreatment and woman battering. *Violence against women*, 5, 134-154.

Elliott, J. M., Thomas, J. I., Chan, J. S. & Chow, Y. (2000). *Professional and public perceptions of child abuse and neglect in Singapore: An overview*. Singapore: Singapore Children's Society.

English, D. J., Marshall, D. B., & Stewart, A. J. (2003). Effects of family violence on child behavior and health during early childhood. *Journal of Family Violence*, 18(1), 43-57.

Fang, X. M., & Corso, P. S. (2008). Gender differences in the connections between violence experienced as a child and perpetration of intimate partner violence

- in young adulthood. *Journal of Family Violence*, 23(5), 303-313.
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007). Poly-victimization: A neglected component in child victimization. *Child Abuse & Neglect*, 31(1), 7-26.
- Guterman, N. B., & Lee, Y. (2005). The role of fathers in risk for physical child abuse and neglect: possible pathways and unanswered questions. *Child Maltreatment*, 10(2), 136-149.
- Heyman, R. E., & Slep, A. M. S. (2002). Do child abuse and interparental violence lead to adulthood family violence? *Journal of Marriage and the Family*, 64(4), 864-870.
- Hong, G. K., & Hong, L. K. (1991). Comparative perspectives on child abuse and neglect: Chinese versus Hispanics and whites. *Child Welfare*, 70(4), 463-475.
- Huth-Bocks, A.C., Levendosky, A.A., & Bogat, G.A. (2002). The effects of domestic violence during pregnancy on maternal and infant health. *Violence and Victims*, 17(2), 169-185.
- Huth-Bocks, A. C., Levendosky, A. A., Theran, S. A., & Bogat, G. A. (2004). The impact of domestic violence on mothers' prenatal representations of their infants. *Infant Mental Health Journal*, 25, 79-98.
- Jouriles, E. N., Norwood, W. D., McDonald, R., & Peters, B. (2001). Domestic violence and child adjustment. In J. H. Grych & F. D. Fincham (Eds.), *Interparental conflict and child development: Theory, research, and applications* (pp. 315-336). New York: Cambridge University Press.
- Kerker, B. D., Horwitz, S. M., Leventhal, J. M., Plichta, S., & Leaf, P. J. (2000). Identification of violence in the home - Pediatric and parental reports. *Archives of Pediatrics & Adolescent Medicine*, 154(5), 457-462.

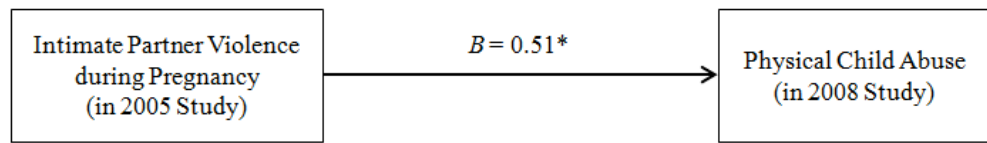
- Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (Eds.). (2002). *World report on violence and health*. Geneva, Switzerland: World Health Organization.
- Kwok, S. M., & Tam, D. M. Y. (2005). Child abuse in Chinese families in Canada: Implications for child protection practice. *International Social Work, 48*(3), 341–348.
- Lam, M. Y. (1992). The phenomenon and meaning of corporal punishment in Chinese society. In K. S. Yang & A. B. Yu (Eds.), *The psychology and behaviors of the Chinese* (pp. 271-319). Taipei: Guaiguan (in Chinese).
- Lau, A. S. (2010). Physical discipline in Chinese American immigrant families: An adaptive culture perspective. *Cultural Diversity and Ethnic Minority Psychology, 16*(3), 313-322.
- Lee, L. C., Kotch, J. B., & Cox, C. E. (2004). Child maltreatment in families experiencing domestic violence. *Violence and Victims, 19*(5), 573-591.
- Leung, W. C., Kung, F., Lam, J., Leung, T. W., & Ho, P. C. (2002). Domestic violence and postnatal depression in a Chinese community. *International Journal of Gynaecology and Obstetrics, 79*(2), 159-166.
- McElwain, N. L., & Volling, B. L. (1999). Depressed mood and marital conflict: Relations to maternal and paternal intrusiveness with one-year-old infants. *Journal of Applied Developmental Psychology, 20*, 63-83.
- McFarlane, J., Parker, B., Soeken, K., & Bullock, L. (1992). Assessing for abuse during pregnancy: Severity and frequency of injuries and associated entry into prenatal care. *JAMA, 267*(23), 3176-3178.
- McGuigan, W. M., & Pratt, C. C. (2001). The predictive impact of domestic violence on three types of child maltreatment. *Child Abuse & Neglect, 25*, 869-883.

- McKay, M. M. (1994). The link between domestic violence and child abuse: assessment and treatment considerations. *Child Welfare, 13*, 29-39.
- Milner, J. (1986). *The Child Abuse Potential Inventory Manual* (2nd ed.): Asheville, NC: Psytec.
- Olds, D. L., Henderson, C. R. J., Kitzman, H. J., Eckenrode, J. J., Cole, R. E., & Tatelbaum, R. C. (1999). Prenatal and infancy home visitation by nurses: Recent findings. *The Future of Children, 9*(1), 44-65.
- Parkinson, G. W., Adams, R. C., & Emerling, F. G. (2001). Maternal domestic violence screening in an office-based pediatric practice. *Pediatrics, 108*(3), E43.
- Rand, M., & Saltzman, L. (2003). The nature and extent of recurring intimate partner violence against women in the United States. *Journal of Comparative Family Studies, 34*, 137-149.
- Reichenheim, M. E., & Moraes, C. L. (2004). Comparison between the abuse assessment screen and the revised conflict tactics scales for measuring physical violence during pregnancy. *Journal Epidemiol Community Health, 58*, 523-527.
- Rumm, P. D., Cummings, P., Krauss, M. R., Bell, M. A., & Rivara, F. P. (2000). Identified spouse abuse as a risk factor for child abuse. *Child Abuse & Neglect, 24*(11), 1375-1381.
- Soeken, K. L., McFarlane, J., Parker, B., & Lominack, M. C. (1998). The abuse assessment screen: a clinical instrument to measure frequency, severity, and perpetrator of abused against women. In J. Campbell (Ed.), *Empowering survivors of abuse : health care for battered women and their children* (pp. 195–203). Thousand Oaks: Sage Publications.

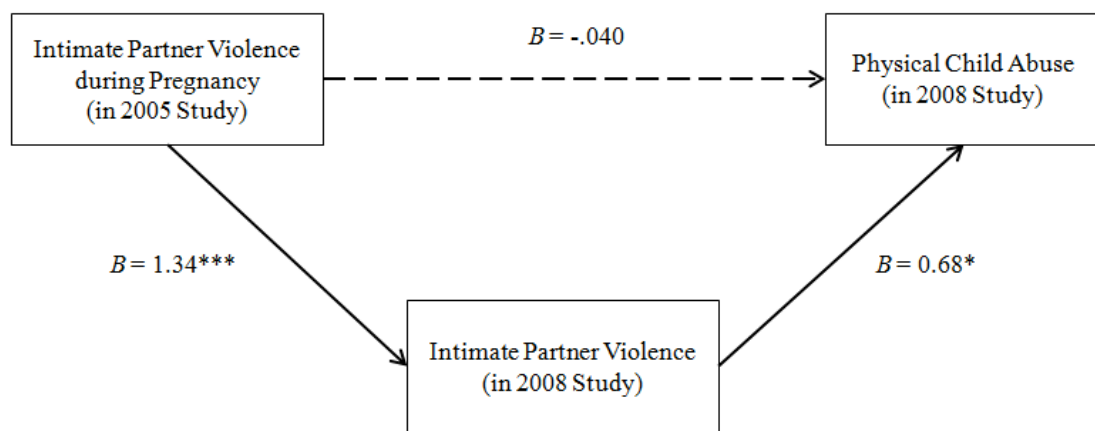
- Sonis, J., & Langer, M. (2008). Risk and protective factors for recurrent intimate partnern violence in a cohort of low-income inner city women. *Journal of Family Violence, 23*(7), 529-538.
- Straus, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). Identification of child maltreatment with the parent-child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse & Neglect, 22*(4), 249-270.
- Tajima, E. A. (2000). The relative importance of wife abuse as a risk factor for violence against children. *Child Abuse & Neglect, 24*(11), 1383-1398.
- Tang, C. S. K. (1998). The rate of physical child abuse in Chinese families: A community survey in Hong Kong. *Child Abuse & Neglect, 22*(5), 381-391.
- Tang, C. S. K. (2006). Corporal punishment and physical maltreatment against children: A community study on Chinese parents in Hong Kong. *Child Abuse & Neglect, 30*(8), 893-907.
- Tiwari, A., Chan, K. L., Fong, D., Leung, W. C., Brownridge, D. A., Lam, H., et al. (2008). The impact of psychological abuse by an intimate partner on the mental health of pregnant women. *Bjog-an International Journal of Obstetrics and Gynaecology, 115*(3), 377-384.
- Tiwari, A., Fong, D. Y., Chan, K. L., Leung, W. C., Parker, B., & Ho, P. C. (2007). Identifying intimate partner violence: comparing the Chinese abuse assessment screen with the Chinese revised conflict tactics scales. *International Journal of Obstetrics and Gynaecology, 114*, 1065-1071.
- White, J. W., & Smith, P. H. (2009). Covariation in the Use of Physical and Sexual Intimate Partner Aggression Among Adolescent and College-Age Men A Longitudinal Analysis. *Violence against women, 15*(1), 24-43.

Wolfe, D. A., Crooks, C. V., Lee, V., McIntyre-Smith, A., & Jaffe, P. G. (2003). The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review*, 6(3), 171-187.

Wu, P. X., Robinson, C. C., Yang, C. M., Hart, C. H., Olsen, S. F., Porter, C. L., et al. (2002). Similarities and differences in mothers' parenting of preschoolers in China and the United States. *International Journal of Behavioral Development*, 26(6), 481-491.



(a) Direct Pathway



(b) Mediated Pathway

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 1. Mediation model tested on the basis of Baron & Kenny (1986).

Table 1
Demographic Characteristics of Mother Respondents (N = 487)

Characteristics	Respondents	
	<i>n</i>	%
Marital Status		
Married/cohabited	469	96.3
Divorced/separated	18	3.7
No. of children		
1	203	41.7
2	220	45.2
3 to 5	64	13.1
No. of children (Age ≤ 4)	574	
Mean (SD)	2.7	(0.8)
Gender of children		
Boy	309	53.8
Girl	265	46.2
Age of mother		
20-29	68	14.0
30-39	349	71.7
40-44	64	13.1
45-49	6	1.2
Mean (SD)	34.4	(4.8)
Age of father		
20-29	34	7.2
30-39	256	53.9
40-49	162	34.1
50 or above	23	4.8
Mean (SD)	37.9	(6.2)
Educational attainment ^a of mother		
Primary 6 or less	29	6.0
F1-5	312	64.0
F6-7	35	7.2
Tertiary or above	111	22.8
Educational attainment of father		
Primary 6 or less	22	4.7
F1-5	277	59.2
F6-7	36	7.7
Tertiary or above	133	28.4
2005 Study: Abused (preceding year)	184	37.8
2005 Study: Abused (during pregnancy)	124	25.5
2008 Study: Abused (preceding year)	101	20.7

Note. ^a F1-5 = equivalent of grades 7-11 in the U.S.; F6 – F7 = grade 12 (or completion of high school) in the U.S.; tertiary or above = university, college, vocational education or above.

Table 2

Prevalence of Corporal Punishment, Physical Maltreatment and Neglect (N = 574)

	Total %	Boys %	Girls %	<i>p</i> value
Preceding-year Prevalence				
Corporal punishment	75.1	75.7	74.3	0.70
Physical maltreatment	4.7	3.9	5.7	0.32
Severe physical maltreatment	0.0	0.0	0.0	-
Physical maltreatment or severe physical maltreatment	4.7	3.9	5.7	0.32
Neglect	11.3	11.0	11.7	0.79
Lifetime Prevalence				
Corporal punishment	75.4	76.1	74.7	0.71
Physical maltreatment	4.9	4.2	5.7	0.42
Severe physical maltreatment	0.3	0.3	0.4	0.91
Physical maltreatment or severe physical maltreatment	5.1	4.2	6.0	0.32
Neglect	11.5	11.3	11.7	0.89

* $p \leq 0.05$, *p* value by the *Chi-Square* test