# Explaining Spousal Physical Violence through Dimensions of Women Empowerment: Evidence from Pakistan

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# Explaining Spousal Physical Violence through Dimensions of Women Empowerment: Evidence from Pakistan

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## ABSTRACT

This research investigates whether women's empowerment, defined alternatively protects women against spousal physical violence. Nationally representative data of Pakistan Demographic and Health Survey 2012-13 is used to quantify the nature and direction of relationship between dimensions of women's empowerment and the incidence of spousal violence in the context of Pakistan. The empowerment aspects which are considered in this study include; education, labor force participation, involvement in household decision, mobility, women's rejection of unequal gender roles, asset ownership and access to information.

Major findings suggest that empowerment dimensions with significant protective relationship with the incidence of spousal physical violence include; mobility, not accepting unequal gender role, land ownership, house ownership and employment. In contrast, the coefficients associated with wife educational attainment (secondary or higher) and reading newspaper habit are also inversely correlated with the IPV but statistically insignificant. The study also found that empowerment dimensions which may increase the risk of violence due to intra-household discontents or conflicts include; women involvement in household decision, daily TV watching and wife's higher educational attainment relative to husband. Socioeconomic characteristics which appear to be protective against IPV include; household wealth, wife age at marriage and husband's secondary or higher educational attainment.



Keywords: Women's Empowerment, Spousal Physical Violence, Pakistan

JEL Classification: J12, J16

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# 1. BACKGROUND

The United Nations Declaration on the Elimination of Violence against Women (1993) defines[1] violence against women as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life." This definition refers to the gender-based roots of violence, recognizing that "violence against women is one of the crucial social mechanisms by which women are forced into a subordinate position compared with men." It broadens the definition of violence by including both the physical and psychological harm done towards women, and it includes acts in both private and public life. The Declaration defines violence against women as encompassing, but not limited to, three areas: violence occurring in the family, within the general community, and violence perpetrated or condoned by the State[2].

Spousal Violence (SV) is one of the most common forms of violence against women which includes physical, sexual, and emotional abuse and controlling behaviors by an intimate partner. These acts of violence are a major public health problems and violations of human rights. They also result is serious short and long term physical, sexual and reproductive, and mental health problems.

According to WHO (2012)[3], a growing number of population-based surveys have measured the prevalence of Intimate Partner Violence (IPV), most notably the WHO multi-country study (Garcia-Moreno et al., 2005) on women's health and domestic violence against women, which collected data on IPV from more than 24000 women in 10 countries[4], representing diverse cultural, geographical and urban/ rural settings. The study confirmed that IPV is widespread in all countries studied and found that among women who had ever been in an intimate partnership:

- 13–61 percent reported ever having experienced physical violence by a partner;
- 4–49 percent reported having experienced severe physical violence by a partner;
- 6–59 percent reported sexual violence by a partner at some point in their lives; and
- 20–75 percent reported experiencing one emotionally abusive act, or more, from a partner in their lifetime

[1] Retrieved from http://www.un.org/documents/ga/res/48/a48r104.htm on October 20, 2017.

[2] An excellent summary of women specific legislation in Pakistan is provided in SPDC (2012).

[3] Retrieved from http://apps.who.int/iris/bitstream/10665/77432/1/WHO_RHR_12.36_eng.pdf on October 30, 2017.

[4] Countries included: Bangladesh, Brazil, Ethiopia, Japan, Namibia, Peru, Samoa, Thailand, the former state union of Serbia and Montenegro, and the United Republic of Tanzania.

In addition, a comparative analysis of Demographic and Health Survey (DHS) data from nine countries found that the percentage of ever-married women who reported ever experiencing any physical or sexual violence by their current or most recent husband or cohabiting partner ranged from 18 percent in Cambodia to 48 percent in Zambia for physical violence, and 4 to 17 percent for sexual violence (Kishor and Johnson, 2004). In a 10-country analysis of DHS data, physical or sexual IPV ever reported by currently married women ranged from 17 percent in the Dominican Republic to 75 percent in Bangladesh (Hindin et al., 2008). Similar ranges have been reported from other multi-country studies.

In the context of Pakistan, for the first time a domestic violence module was included in the nationally representative Pakistan Demographic and Health Survey (PDHS) of 2012-13 to assess the national picture on incidence of domestic violence[5]. According to PDHS report (NIPS, ICF 2013), about 32 percent[6] women age 15-49 have experienced physical violence since age 15. Results of the survey also confirm substantial variations in the incidence of physical violence by background characteristics of married couple. The report reveals that:

- Women age 15-24 are less likely than older women to have experienced physical violence;
- Rural women (34 percent) are more likely to have ever experienced physical violence than urban women (28 percent);
- Khyber Pakhtunkhwa has the highest percentage of women who have ever experienced physical violence (57 percent), followed by Balochistan (43 percent). Reported experience of violence is also relatively high in Punjab (29 percent) and Sindh (25 percent).

Two recent studies explored determinants or factors associated with the incidence of spousal violence in Pakistan using the national representative data of PDHS 2012-13. Hussain et al (2017) investigated the risk factors associated with the prevalence of spousal violence among the women from 15 to 49 years of age in Pakistan in their marital relationship. They identified various determinants including education and working status of women and their husband, ethnicity and wealth index affecting the prevalence of spousal violence in Pakistan. They also found that "the intensity of facing spousal violence varies across the women belonging to different socio-demographic characteristics. Illiterate, non-working and the poorer women experienced more SV as compared to literate, working and richer women. Illiterate partners are more prospective perpetuators of SV as compared to literate husbands. The prevalence of spousal violence across ethnic groups indicated higher spousal violence among Pushtons". Mehwish et al (2017) also used national representative

[5] Before this national representative survey, few small and non-representative studies have been conducted in the context of domestic and spousal violence. The citations of some of these studies are available in Hussain (2017).

[6] This incidence refers to the spousal violence as well as violence committed by other perpetrators in household.

PDHS data to assess the impact of women empowerment on attitudes towards IPV. They have created a women empowerment index; however the index focuses on only one aspect of women empowerment that is the ability of making household decisions independently. Based on the econometrical results, they concluded that "women empowerment has negative and significant on tolerance for spousal violence".

However, both of the above studies did not consider women empowerment rigorously as risk factors by taking all aspects or dimensions in their analysis. This study in this direction and provides the empirical evidence with reference to Pakistan on the relation between the various dimensions of women's empowerment and the incidence of spousal physical violence using the micro data of Pakistan Demographic and Health Survey 2012-13.

The paper proceeds as follows. Dimensions and methodology for measuring empowerment is presented in the next section. The estimation specification for determinants of spousal physical violence is described in sections 3, while Appendix-A furnishes a brief note on the dataset. Discussions on empirical results are furnishes in Section 4. This section also furnishes quantitative scales of women's empowerment across regions, provinces and household poverty status. The last section is reserved for few concluding remarks.

## 2. MEASURING WOMEN'S EMPOWERMENT

A number of studies[7] on conceptualizing empowerment have been produced for the purpose of getting a consensus on the definition of women's empowerment. Most often these studies refer to women's ability to make decisions and affect outcomes of importance to themselves and their families. Further, control over one's own life and over resources is often stressed in these studies. According to Malhotra et al (2002), the key underlying concepts that define women's empowerment relate to choices, control, and power. For instance, Eyben et al (2008) defines empowerment as "Empowerment is a process which relates to the power of an individual to redefine her possibilities and options and to have the ability to act upon them", while Kabeer (2001) defines empowerment as "the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them".

The nature of diversity and multiplicity in defining women's empowerment leads to the fact that it is characterized as a complex, multifaceted, context dependent notion and thus its measurement is challenging. Moreover, the empowerment process cannot be measured but can only be approximated because it is not directly observable. It is also highlighted in the relevant literature that women's empowerment cannot be quantified absolutely but only in relative terms and has to be assessed through proxies or indicators.

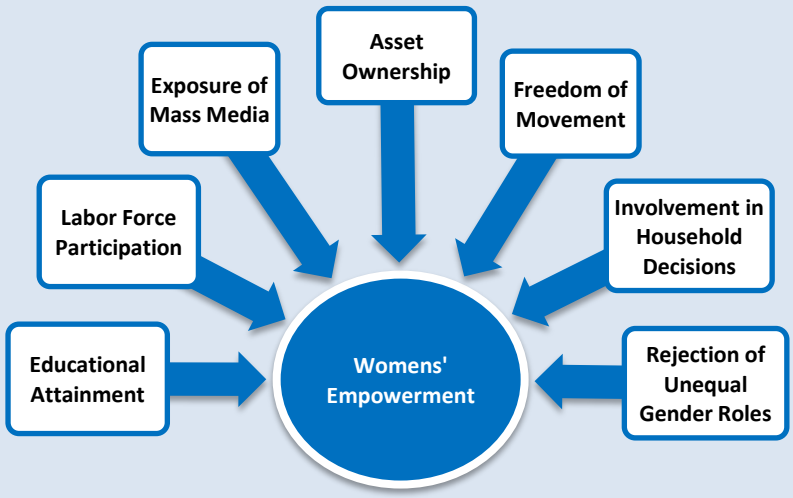
[7] A good summary of references of various studies is available in Malhotra et al (2002).

## 2.1. Empowerment Dimensions

Seven dimensions, which are based upon the literature that indicated or confirmed their possible association with women's autonomy and empowerment[8], are considered for assessing the level of women empowerment for this study. These aspects or dimensions include; women's participation in household decisions, women's freedom of movement, women's rejections of unequal gender roles and women's access to sources of empowerment (education, exposure of mass media, employment and property rights).

A schematic view of the empowerment model is furnished in the Exhibit 2.1, while the definitions of specific indicator for each empowerment aspect are tabulated in the Exhibit 2.2. Brief remarks on the selected indicators are in order.

**Exhibit – 2.1**
**Dimensions of Women Empowerment Model**




***Educational Attainment:*** Education has the potential of empowering women in several different ways; it equips them with the awareness and knowledge required to make beneficial life choices, it increases their ability to access resources and services, and it enables them to become informed consumers and citizens (Kishor and Gupta, 2004). Education is also likely to enhance women's economic independence by equipping them with skills necessary to avail of paid employment opportunities, thereby also making their economic contributions more visible.

Women's educational attainment is represented in six categories; No education=0, Incomplete primary=1, Complete primary=2, Incomplete secondary=3, Complete secondary=4 and Higher=5. Besides wife own educational attainment, her level of education relative to those of husband is also considered in the educational attainment dimension. If wife has less education relative to husband, her score is 0 otherwise 1.

[8] Family Planning indicators are also used in studies of women's empowerment, however very little empirical evidence was found to support family planning use as one of the components of women's empowerment (Phan, 2016).

***Labor Force Participation:*** An important enabling factor for the economic and social empowerment of women is her participation in economic activities, particularly outside the home. It is argued that not only can employment be a source of economic independence, but it can help to give women a sense of self-worth.

The indicator which represents the nature of labor force participation is an ordinal variable. Scores are assigned as; 0 for not working women, 1 for women who reported occasional work outside home, 2 for seasonal working and 3 for women who reported working whole year.

***Exposure to Mass Media:*** Due to higher level of illiteracy and low level of educational attainment of women, mass media is an important source for exposing women to the outside world and enhancing awareness. While mass media, especially TV is undoubtedly an important source of entertainment, it has tremendous educational value. Regular exposure to different mass media, particularly visual media, is likely to play a significant role in building women's information base and their exposure to alternative images that can help to reinforce the value of women.

Frequency of reading newspaper or magazines and watching television is included to assess the media exposure with the following categories; 0=not at all, 1=occasionally, 2=at least once a week and 3=daily.

***Property Rights:*** Control over resources is an important aspect of women empowerment. The data availability permits to include patterns of land and house ownership. Value 0 is assigned to this ordinal variable in case of no ownership, while values 1 and 2 are assigned for joint and alone ownership respectively.

***Women's Freedom of Movement:*** In the PDHS, women's freedom of movement was not directly asked. Instead women were asked whether they need permission to go, face any problem in getting money needed and face any difficulty in going alone. These questions were asked with reference to get the medical help for self-care. Answers for these questions were recorded in two categories; 'big problem' and 'not a big problem'. It can be safely argued that women, who reported problem in getting permission or face difficulty in going alone, are more limited in their freedom than women who answered 'not a big problem'. Thus 0 is assigned to those women who responded 'big problem'; otherwise 1 is assigned.

***Woman's involvement in household decision-making:*** Women's extent of participation in various household and personal level decisions also reflects the extent of empowerment. PDHS asked each ever-married woman age 15-49, who in her household made the

decisions regarding women's health care, large household purchases, women's visits to family or relatives and money husband earns[9]. Three choices were given to answer these questions; not involved (someone else decides), decide with husband and decide alone. Four ordinal variables are created by assigning values 0, 1 and 2 respectively.

**Exhibit – 2.2**
**Description of Empowerment Dimensions**

| Dimensions – Variables | Definitions |
|---|---|
| **Educational Attainment:** | |
| Educational attainment of Wife | ▪ No education=0, Incomplete primary=1,<br>▪ Complete primary=2,Incomplete secondary=3,<br>▪ Complete secondary=4, Higher=5 |
| Wife Relative Education | ▪ Wife less educated than husband=0,<br>▪ Wife has more or same Level of education=1 |
| **Labor Force Participation:** | |
| Nature of Participation | ▪ Not Working=0, Occasional=1, Seasonal=2, All year=3 |
| **Exposure to Mass Media:** | |
| Reading newspaper or magazine | ▪ Not at all =0, Occasionally=1, At least once a week=2, Daily=3 |
| Watching television | ▪ Not at all =0, Occasionally=1, At least once a week=2, Daily=3 |
| **Asset Ownership:** | |
| Owns a house alone or jointly | ▪ Does not own=0, Jointly own=1, Alone own=2 |
| Owns land alone or jointly | ▪ Does not own=0, Jointly own=1, Alone own=2 |
| **Involvement in Household Decisions Regarding:** | |
| Wife health care | ▪ Not Involved=0, With Husband=1, Alone=2 |
| Large household purchases | ▪ Not Involved=0, With Husband=1, Alone=2 |
| Visits to family or relatives | ▪ Not Involved=0, With Husband=1, Alone=2 |
| Money husband earns | ▪ Not Involved=0, With Husband=1, Alone=2 |
| **Women's Freedom of Movement – Getting Medical Help for self:** | |
| Getting permission to go | ▪ Big problem=0, Not a big problem=1 |
| Getting money needed for treatment | ▪ Big problem=0, Not a big problem=1 |
| Not wanting to go alone | ▪ Big problem=0, Not a big problem=1 |
| **Rejection of Unequal Gender Roles \| Beating of Wives by Husband Justified if:** | |
| Wife goes out without telling husband | ▪ Justified=0, Not Justified=1 |
| Wife neglects the children | ▪ Justified=0, Not Justified=1 |
| Wife argues with husband | ▪ Justified=0, Not Justified=1 |
| Wife refuses to have sex with husband | ▪ Justified=0, Not Justified=1 |
| Wife burns the food | ▪ Justified=0, Not Justified=1 |

[9] Women who worked for cash were also asked "who mainly decides how the money they earned would be used"? However, this variable is dropped due to very low labor force participation rate and large refusal to answer.

***Women's Rejection of Unequal Gender Roles:*** A fundamental element of empowerment is the rejection of the ascription of seemingly immutable and essentially unequal rights and privileges on the basis of the sex of an individual. One such 'right' often normatively ascribed to men is the right of husbands to regulate and control 'their' women's behavior (Kishor and Gupta, 2004). Acceptance of this normatively prescribed power of men over women reflects an acceptance of unequal gender roles. Women who see the beating of wives by husbands as justified are then less empowered than women who think otherwise (Sen and Batliwala 1997). According to (Kishor and Gupta, 2004), overall it can be safely said that in societies where the beating of wives by husbands is widely accepted is indicative of a lower status of women.

To measure this aspect of women's empowerment, PDHS asked all respondents (ever married women aged 15-49) whether they thought that a husband is justified in beating his wife for each of the following reasons: wife goes out without telling husband, wife neglects the children, wife argues with husband, wife refuses to have sex with husband and wife burns the food. Five variables are thus developed with binary values; 0 if a women justifies beating and value 1 if she categorically denies by saying 'Not Justified'.

## 2.2. Methodology for Combining Empowerment Indicators

Besides individual dimensions of women empowerment, two composite indices are also developed to examine the nature and extent of statistical relationship between women's empowerment and incidence of spousal physical violence.

Composite indices represent aggregate measure of a combination of complex phenomena and summarize multi-dimensional issue to support policy decisions. Two issues however are encountered while developing composite indices; the substitutability among components and how to weight constituent variables.

Various efforts have been made to represent women empowerment through composite indices. Women Empowerment in Agriculture Index (WEAI) WEAI is the first standard measure to directly capture women's empowerment in the agricultural sector. The WEAI was launched by International Food Policy Research Institute (IFPRI), Oxford Poverty and Human Development Initiative (OPHI), and USAID's "Feed the Future" program in 2012. The WEAI is comprised of two sub-indices: one measures the empowerment of women along five domains/dimensions and the second measures the gender parity of empowerment within the household (Alkire et al., 2013). Another notable composite index was developed by Tuladhar et al (2013) while assessing the relationship between women's empowerment and spousal violence for Nepal[10].

[10] Mehwish et al. (2017) also developed an empowerment index for Pakistan using PDHS 2013 data. Their study follows the methodology of Tuladhar et al (2013) for combining empowerment indicators. However, subjective

However, these studies either use additive methods assuming full substitutability among the components of the index which is not a desirable property – a deficit in one dimension can be compensated by a surplus in another – or apply subjective weights before aggregating the component indicators. Application of subjective cutoffs (thresholds) for categorizing the level of empowerment is also common in most of these studies.

The technique[11] of Principal Component Analysis (PCA) may be used to resolve issues of substitutability and arbitrarily assignment of weights to constituents of the composite indices. PCA provides weighing scheme derived from the given data instead of weighting recommended by experts, policy makers or through public opinion polls. Thus application of statistical weights for the construction of composite indices is a better option as these remove the subjectivity and personal biases[12].

This study therefore applies the PCA technique for combining empowerment dimensions into composite indices. These indices or sub-indices assign empowerment score to each ever married woman aged 15-49 years in the dataset.

## 3. ESTIMATION FRAMEWORK FOR DETERMINANTS OF SPOUSAL PHYSICAL VIOLENCE

In a less developed and more gender stratified national setting, two theoretical perspectives are more relevant[13] in explaining the causes of spousal or violence by intimate partner. The resource theory of family violence assumes that all social systems (including the family) rest to some degree on force or the threat of force. The more resources—social, personal, and economic—a person can command, the more force that individual can muster. At the level of intimate partnerships, Goode (1971) has argued that physical force and its threat are resources that someone may use to control a partner's actions. People may use force when they lack other resources or have not achieved their desired ends by other means. Nonetheless, critics have also argued that a woman's socioeconomic dependence, rather than her household's overall economic resources, may better explain

scores and additive methods of combining empowerment levels were the basis of empowerment index in the Tuladhar et al study.

[11] Very brief description of Principal Components is provided in the Appendix–B. For conceptual clarity and computational details, see Adelman and Morris (1972).

[12] Smith et al. (2003) explored the relationship between women's status and children's nutrition of various countries belong to three developing regions namely: South Asia, Sub-Saharan Africa, and Latin America and the Caribbean with the help of a composite index. Factor Analysis or PCA was chosen after experimenting with three other methods of developing composite indices.

[13] The definitions and crux of various theoretical models to explain spouse abuse are reproduced from http://family.jrank.org/pages/1629/Spouse-Abuse-THEORETICAL-EXPLANATIONS.html in the Appendix – C.

her risk of experiencing domestic violence. According to Yount and Li (2010), the resources and constraints theory motivates three hypotheses about the net associations of women's resources and constraints in marriage with their risk of domestic violence:

- wives in poorer households will have higher odds of experiencing physical domestic violence;
- wives who are socially and economically dependent, because they married at a younger age, or are less schooled than their spouse, will have higher odds of experiencing physical domestic violence; and
- atypically advantaged wives who are more schooled than their spouse will have higher odds of experiencing physical domestic violence.

In contrast, feminist scholars support the patriarchy thesis and argue that domestic violence against women is rooted in broader systems of gender stratification. The patriarchy theory's central thesis is that economic and social processes operate directly and indirectly to support a patriarchal (male dominated) social order and family structure. Thus, the link between women's structural subordination and such violence is ideological. Men's dominance in legal, economic, social, and political institutions legitimizes and sustains policies and practices that naturalize their dominance in the family. Such norms may directly affect women's risks of domestic violence. This theoretical perception suggest that "women will have higher odds of experiencing physical domestic violence if they live in more patriarchal communities where there is, on average, more gender inequality in opportunities like schooling, younger ages at marriage for women, or a higher concentration of religious groups that sanction such practices" (Yount and Li, 2010)[14].

Guided by these theoretical frameworks and with their underlying determinants, the reduced form of spousal violence function for each sampled woman can be postulated as:

$$SPV_i = f(WE_{ij}, Z_{ij})$$

[14] The above theoretical underpinnings were also translated into two prominent theses on the determinants of IPV; the household bargaining model (HBM), and the male backlash model (MBM). The HBM postulates that when women have more resources, or greater potential opportunities for income generating activities, they can bargain for better outcomes in the household; hence, they experience less IPV. According to the HBM, increased economic opportunities for women are expected to decrease the likelihood of IPV. In contrast, the MBM assumes that men employ IPV when they perceive that the gender hierarchy in the household is being challenged or destabilized. Thus, the MBM supposes that increased economic opportunities for women relative to men increase the likelihood of IPV. These theses were largely tested in the empirical literature specifically to explain the link between women economic empowerment (income and employment) and the incidence of spousal violence (Cruz and Henderson, 2017).

where $SPV_i, WE_{ij}$ and $Z_{ij}$ denote incidence of spousal physical violence, wife's empowerment and background characteristics respectively. Fixed-effects logistic regression was used to model the conditional probability of a positive outcome as a linear function of the right-side variables. Brief definitions of dependent and explanatory variables are furnished in the subsequent sub-sections.

An important dimension of women empowerment, considered in this study is the work status or the nature of labor force participation. The empirical literature, especially in the context of developing countries however indicates the presence of endogeneity between woman's working status and violence of her husband due to simultaneous causality. Thus the observed relationship between women's working status and domestic violence may be biased or even spurious.

Following Eswaran and Malhotra (2011) and Jana and Klasen (2013), the endogeneity issue is tackled by applying Two Stage Least Squares (TSLS) estimation technique. Specifically, the first stage for the dimension of labor force participation is defined as:

$$Working\ Status_i = f(X_i)$$

where working status as binomial variable is regressed on the following predictors $(X_i)$; household wealth status, age and education of both wife and husband, number of children, number of births in last three years, and locational variables (region, province). Number of children and number of births in last three years are assumed to be good instruments. In the second stage, the predicted values of working status is included in the main model instead the original one. Both logistic regression and linear probability models (LPM) are estimated for the first stage equation; however LPM is preferred due to relatively low prediction error.

## 3.1. Defining Spousal Physical Violence

In the PDHS of 2012-13, information was obtained from the ever-married women age 15-49 (being eligible for the domestic violence module) on violence committed by their current and former spouses and by others. Since international research shows that intimate partner violence is one of the most common forms of violence against women, spousal violence was measured in more detail than violence committed by other perpetrators. These detailed measurements were made using a shortened and modified version of the Conflict Tactics Scale (Straus, 1990). Specifically, spousal physical violence by the husband for currently married women and the most recent husband for formerly

married women was measured by asking all ever-married women the following set of questions: Does (did) your (last) husband ever:

**a** Push you, shake you, or throw something at you?

**b** Slap you?

**c** Twist your arm or pull your hair?

**d** Punch you with his fist or with something that could hurt you?

**e** Kick you, drag you, or beat you up?

**f** Try to choke you or burn you on purpose?

**g** Threaten or attack you with a knife, gun, or any other weapon?

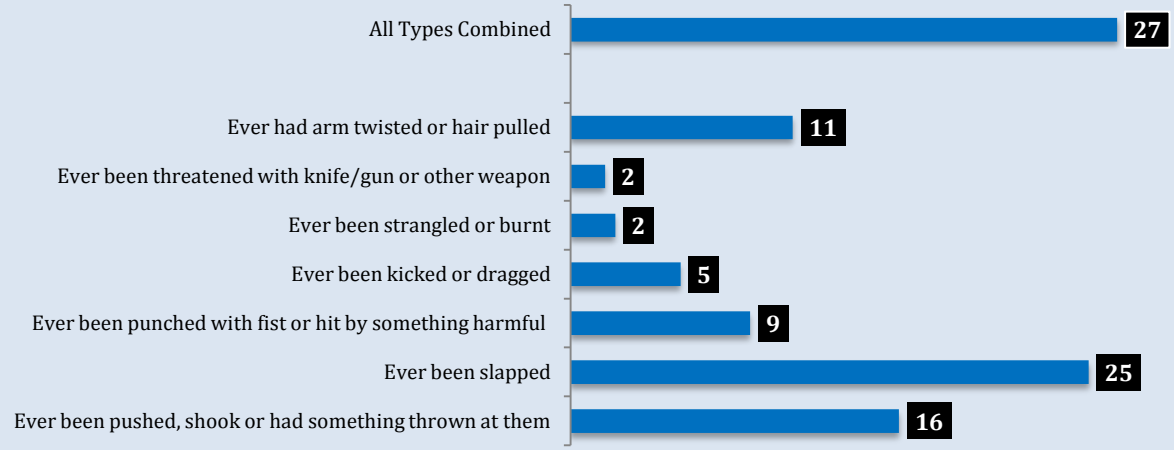
For every question that a woman answered "yes," she was asked about the frequency of the act in the 12 months preceding the survey. A "yes" answer to one or more of items (a) to (g) above constitutes evidence of physical violence. A composite dichotomous measure of Spousal Physical Violence (SPV) is constructed by coding women who responded "yes" to at least one of the seven types of violence[15].

Detail descriptions of incidences of IPV (both physical and emotional) in Pakistan by type and background statistics of women and household are furnished in the PDHS report (NIPS, ICF 2013), while just for the ready reference, overall incidences of physical violence by husband are portrayed in the Exhibit 3.1.

The exhibit reveals that 27 percent of ever-married women reported ever experiencing physical violence from their husband. Slapping is the most common form of spousal violence, experienced by 25 percent of women, while sixteen percent of women reported having been pushed, been shaken, or had something thrown at them.

[15] The internal consistency or reliability was examined through Cronbech alpha test[15], which yields a value of 0.83. Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is mostly used when we have multiple Likert questions in a survey/questionnaire that form a scale and wish to determine if the scale is reliable. The test-value of alpha greater than 0.8 indicates 'good' internal consistency across various binary (dichotomous) questions.

**Exhibit – 3.1**
**Reported Incidences of Spousal Physical Violence in Pakistan**
**[*Percentage of Sample Women who Affirmed the Incidence*]**




Source: Pakistan Demographic and Health Survey, 2012-13

## 3.2. Women's Empowerment

In the preceding section, seven dimensions of women empowerment are described in detail with categories and sub-dimensions. Among these, three (Women's Freedom of Movement, Woman's Involvement in Household Decisions, and Women's Rejection of Unequal Gender Roles) dimensions possess more than one variables/multiple Likert questions (Exhibit 2.2). Thus, these three dimensions were reformulated by combing sub-dimensions with the score ascribed through the PCA technique.

Besides the individual dimensions of women empowerment, two composite indices are also developed through PCA technique to examine the nature and extent of statistical relationship between composite indices of women's empowerment and incidence of spousal physical violence. Women's Empowerment Index (WEI-7) is developed by combining all seven women's empowerment dimensions, while a sub-index (WEI-3) is also developed which comprises of three dimensions; Women's Freedom of Movement, Woman's Involvement in Household Decisions, and Women's Rejection of Unequal Gender Roles. These three dimensions are based on the perceptions of women regarding choices, control and power and thus the nature of these dimensions is quite different with the remaining four (education, labor force participation, ownership of property and exposure of mass media) which are clearly based on the access to sources of empowerment.

The empirical literature in the context of spousal violence suggests that women with a higher degree of autonomy or empowerment will be less vulnerable to IPV as their threat

points or protective abilities are higher compared with women with lower degree of autonomy (Toufique and Razzaque, 2007). Thus, an inverse relationship between the empowerment dimensions (separately or through composite indices) and incidence of spousal physical violence is expected.

## 3.3 Background Characteristics

In almost all studies which are based on Demographic and Health Surveys (DHS), a wealth index is used to reflect the socioeconomic status of household. It is constructed as an indicator of the level of wealth that is consistent with the expenditure and income measures and thus it is a proxy indicator for the long-term standard of living. In the DHS, the index is based on data from household ownership of assets and consumer goods such as source of drinking water, type of toilet facilities, type of fuel, ownership of various durable goods, and other characteristics relating to socioeconomic status of the household. According to PDHS report (NIPS, ICF International 2013), " …… the index is created in three steps. In the first step, a subset of indicators common to urban and rural areas is used to create wealth scores for households in both areas. Categorical variables are transformed into separate dichotomous (0-1) indicators. These indicators and those that are continuous are then examined using a principal components analysis to produce a common factor score for each household. In the second step, separate factor scores are produced for households in urban and rural areas using area-specific indicators. The third step combines the separate area-specific factor scores to produce a nationally applicable combined wealth index by adjusting area-specific scores through a regression on the common factor scores. This three-step procedure permits greater adaptability of the wealth index in both urban and rural areas. The resulting combined wealth index has a mean of zero and a standard deviation of one. Once the index is computed, national-level wealth quintiles (from lowest to highest) are obtained by assigning household scores to each de jure household member, ranking each person in the population by his or her score, and then dividing the ranking into five equal categories, each comprising 20 percent of the population". The designated status of household in terms of quintiles (Poorest to Richest) is used in the logistic multivariate regression framework. Negative correlation is expected a priory between household socioeconomic status (wealth quintiles) and the incidence of physical incidence by husband.

Age and education of husband are included in the logistic model to control for the variation in the characteristics of husband. Instead of using level or years of education of husband, three binary (1,0) variables are created to reflect primary, secondary and higher educational attainment. The relevant empirical literature suggests that education of husband exerts significant and negative influence on the occurrence of spousal violence.

Besides wife empowerment, age at marriage and the age difference between husband and wife are also included in the logistic model to empirically investigate the nature and direction between these determinants and incidence of intimate partner violence in the context of Pakistan. Moreover these variables are necessary for multivariate regression to control for the variations in the marital characteristics. It is hypothesized that both of these variables are inversely related with the incidence of intimate partner's violence.

Regional (urban/rural) and provincial binary variables are also incorporated in the logit models to control for spatial heterogeneity among households regarding the culture, social norms and the level of development. Six binary variables (Punjab urban, Punjab rural, Sindh Urban, Sindh rural, KPK urban, KPK rural and Balochistan Urban) which represent sample strata are included, while Balochistan rural is used as a reference category.

## 4. RESULTS AND DISCUSSIONS

Average values of women's empowerment score (WEI-7) obtained by the samples women in the domestic violence module of PDHS 2013 is furnished in the Exhibit 4.1. These scores are derived by combining all 7 dimensions of women's empowerment considered in this analysis and by applying PCA technique for aggregating empowerment variables. The exhibit portrays this information across provinces, regions and household poverty status.

Provincial ranking in terms of average women empowerment score confirms a priori expectation. Islamabad ranks the highest, while the lowest average value of empowerment score is appeared for Balochistan province. Again as expected, Gilgit/Baltistan is better off than Balochistan and KPK provinces mainly due to the relatively high female literacy and educational attainment.

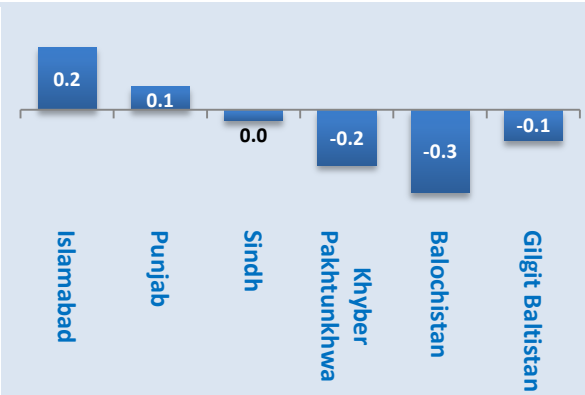
Regional averages in terms of large cities, small cities (towns) and rural areas are also in accordance to the general perception regarding the women empowerment. The average score of rural women is 47, while in large cities women obtained an average 67.

The exhibit also confirms a strong positive relationship between women's empowerment and household poverty status, reflected through household wealth quintiles. Average empowerment score of women residing in poorest (lowest wealth quintile) households is about half than women residing in richest households (36 v/s 67).

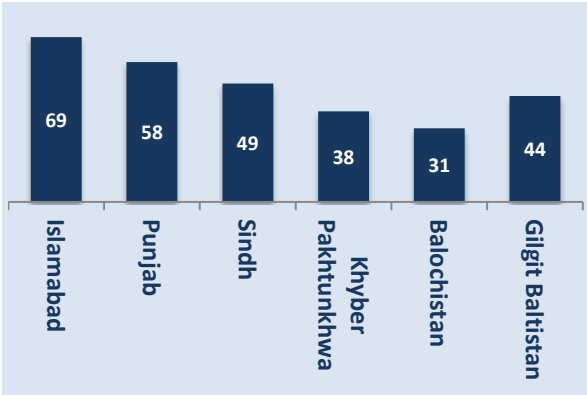
**Exhibit – 4.1**
**Women Empowerment Score – Average Values of WEI-7**
*[Sample Women in Domestic Violence Module of PDHS]*

**PROVINCES**

**Empowerment Score [Z-Values]**

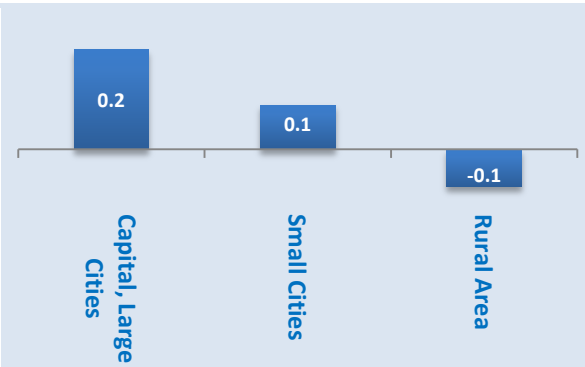



**Adjusted Score [0-100 Scale]**

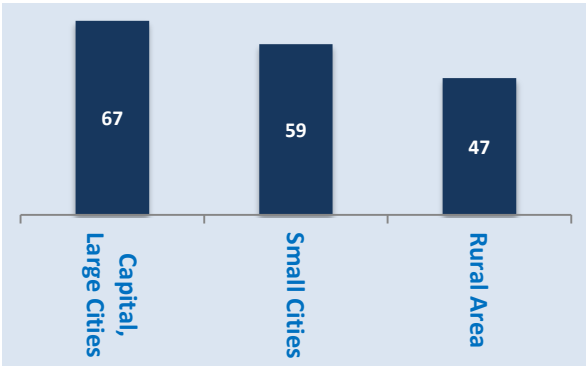



**REGION – URBAN/RURAL**

**Empowerment Score [Z-Values]**

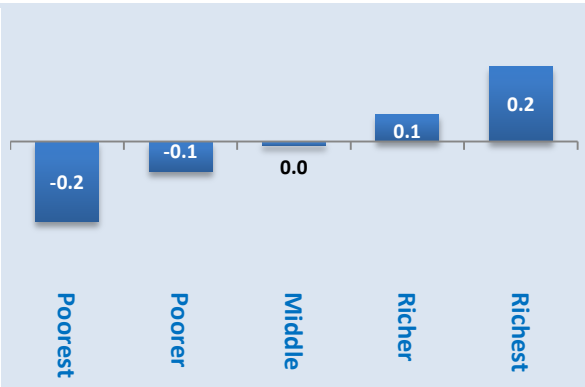



**Adjusted Score [0-100 Scale]**

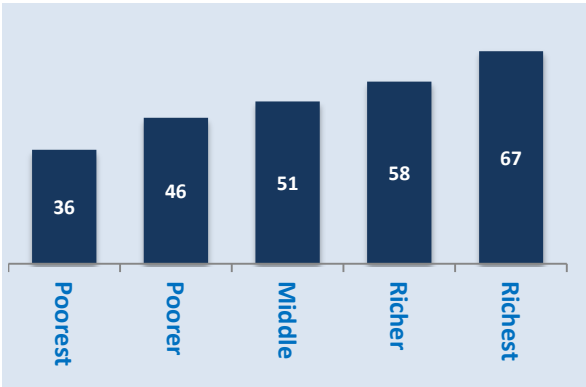



**HOUSEHOLD WEALTH QUINTILES**

**Empowerment Score [Z-Values]**




**Adjusted Score [0-100 Scale]**




Source: Estimated from DHS 2012-13 Pakistan data

The empirical evidences explored in this research strongly assert that empowerment defined alternatively is generally protective of Pakistani women. Three alternative specifications of the logistic regression are used to explore the impact of women empowerment on the physical violence by husband. The model in the Exhibit 4.2 is estimated by including all dimensions of empowerment, considered in this study, independently as explanatory variables, while the estimated results of two specifications which consider composite indices of empowerment as explanatory variables are provided in the Appendix – D (Exhibits D1 and D2).

The composite empowerment index (WEI-7) which is developed by combining seven dimensions of empowerment is negative and statistically significant (Exhibit D1, Appendix – D). With large marginal effect, the results clearly support the hypothesis that women with a higher degree of empowerment will be less vulnerable to physical violence by husband.

In an alternative specification (Exhibit D2, Appendix – D), composite empower index based on three (Women's Freedom of Movement, Woman's Involvement in Household Decisions, and Women's Rejection of Unequal Gender Roles) dimensions is included in the logistic model besides other empowerment dimensions and background variables. The estimated coefficient associated with this composite index also indicates strong inverse relationship between empowerment and IPV; however its marginal effect is significantly low (13 versus 20 percent) as compared with the composite index with all seven dimensions. As mentioned above, these three dimensions are based on the perceptions of women regarding choices, control and power in contrast to the access to sources of empowerment (education, labor force participation, ownership of property and exposure of mass media).

Exhibit 4.2 furnishes the results of the logistic regression estimated[16] by including all seven dimensions independently as explanatory variables. The results indicate that empowerment dimensions with significant protective relationship with the incidence of physical violence by husband include; mobility, not accepting unequal gender role, land ownership, house ownership and employment. In contrast, the coefficients associated with wife educational attainment (secondary or higher) and reading newspaper habit are also negative but statistically insignificant.

The empirical evidences from various developing countries suggest that increased autonomy may raise intra-household discontents or conflicts which may accentuate the risk of violence (Toufique and Razzaque, 2007). The findings of this research reveal that; women involvement in household decision, daily TV watching and wife's higher

[16] The summary statistics of the logistic regression indicate a good-fit of the model with 76 percent of correct predictions and significant value of Chi-Square. As the binary dependent variable is used, traditional R-Square is not computed. Pseudo R-Squares are low (11 to 16 percent), however it is common in studies based on cross-section data. Sign of most estimated coefficients associated with variables are in accordance to a priori expectation.

educational attainment relative to husband are associated with higher physical violence. Nonetheless, these coefficients are not statistically significant.

**Exhibit – 4.2**

**Determinants of Spousal Physical Violence – Married Women in the Age Cohort 15-49 Years**

***[Binomial Logit Model: Dependent Variable: No Incidence Reported=0, incidence of IPV Reported=1]***

| | | Estimated Coefficients | *p*-Value | Marginal Effect (percent) |
|---|---|---|---|---|
| **Empowerment Dimensions:** | | | | |
| Women's Freedom of Movement [Factor Score] | | -0.331 | 0.000*** | -8.052 |
| Woman's Involvement in Household Decisions [Factor Score] | | 0.043 | 0.398 | 1.075 |
| Women's Rejection of Unequal Gender Roles [Factor Score] | | -0.153 | 0.001*** | -3.803 |
| Property Rights - House Ownership [0,1,2] | | -0.003 | 0.008*** | -0.075 |
| Property Rights - Land Ownership [0,1,2] | | -0.005 | 0.003*** | -0.125 |
| Exposure to Mass Media - Reading Newspaper Daily [0,1] | | -0.171 | 0.584 | -4.244 |
| Exposure to Mass Media - Watching TV Daily [0,1] | | 0.125 | 0.212 | 3.113 |
| Wife Educational Attainment - Primary [0,1] | | 0.117 | 0.451 | 2.915 |
| Wife Educational Attainment - Secondary [0,1] | | -0.107 | 0.575 | -2.667 |
| Wife Educational Attainment - Higher [0,1] | | -0.100 | 0.662 | -2.494 |
| Relative Educational Attainment - Wife Less Educated=0 [0,1] | | 0.000 | 0.800 | 0.000 |
| Labor Force Participation – Predicted Values | | -0.018 | 0.001*** | -0.450 |
| **Background Characteristics:** | | | | |
| Household Wealth Status [Quintiles – Poorest to Richest] | | -0.169 | 0.015** | -4.195 |
| Wife Age at Marriage | | -0.035 | 0.006*** | -0.875 |
| Husband Current Age | | 0.028 | 0.000*** | 0.700 |
| Age Difference [Husband and Wife] | | -0.038 | 0.001*** | -0.950 |
| Husband Educational Attainment - Primary [0,1] | | -0.170 | 0.255 | -4.220 |
| Husband Educational Attainment - Secondary [0,1] | | -0.519 | 0.000*** | -12.138 |
| Husband Educational Attainment - Higher [0,1] | | -0.704 | 0.000*** | -15.592 |
| **Sample Locations:** | | | | |
| Punjab Urban | | 0.426 | 0.015** | 10.181 |
| Punjab Rural | | 0.191 | 0.188 | 4.732 |
| Sindh Urban | | -0.254 | 0.161 | -6.249 |
| Sindh Rural | | 0.500 | 0.125 | 11.750 |
| KPK Urban | | 0.552 | 0.008** | 12.799 |
| KPK Rural | | 0.330 | 0.227 | 8.030 |
| Balochistan Urban | | 0.376 | 0.041** | 9.075 |
| Intercept – Constant | | 2.812 | 0.001 | |
| **Model Summary:** | | | | |
| -2 Log likelihood | 3443.24 | | | |
| Chi-Square | 394.73 | | | |
| Percentage of Correct Prediction | 75.5 | | | |
| Pseudo R-Squares – Cox & Snell | 0.113 | | | |
| Pseudo R-Squares – Nagelkerke | 0.164 | | | |

Notes: ** and *** denote that the coefficients are statistically significant at 5 and 1 percent respectively. Zero or less than 0.01 *p*-Value indicates that the coefficient (β) is statistically significant and thus rejects the null hypothesis that β = 0.

Marginal effects (percent) are computed at mean value of variables.

The chi-square statistic is the difference between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0. The value of Chi-Square strongly rejects the null hypothesis.

Economic empowerment in this research is represented through dimensions of employment and ownership of property (land and house). Theoretically, it is argued that economic empowerment protects women from domestic or spousal violence as it increases the costs or makes it more difficult for the spouse to use violence to resolve conflict. This is not inconsistent with the notion of threat points in bargaining models - more economically empowered women have less tolerance for domestic violence as they are able to obtain higher utility levels outside the marriage as a result of control over some resources (Quimbo and Javier, 2013).

Enhancing women's participation in the labor force has been tested in the literature as a way to promote their empowerment which in turn reduces the risk of domestic violence. However, the debate is yet inconclusive. For instance, in the Indian culture setting, Eswaran and Malhotra (2011) noted that "women who work away from home are seen to confront more spousal violence, after controlling for a host of explanatory variables", in contrast Bhattacharya et al (2009), while studying prevalence of marital violence in Indian villages, concluded that "instrumental variable probit estimates show that for all types of violence, employment is associated with a reduction in violence of between 4 to 8 percentage points". A positive relationship between women's participation and the incidence of IPV was also observed in the initial regressions for this research. However after controlling endogeneity of women participation in paid work, an inverse and significant relationship is yielded.

Consistent with various empirical evidences in the context of India and Bangladesh, findings of this research also reveals negative and statistically significant coefficients associated with the land and house ownership. However, low marginal effects of these empowerment dimensions on the occurrence of IPV are observed. Perhaps additional information such as amount of land owned or value of land or house may generate better results. Due to unavailability of these information in the dataset of PDHS, these dimensions are represented through binary variables (Do not own and own) in the econometric specification.

Household socioeconomic status, represented though household assets, appears to be protective from spousal violence with negative and statistically significant coefficient. The phenomenon supports to resource theories which hypothesize that poverty impacts on the level of IPV. According to the estimates of marginal effects, one unit increase in the wealth index results in lowering the reporting of IPV incidence by 4 percent.

Women's age at marriage is negatively associated with the prevalence of physical violence. The estimates show that a one-year increase in women's age at marriage is marginally associated with 1 percent lower probability of reporting IPV. This reduction is significant at less than the one percent level. Similar phenomenon is observed in case of age gap between

husband and wife. The finding indicates inverse association between the age difference and reporting the incidence of physical violence.

Consistent with expectations, husbands' education significantly reduces physical violence as reflected in the exhibit by the negative and statistically significant coefficients, associated with secondary and higher educational attainment. Wives with husband having graduate or post-graduate credentials are marginally associated with 12 to 15 percentage point lower probability of experiencing IPV. Moreover, wife's secondary or higher education also exerts a negative effect on IPV; the associated coefficients however are not statistically significant[17].

The associations of sample strata, which represent degree of gender stratification, are inconsistent across provinces. Barring Sindh urban, coefficients associated with Punjab, KPK and Balochistan urban areas are statistically significant indicating urban-rural differences and variations in norms about women's family roles with IPV. Moreover, the magnitudes of coefficients associated with Punjab and KPK are reflective higher reporting incidence of IPV in urban as compared with rural counterpart. In contrast, the negative coefficient of Sindh urban refers lower probability of IPV, while the largest magnitude of coefficient is observed in case of KPK urban[18].

## 5. CONCLUDING REMARKS

Domestic violence is an endemic problem in Pakistan and may be the most underreported form of violence against women residing in the country. According to PDHS report (NIPS, ICF 2013, Page 219), only 608 cases of violence by intimate partners or by other perpetrators in household were reported nationwide in 2009. Moreover, research studies on prevalence, causes, or determinants of domestic and spousal violence were based on small and non-representative datasets. The domestic violence module was included in the PDHS for the first time in 2012-13 survey and thus it provides now the opportunity to assess the national picture on incidence of domestic violence with various perspectives. The focus of this research was to explore the nature and direction of the relation between the various dimensions of women's empowerment and the prevalence of spousal physical violence using the micro data of Pakistan Demographic and Health Survey 2012-13.

Major findings suggest that empowerment dimensions with significant protective relationship with the incidence of spousal physical violence include; mobility, not accepting

[17] Bhattacharya et al (2009) found similar results in the Indian setting.

[18] Hussain et al (2017) used various ethnic groups in their econometric specification and found significant variations in SV. According to their findings SV is observed higher among Pushton respondents while Sindhi women experienced lower level of spousal violence as compared to other ethnic groups in Pakistan.

unequal gender role, land ownership, house ownership and employment. In contrast, the coefficients associated with wife educational attainment (secondary or higher) and reading newspaper habit are also inversely correlated with the IPV but statistically insignificant. The study also found that empowerment dimensions which may increase the risk of violence due to intra-household discontents or conflicts include; women involvement in household decision, daily TV watching and wife's higher educational attainment relative to husband.

Besides investigating the impact of individual empowerment dimensions, the composite index which was developed by combining seven dimensions of empowerment affirmed significant role in protecting wife from physical violence by husband.

Among socioeconomic background characteristics, household wealth, wife age at marriage and husband's above primary education appear to be protective by significantly reducing the risk of spousal violence.

The study which employs PDHS data certainly has some limitations that should be highlighted. First, the information on the prevalence of IPV was gathered through women's self-reporting and thus due to the sensitivity of the subject, the likelihoods of underreporting are very high. The PDHS report describes that "Fifty-two percent of Pakistani women who experienced violence never sought help or never told anyone about the violence they had experienced". Secondly, the cross-sectional nature of the PDHS surveys does not allow inference of causal relationships between the determinants and IPV. For the purpose of this study however, empowerment has been considered as a cause that may either increase or inhibit the experience of spousal violence.

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# APPENDIX

# APPENDIX – A
# ABOUT THE DATA

This study uses Pakistan Demographic and Health Survey (PDHS) 2012-13 data, conducted under the aegis of the Ministry of National Health Services, Regulations and Coordination and implemented by the National Institute of Population Studies (NIPS). ICF International provided financial and technical assistance for the survey through USAID/Pakistan. The PDHS is part of the worldwide Demographic and Health Survey program.

The main objective of the 2012-13 PDHS was to provide reliable information on fertility and fertility preferences; awareness, approval, and use of family planning methods; maternal and child health; childhood mortality levels; knowledge and attitudes toward HIV/AIDS other sexually transmitted infections (STIs); knowledge about other illnesses such as tuberculosis, hepatitis B, and hepatitis C, women empowerment; and domestic violence.

A nationally representative sample of 14,000 households from 500 primary sampling units (PSUs) was selected for 2012-13 PDHS. All ever-married women age 15-49 in selected households were eligible for individual interviews. In the selected households, 14,569 eligible women were identified for individual interviews and 13,558 were successfully interviewed. The survey was designed to produce reliable estimates for key indicators at the national and provincial levels, including urban-rural breakdowns, as well as for Gilgit-Baltistan and Islamabad. The detail description of sample frame, design, weights, estimation of errors and data quality is provided in various appendices of 2012-13 PDHS report (NIPS, ICF 2013).

According to PDHS, the domestic violence module was included in the PDHS for the first time in 2012-13 survey. This module was implemented only in the subsample of households selected for the men's survey. Furthermore, in keeping with ethical requirements, only one woman per household was selected for the module. These restrictions resulted in a total of 3,743 women being eligible for the module, of which 3,687 were successfully interviewed. Specially constructed weights were developed to adjust for the selection of only one woman per household and to ensure that the domestic violence subsample was nationally representative.

# APPENDIX – B
# BRIEF INTRODUCTION OF PRINCIPAL COMPONENT ANALYSIS

Use of Factor Analysis (FA) technique[19] for indexing multidimensional phenomena has been well-established. FA essentially consists of consolidating the data so as to arrange it around the covariance structures of the variables. This technique reduces the number of relationships by grouping or clustering together all those variables which are highly correlated with each other into one factor or component. The FA model can be described as follows:

$$X_i = a_{i1}F_1 + a_{i2}F_2 + a_{i3}F_3 + \ldots\ldots a_{ij}F_j$$

where; $X_i$ = Attribute or Dimension

$a_{ij}$ = Proportion of the variation in $X_i$ which is accounted for by the ***jth*** factor

$F_j$ = ***jth*** factor or component

The Principal Component Analysis (PCA) procedure in the FA method produces components in descending order of importance, that is, the first component explains the maximum amount of variation in the data, and the last component the minimum. Thus, the first few components[20] (Principal Components) account for a sizeable part of the variation in the data and subsequent components contribute very little. This traditional PCA is best for continuous and normally distributed data as the technique assumes linear relationship between numeric variables.

For category indicator or variables, a team of Leiden University has developed Categorical Principal Components Analysis (CATPCA)[21]. The technique is now available in SPSS and may be applied for data reduction when variables are categorical (e.g. ordinal) and the researcher is concerned with identifying the underlying components of a set of variables (or items) while maximizing the amount of variance accounted by the principal components. The primary benefit of using CATPCA rather than traditional PCA is the lack of assumptions associated with CATPCA. CATPCA does not assume linear relationships among numeric data nor does it require assuming multivariate normal data. Furthermore, optimal scaling is used in SPSS during the CATPCA analysis and allows the researcher to specify which level of measurement (nominal, ordinal, interval/ratio, spline-nominal, & spline-ordinal etc.) in the optimally scaled variables is required.

[19] For detailed discussion, see Adelman and Morris (1972).

[20] A threshold of Eigen-Value (greater than 1) is used to determine the number of Principal Components.

[21] Data Theory Scaling System Group (DTSS), Faculty of Social and Behavioral Sciences, Leiden University, The Netherlands.

Having a representation of the data in the component form, every household is ascribed a 'score' on each derived principal component using factor loading (variance in the individual attribute) as a weight and then multiplying this score with the standardized value of variables or dimensions. An overall score (OS) using scores of all principal components for an individual or household is obtained as follows:

$$(OS)_i = \sum_n \left[\sum (a_{ij} * Z_j)\right]$$

where; $\sum_n$ = Summation over ***n*** principal components

$a_{ij}$ = Factor Loading of ***ith*** Factor and ***jth*** indicator (weights)

$Z_j$ = Standardized value of ***jth*** variable or dimension

# APPENDIX – C
# SPOUSE ABUSE - THEORETICAL EXPLANATIONS

[Retrieved from
http://family.jrank.org/pages/1629/Spouse-Abuse-THEORETICAL-EXPLANATIONS.html
on October 30, 2017]

Six theoretical models have been developed to explain spouse abuse and neglect: social learning theory, social situational/stress and coping theory, general systems theory, resource theory, exchange/social control theory, and patriarchy.

Social learning theory proposes that individuals who experienced violence are more likely to use violence in the home than those who have experienced little or no violence. Children who either experience violence themselves or who witness violence between their parents are more likely to use violence when they grow up. This finding has been interpreted to support the idea that family violence is learned. The family is the institution and social group where people learn the roles of husband and wife, parent and child. The home is the primary place in which people learn how to deal with various stresses, crises, and frustrations. In many instances, the home is also where a person first experiences violence. Not only do people learn violent behavior, but they learn how to justify being violent. For example, hearing a father say, "This will hurt me more than it will hurt you," or a mother say, "You have been bad, so you deserve to be spanked," contributes to how children learn to justify violent behavior.

Social situation/stress and coping theory explains why violence is used in some situations and not others. The theory proposes that abuse and violence occur because of two main factors. The first is structural stress and the lack of coping resources in a family. For instance, the association between low income and family violence indicates that an important factor in violence is inadequate financial resources. The second factor is the cultural norm concerning the use of force and violence. In contemporary American society, as well as many other societies, violence is normative. Thus, individuals learn to use violence both expressively and instrumentally as a way to cope with a pileup of stressor events.

General systems theory, a social system approach, was developed and applied to explain family violence. Here, violence is viewed as a system product rather than the result of individual pathology. The family system operations can maintain, escalate, or reduce levels

of violence in families. General systems theory describes the processes that characterize the use of violence in family interactions and explains the way in which violence is managed and stabilized. It is argued that a general systems theory of family violence must include at least three basic elements: (1) alternative courses of action or causal flow, (2) the feedback mechanisms that enable the system to make adjustments, and (3) system goals.

The resource theory of family violence assumes that all social systems (including the family) rest to some degree on force or the threat of force. The more resources—social, personal, and economic—a person can command, the more force that individual can muster. However, the more resources a person actually has, the less that person will actually use force in an open manner. Thus, a husband who wants to be the dominant person in the family, but has little education, has a job low in prestige and income, and lacks interpersonal skills may choose to use violence to maintain the dominant position.

Exchange/social control theory was developed on the basic propositions of an exchange theory of aggression. The exchange/social control model of family violence proposes that wife abuse is governed by the principle of costs and rewards. Drawing from exchange theory, it is noted that violence and abuse are used when the rewards are higher than the costs. Drawing from social control theories of delinquency, he proposes that the private nature of the family, the reluctance of social institutions and agencies to intervene, and the low risk of other interventions reduce the costs of abuse and violence. The cultural approval of violence as both expressive and instrumental behavior raises the potential rewards for violence.

The patriarchy theory's central thesis is that economic and social processes operate directly and indirectly to support a patriarchal (male dominated) social order and family structure. The central theoretical argument is that patriarchy leads to the subordination and oppression of women and causes the historical pattern of systematic violence directed against wives. The patriarchy theory finds the source of family violence in society at large and how it is organized, as opposed to within individual families or communities.

# APPENDIX – D
# ESTIMATES OF LOGISTIC REGRESSION WITH COMPOSITE EMPOWERMENT INDICES

**Exhibit – D1**
**Determinants of Spousal Physical Violence – Married Women in the Age Cohort 15-49 Years**
*[Binomial Logit Model: Dependent Variable: No Incidence Reported=0, Incidence of Violence Reported=1]*
*[With Composite Empowerment Index – WEI-7]*

| | | Estimated Coefficients | *p*-Value | Marginal Effect (percent) |
|---|---|---|---|---|
| **Empowerment Dimensions:** | | | | |
| **Composite Empowerment Index Comprising following Dimensions:**<br>Women's Freedom of Movement<br>Woman's Involvement in Household Decisions<br>Women's Rejection of Unequal Gender Roles<br>Property Rights<br>Exposure of Media<br>Educational Attainment<br>Labor Force Participation | | -1.086 | 0.000 | -20.504 |
| **Background Characteristics:** | | | | |
| Household Wealth Status [Quintiles – Poorest to Richest] | | -0.016 | 0.071 | -0.400 |
| Wife Age at Marriage | | -0.052 | 0.000 | -1.299 |
| Husband Current Age | | 0.015 | 0.004 | 0.375 |
| Age Difference [Husband and Wife] | | -0.020 | 0.029 | -0.500 |
| Husband Educational Attainment - Primary [0,1] | | -0.067 | 0.646 | -1.673 |
| Husband Educational Attainment - Secondary [0,1] | | -0.280 | 0.018 | -6.865 |
| Husband Educational Attainment - Higher [0,1] | | -0.496 | 0.000 | -11.668 |
| **Sample Locations :** | | | | |
| Punjab Urban | | 0.451 | 0.007 | 10.720 |
| Punjab Rural | | 0.185 | 0.181 | 4.586 |
| Sindh Urban | | -0.114 | 0.521 | -2.841 |
| Sindh Rural | | -0.411 | 0.015 | -9.853 |
| KPK Urban | | 0.870 | 0.000 | 18.100 |
| KPK Rural | | 1.137 | 0.000 | 20.909 |
| Balochistan Urban | | 0.428 | 0.018 | 10.225 |
| Intercept – Constant | | -0.611 | 0.039 | -12.399 |
| **Model Summary:** | | | | |
| -2 Log likelihood | 3505.56 | | | |
| Chi-Square | 332.88 | | | |
| Percentage of Correct Prediction | 74.5 | | | |
| Pseudo R-Squares – Cox & Snell | 0.096 | | | |
| Pseudo R-Squares – Nagelkerke | 0.141 | | | |

Notes: Zero or less than 0.01 p-Value indicates that the coefficient (β) is statistically significant and thus rejects the null hypothesis that β = 0.

Marginal effects (percent) are computed at mean value of variables.

The chi-square statistic is the difference between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0. The value of Chi-Square strongly rejects the null hypothesis.

**Exhibit – D2**

**Determinants of Spousal Physical Violence – Married Women in the Age Cohort 15-49 Years**

***[Binomial Logit Model: Dependent Variable: No Incidence Reported=0, Incidence of Violence Reported=1]***

***[With Composite Empowerment Sub-Index WEI-3]***

| | | Estimated Coefficients | *p*-Value | Marginal Effect (percent) |
|---|---|---|---|---|
| **Empowerment Dimensions:** | | | | |
| **Composite Empowerment Index Comprising following Dimensions:**<br>Women's Freedom of Movement<br>Woman's Involvement in Household Decisions<br>Women's Rejection of Unequal Gender Roles | | -0.576 | 0.000 | -13.268 |
| Property Rights - House Ownership [0,1,2] | | -0.003 | 0.013 | -0.075 |
| Property Rights - Land Ownership [0,1,2] | | -0.005 | 0.003 | -0.125 |
| Exposure to Mass Media - Reading Newspaper Daily [0,1] | | -0.191 | 0.540 | -4.732 |
| Exposure to Mass Media - Watching TV Daily [0,1] | | 0.131 | 0.190 | 3.261 |
| Wife Educational Attainment - Primary [0,1] | | 0.111 | 0.475 | 2.767 |
| Wife Educational Attainment - Secondary [0,1] | | -0.133 | 0.482 | -3.310 |
| Wife Educational Attainment - Higher [0,1] | | -0.084 | 0.713 | -2.096 |
| Relative Educational Attainment - Wife Less Educated=0 [0,1] | | 0.000 | 0.893 | 0.000 |
| Labor Force Participation – Predicted Values | | -0.018 | 0.000 | -0.450 |
| **Background Characteristics:** | | | | |
| Household Wealth Status [Quintiles – Poorest to Richest] | | -0.213 | 0.002 | -5.265 |
| Wife Age at Marriage | | -0.042 | 0.001 | -1.050 |
| Husband Current Age | | 0.032 | 0.000 | 0.800 |
| Age Difference [Husband and Wife] | | -0.043 | 0.000 | -1.075 |
| Husband Educational Attainment - Primary [0,1] | | -0.178 | 0.230 | -4.415 |
| Husband Educational Attainment - Secondary [0,1] | | -0.543 | 0.000 | -12.622 |
| Husband Educational Attainment - Higher [0,1] | | -0.748 | 0.000 | -16.306 |
| **Sample Locations :** | | | | |
| Punjab Urban | | 0.451 | 0.009 | 10.720 |
| Punjab Rural | | 0.189 | 0.190 | 4.683 |
| Sindh Urban | | -0.230 | 0.203 | -5.675 |
| Sindh Rural | | 0.483 | 0.135 | 11.397 |
| KPK Urban | | 0.563 | 0.006 | 13.014 |
| KPK Rural | | 0.366 | 0.173 | 8.850 |
| Balochistan Urban | | 0.371 | 0.042 | 8.962 |
| Intercept - Constant | | 3.002 | 0.000 | |
| **Model Summary:** | | | | |
| -2 Log likelihood | 3470.03 | | | |
| Chi-Square | 367.94 | | | |
| Percentage of Correct Prediction | 75.3 | | | |
| Pseudo R-Squares – Cox & Snell | 0.106 | | | |
| Pseudo R-Squares – Nagelkerke | 0.154 | | | |

Notes: Zero or less than 0.01 p-Value indicates that the coefficient (β) is statistically significant and thus rejects the null hypothesis that β = 0.

Marginal effects (percent) are computed at mean value of variables.

The chi-square statistic is the difference between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0. The value of Chi-Square strongly rejects the null hypothesis.

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