DOMESTIC VIOLENCE IN CURAÇAO: INCREASE IN HEALTH CARE UTILIZATION AND RESPECTIVE NEEDS

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ABSTRACT

There is a strong body of research that indicates an association between domestic violence and poor health outcomes. The range of risks related to domestic violence is very long starting from decreased general well being to increased mortality. Most of the research was produced in the last 30 years and there are still extensive gaps in the available literature. There are almost no longitudinal studies and most of the research focuses on the developed countries. This paper is based on a representative sample of 816 respondents and attempts to disclose the real impact of domestic violence on health care need and utilisation in Curacao. Its main goal is to stress the importance of the issue as a public policy concern. It reveals the scale of domestic violence prevalence and shows a strong association between different forms of abuse and negative healthcare outcomes.

KEYWORDS

1. INTRODUCTION

Nowadays, the issue of domestic violence is becoming more recognized as a significant social phenomenon. Thanks to combined efforts of World Health Organisation and many researchers domestic violence gained recognition as a human right concern. Since the 1993 World Conference on Human Rights in Vienna governments acknowledged it as a public policy concern. Because of the complexity and broad definition the list of short and long term after-effects is very long. The problem of domestic violence is a subject of policy concern mostly in developed countries. Medical consequences and the increase of health care utilization are often negligible and remain overlooked in empirical research. In developing countries however, where the scale and severity of the phenomenon are likely to be larger, the effects on need for health care and medical consumption are likely to become more meaningful.

The problem of domestic violence is mainly intimate partner abuse, where women are the victims. The most extensive and methodologically appropriate study is the WHO (2002) comparative report summarizing findings from 10 different countries (not including any Caribbean nations). The study showed that the proportion of ever-partnered women who had ever experienced physical violence by a male intimate partner ranged from 13% in Japan to 61% in Peru. The authors conclude that the scale of the problem calls for appropriate policy measures, which must be supported by sound analytical background, scientific merit and applications.

The purpose of this paper is to contribute to the existing literature and empirical evidence. It is the first research paper on the outcomes of domestic violence in the Caribbean. Due to many cultural similarities, its findings can be applicable to other countries in the region. Furthermore, the hard empirical results are used to pressure local policymakers to enforce appropriate legislation. This paper aims to show the consequences of domestic violence in terms of probabilities of bad health outcomes and expected healthcare utilization. Multiple efforts have been undertaken by the

Municipal Health Services Curacao to familiarize the local stakeholders with the importance of this issue. The existing knowledge is limited to policy concerns and psychological and societal background of the problem. This paper provides empirical evidence and attempts to capture the scale of domestic violence and its consequences in Curacao.

2. BACKGROUND INFORMATION

2.1. CURAÇAO SITUATION

The nature of domestic violence as a social phenomenon differs greatly across communities. Individuals assign different meanings to determinants and forms of violence depending on their origin. In order to fully understand the character of the domestic violence problem in Curacao it is crucial to understand the local situation and culture. The choice of some variables for empirical modelling is specific for the island. This section provides description of Curacao, the extent and nature of domestic violence.

The Netherlands Antilles is an autonomous part of the Kingdom of the Netherlands. It consists of five Caribbean islands: Curacao, Bonaire, Saba, Sint Eustatius and Sint Maarten. In years 2000 and 2005 referenda were held to determine the future status of each island. As a result, as from 10th October 2010 Curacao became a separate independent entity. It has GDP per capita of 20,500 USD (Central Bureau of Statistics), which is one of the highest in the Caribbean. The population of Curacao experienced a drastic drop in the 90'ties due to negative migration ratio, it has currently stabilized at around 140,000 (Central Bureau of Statistics). One fourth of the population above 25 years of age has only primary or no formal education (Van Wijk, 2004).

Most Caribbean countries share similar historical and cultural background. Also Curacao has history linked to slave trade. Dutch merchants used it as point of resale for further destinations mainly in South America. The brutality of slavery seems to be imprinted in the ongoing violence in Curacao and in the region. Furthermore, there is a

high number of households run by single parents (Central Bureau of Statistics). Matriarchy is very common household structure. The leading role is taken by the women, who are economically independent and very often find themselves physically and emotionally distant from the man. The practical matters are mostly dealt with in the neighbourhood or family of the spouse (Marsha & Verweel, 2005). The number of such households is around 38% of the total number of households (CBS census 2001).

A family unit carries out a variety of functions within the household. It concerns taking care of the elderly, education of children and most importantly economical responsibilities. Western societies are used to a two parents structure with mixed functions and obligations towards the household. Matriarchy is another variant that is identified in multiple societies around the globe. Its main characteristic is that the woman takes over the majority or all of the responsibilities of the man. Such structure is often referred to as matricentric, where matri means mother. It is important to realise that it does not mean that the male is preoccupied with the economic functions and consequently spends less time with the relatives and becomes excluded from the family circle. In matriarchal structure the role of the man is marginal and women take over all tasks, including providing for the household. The origins of matriarchy are often traced back to black families in the new world. Scientists agree on influence of slavery on this social construct. In many cases slaves were forced to mate by their owners, without consideration of their preferences. The strongest males were a natural choice to mate with multiple women. As a result of this situation there was very little bond between the couple and only the relation between mother and child was relatively strong. A large number of matricentric families in the Caribbean supports this theory, because of the history filled with slavery issues. Another important factor that enhances this kind of family structure is a mismatch between number of males to females. A lower life expectancy for a men and higher probability of migration lowers the expectation towards him. Currently there are around 77 000 females and 65 000 males living in Curacao. Many households in Curacao consist of a grandparent, unmarried women and her children. Father or fathers sometimes live outside the family home. Socioeconomic migration is very common amongst the

population. It is relatively easy for citizens of The Dutch Antilles to migrate to the Netherlands. It is difficult to make predictions about the effect of common family structure on the incidence of domestic violence. Rademaker and Hajema (2004) concluded in their research that single mothers have the highest risk of suffering from domestic violence. Based on the dataset, 52.6% of Curacao residents experienced some kind of domestic violence in their lives. On the other hand, the absence and lack of authority of the male within the household should have a mitigating effect.

2.2. DOMESTIC VIOLENCE

Domestic Violence is a universal problem. Although anthropologists are familiar with societies where this phenomenon is absent, it prevails in all countries of the world. It can have dramatic consequences far beyond the direct physical harm, eroding victim's energy and self-esteem. Traumatic effects can affect both the victims and witnesses (mostly children). Very often violent acts that would be harshly punished in any other environment go unchallenged because they took place within a household. There are several risk factors (Gelles 1994) that seem to be significant for future domestic abuse: previous involvement in violent behaviors, unemployment, use of illegal drugs and age between 18 and 35 years old. Most abusers tend to share quite a number of common traits. Most psychologists investigating domestic violence agree that that the goal of the abuser is domination and power over the victim. Naturally men are more likely to seek control in a relationship. Consequently males are usually the perpetrators.

Domestic violence against women is both the reason and consequence of gender inequality. In many cultures man has control over his woman and has rights to control her. Control of wealth and male dominance in community level peer groups are often reasons to legitimize violent behavior. For that reason many feminist researchers challenge the assumption of equal victimization between genders, claiming that it fails to highlight that women are victimized more often.

Numerous advocacy groups have been trying to draw public attention to this issue and the first signs of success are visible. This situation is no longer acceptable by the

modern society. In order to formulate appropriate policy against this phenomenon an appropriate empirical background is necessary. Due to its specific nature it is very challenging to produce a good estimate of the true incidence and severity. Findings concerning several issues linked to domestic violence like: causes, consequences, risk or gender distribution vary significantly because of underpinning assumptions. Underreporting is another source of bias. Multiple factors, including fear, embarrassment or loyalty can decrease disclosure.

2.3. DEFINITION OF DOMESTIC VIOLENCE

The first step to understanding domestic violence is specifying its definition. It is a very broad concept that can easily be misunderstood. The definition of domestic violence is very flexible amongst researchers and changes through time (Muehlenhard & Kimes 1999). It is a social construct and the extent to which people find certain behaviour acceptable and later categorise it evolves. In modern society domestic violence is not limited to physical abuse. Psychologist Susan Forward describes abuse as "... any behaviour that is intended to control or subjugate another human being through the use of fear, humiliation and verbal or physical assaults...".

 In this paper domestic violence is defined as abusive behaviour by an individual from direct social proximity to the victim. Next to physical force, all forms of abusive, threatening and controlling behaviors causing psychological, sexual or physical harm fall within the definition. Domestic violence is not gender specific as some studies might suggest (Muehlenhard & Kimes 1999, WHO). Furthermore, the location of violent acts does not play a role as the term may suggest. Violent behaviors can take place within or outside the household.

2.4. INVESTIGATING DOMESTIC VIOLENCE

WHO produced a practical guide for researchers (WHO 2005) that covers many issues encountered while producing the previous study. It mostly provides advice on variable selection and data collection, which still remains the biggest obstacle while researching sensitive subjects. Respect for the respondents is of extreme importance.

Researchers have to keep in their minds that it is supposed to serve victims of abuse. The obtained data should be revealed voluntarily. Multiple decisions have to be undertaken like whether or not to inform the subject that the survey concerns domestic violence before starting it. Subjects should also be informed that it is allowed to end the questionnaire at any time or skip some questions. Legal issues may be a matter of concern in some countries. As an example in the Dutch Antilles reporting a child abuse is a legal obligation. While collecting data, multiple clues about child abuse have been revealed. There is a general consensus that safety of the subject always prevails and if there is any reason to believe that complying would put the person in danger researcher should not do it. Safety of the interviewed has to be ensured at all times. In many cases respondents may be put at risk of physical harm just because of talking with a third party about their relationships. To conclude, researching any sensitive topic like domestic violence is a challenge. It requires plenty of effort and if conducted inappropriately it can actually bring more harm than benefit. Assuring the soundness of the analysis and using the findings for social changes should be the main focus of any researcher in this area.

3. LITERATURE REVIEW

Even though the definition of domestic violence differs amongst researchers, an extensive literature exists that can serve as starting point for predictions. The most significant differences in the underlying assumptions are exclusion of psychological violence and gender specificity. Very often the terms intimate partner abuse is confused with domestic violence. In general, intimate partner abuse falls into the definition of domestic violence, which includes violence against other members of the family and direct social proxy, and is not gender specific. It should be taken into account while reading this chapter that most researchers specify domestic violence somewhat differently depending on the origin of the study or general beliefs. Unfortunately no longitudinal studies of domestic violence are available, even though they are considered a common practice in discovering predictors for certain diseases. Such studies are relatively costly and their absence proves neglecting domestic

violence as a factor influencing health status. Most studies that are available are no older than 20 years. It is a relatively new topic that still requires a lot of attention. Based on this paper, some recommendations for future research is formulated in the following chapters.

3.1. GENERAL KNOWLEDGE ABOUT DOMESTIC VIOLENCE

Murray A. Straus in his book "Physical Violence in American Families" brings together findings and methods from two landmark studies: the National Family Violence Surveys conducted in 1975 and 1985. These studies are considered first attempts to measure domestic violence incidence on a large and representative sample. Thanks to similarities between both studies it was also possible to recognize national trends. Both studies used Conflict Tactics Scales to measure domestic violence incidence. The book is a comprehensive guide to issues linked to domestic violence, however the attempt to present medical and psychological costs of family violence is methodologically very poor. No empirical modelling is used, only cross tables of self assessed health and a list of conditions against different types of violent experiences are presented.

Conflict Tactics Scales (CTS) is the first attempt to create a universal tool for obtaining data about violence within a family. It measures variety of behaviours that occur between family members during a conflict. Straus in his paper (Straus 1979) provides a detailed description of the tool that can be used both in personal interviews and mail surveys. CTS was reviewed (Straus 1996) and simplified. It has become a very widely used method in a variety of studies concerned with conflicts within a family, mainly in the United States. The Domestic Violence Index created for the sake of this paper is based on the same principles as the CTS.

There is also a large amount of valuable literature on domestic violence written from a less scientific perspective. "The Domestic Violence Sourcebook" by Dawn Bradley Berry provides detailed information about psychological reasons for domestic violence and preventive measures. He continues in a form of advice for victims with topics like: economic and emotional recovery, avoiding violent domestic situations and

useful legislation. "Behind Closed Doors" by Murray Straus also focuses on the sociological concepts behind the phenomenon. Both books are focused on the situation in the United States.

3.2. RESEARCH OF EARLY 1990S

Older studies all agree that domestic violence has a significant negative impact on physical health. Although the list of health effects is relatively small and includes: death, chronic pain, physical injuries and worse general health status (Bohn 1996, Plichta 1992). Furthermore, authors notice that most medical staff is unprepared to help the victims and the level of communication between violence victims and health care providers is generally lower (Sugg and Iniue 1992). They also report multiple limitations, mainly concerning the non-randomness of the samples.

3.3. CURRENT RESEARCH

Later research tends to make a clear division between long and short term effects. The immediate effects are in the form of physical injury or death, whereas the long term effects might be permanent disability or psychological harm. Obviously deaths cannot be investigated with a cross sectional survey, which is the dominant tool for investigation of health effects and health care utilisation. From the data about murders in the United States it can be concluded that 60% of victims suffered from domestic violence before being murdered (Sharps et al 2001). A study based on a smaller sample limited to Kansas City indicates that around 50 % of murder victims have visited a GP due to injuries resulting from domestic violence (Arbuckle et al. 1996).

A non lethal physical harm can vary anywhere from minor to life threatening injuries. Conditions most frequently associated with domestic violence are: scratches, bruises, broken bones, fractures, head injuries and burns (Tjanden and Thoennes 2000). Rodgers (1994) estimates that 3 in 4 domestic violence occurrences result in a direct injury. There are specific types of injuries that are more likely to be a result of violence within a family (WHO 2002, Campbell 2002). Those include head, face, neck, breast and abdominal area injuries. The list continues with indirect consequences like:

chronic pain syndrome, seizures, gastrointestinal problems and permanent disability. Gynaecological issues are dominant amongst abused women. Abused females are 3 times more likely to suffer from a sexually transmitted disease, vaginal bleeding and infections, pain during intercourse and pelvic inflammatory disease (Bergen 1999, WHO 2002). Presence of gynaecological problems is mainly associated with physical and sexual abuse (WHO 2002). A study based on National Survey of Violence Against Women found intimate partner violence a statistically significant predictor of physical harm, while controlling for age, race, previous abuse experience and insurance coverage (Coker et al. 2000). Furthermore, there is an ongoing effort to identify a pattern of medical conditions, that would allow to recognise the abuse victims without confrontation. Unfortunately, the complexity of domestic violence and limited data were limitations that made those attempts unsuccessful (Le et al. 2001). Some conclusions can be drawn from their results. Facial traumas are much more common amongst women suffering from domestic violence. Similar trends are observed for neck and head injuries (Muelleman et al 1996). This is confirmed by a retrospective approach on a sample of abused women only. 81% indicated some sort of facial trauma (Le et al. 2001, Perciaccante et al. 1999). In the long term, this kind of injuries increases the risk of brain damage. Studies report that 30% of victims experience loss of consciousness that can eventually lead to traumatic brain injury. Strangulation is another common experience amongst the abused. It can lead to numerous long term consequences, however it has not been a popular topic of research.

Children are most likely to be victimised during a domestic conflict, because they try to intervene. The violence is rarely directed at the children. Another retrospective study found that 39% of under aged who were injured as a result of domestic violence were trying to protect the mother, stop the argument or were held by one of the parents (Christian et al. 1997).

Long term effects of domestic violence have been overlooked by the researchers, whereas currently it becomes their main focus. Frequently, these are the most devastating consequences and victims suffer for the rest of their lives. General health status is the broadest variable that captures long term effects of domestic violence.

Multiple cross-sectional studies are concerned with general health status, usually in the form of self assessed health. Researchers use different scales and clustering methods of the responses, however general conclusions can be drawn. Most authors make a distinction between different types of violent experience in investigation of the impact on self assessed health. For psychological, physical and sexual violence victims the probabilities of reporting poorer self-rated health are significantly higher than for non-victims (Coker et al. 2002, Weinbaum et al. 2001, Campbell et al. 2002). Longitudinal approach to this issue showed that all physical injuries, anxiety, pain and depression decrease over time (Sutherland et al. 1998). Several studies evaluated increased risk of disability that ranges from 1.5 to 3.2 (Coker et al. 2000, Hathaway et al. 2000, Plichtaand Falik 2001). After adding control variables to the models the results remained statistically significant but were considerable lower. The incidence of chronic pain is a popular area of concern (WHO 2002). Numerous studies confirm that domestic violence is associated with higher level of pain (Campbell et al. 2002, Coker et al. 2000). It may also be treated as a part of broader groups of functional disorders including problems with walking or inability to conduct daily activities.

Sexual health is linked exclusively to physical and sexual violence. Sexual abuse rarely occurs without physical elements and can be exceptionally harmful in less developed countries where sexually transmitted diseases (STD) are bigger danger. Furthermore, sexual acts without mutual consent are more likely to lead to urinary tract infections (UTI) and consequently menstruation issues. Two main approaches are present in investigating links between domestic violence and sexual health. There are several population based studies that report increased probabilities of STDs and UTIs for victims of abuse (Weinbaum et al. 2001, Campbell et al. 2002). Case- control studies based on data from a variety of medical providers confirm these results (Coker et al. 2000, Letourneau et al. 1999). There are several reasons why abusive sexual behaviours endanger the health of the victims. The use of contraceptives is very unlikely, the acts are more brutal which increases the risk of tissue damage and infections and abusers are have usually multiple partners (Wingood et al.2000). In the

long term sexual abuse may lead to menstruation problems and pelvic pains (Plichta 1996, Lown and Vega 2001).

The relationship between domestic violence and health care utilisation is slightly more complex than medical conditions. It may seem straightforward that worse health status implies more health care use. There is a strong body of evidence that victims are less likely to seek professional assistance with their medical problems. This can be a result of shame or fear. Campbell (2002) reports that on average an abused woman experiences more hospitalisations, doctor visits and mental health consultation throughout their lifetime. He also notes that the true extent of women injuries is unknown because only a fraction of victims seeks treatment. It creates a situation of an unmet need. Women who are abused are twice as likely to state that they had an unmet medical need during their lifetime (Plichta and Falik 2001). Due to very difficult data collection process it is impossible to estimate the real proportion of victims who do not get the medical attention they require. Furthermore, multiple studies (Jones et al 2001, Campbell 2002, WHO 2002) notice a link between experience of domestic violence and bad mental health. The most important factors are energy level, depression and suicide attempts.

3.4. HYPOTHESES AND PREDICTIONS

Several hypotheses can be formulated based on the previous literature and research:

1.The victims of domestic violence are in general worse health than non-victims.

2.The more severe the violent experiences the worst health outcomes of the victim.

3. The victims of domestic violence suffer from variety of conditions linked to the type of violent experience.

4. The victims of domestic violence use more health care than non-victims.

5. The more severe the violent experiences the more healthcare victim uses.

6.The victims of domestic violence utilize specific types of health care linked to the type of violent experience.

Predictions:

From the reviewed literature some predictions can be made according to the stated hypotheses. Taking into account the culture of Curacao violence against women is likely to be much more common than against man. Lower socio-economic status is linked to more frustration due to lack of resources and less knowledge about modern family mechanisms. Consequently it is likely that people from lower social strata are more likely to be abused. Furthermore, there is enough evidence in the previous research from other countries to believe that all sorts of domestic violence negatively influence the general health status, need for health care and health care utilisation. It is likely that particular types of violence will be associated with different medical conditions and consequently use of different health care resources. Table 1 presents these predictions.

TABLE 1   PREDICTED ASSOCIATIONS BETWEEN DOMESTIC VIOLENCE AND HEALTH OUTCOMES

Psychological Violence	Physical Violence	Sexual Violence
Need		
Migraine	Fractures	Menstruation Problems
Weight problems	Eating disorder	Skin problems
Blood pressure	Skin problems	
	Face problems	
Utilisation		
Mental health	GP visits	Specialist visits

Social welfare	Specialist Visits	GP visits
Sleeping medication	Polyclinic	Mental health
Antidepressants	Hospitalisation	

4. DATA

To assess the prevalence of domestic violence in Curacao, the Medical and Public Health Service of Curaçao with cooperation with University of the Netherlands Antilles conducted an extensive study. 816 respondents participated in the study. A mixed mode approach was used: respondents could choose to fill in the questionnaire by themselves, or to have an interviewer read the questions to them and fill in their responses. The questionnaire contained closed questions about experiences with specific forms of psychological, physical and sexual domestic violence and questions about health complaints and medical consumption. Respondents were approached in waiting rooms of four institutions in Curacao: in the governmental registry office, in the biggest local health insurance company, in a governmental food handling permit distribution unit and in a medical facility. These locations together are visited by all kind of citizens and clients of all societal strata. Waiting times are, in general, at least an hour, enough to fill out the questionnaire. Elderly were somewhat underrepresented, therefore additional fieldwork was carried out in social clubs for seniors (van Wijk 2010) .

4.1. DATABASE

The final sample of 816 observations has a representative age and sex distribution. There might be a slight bias of overrepresentation of women in the youngest age group (Figure 2). This can be due to the fact that interviewers were familiar with the purpose of the study (single blind study) and subconsciously focused their attention on the group most vulnerable to domestic violence in their opinion. Table 2 indicates

that as expected females are more likely to experience some kind of domestic violence in their life. The difference between sexes is not very high, because these numbers do not capture the severity of the experience. It is likely that the incidence and severity are also higher for females.
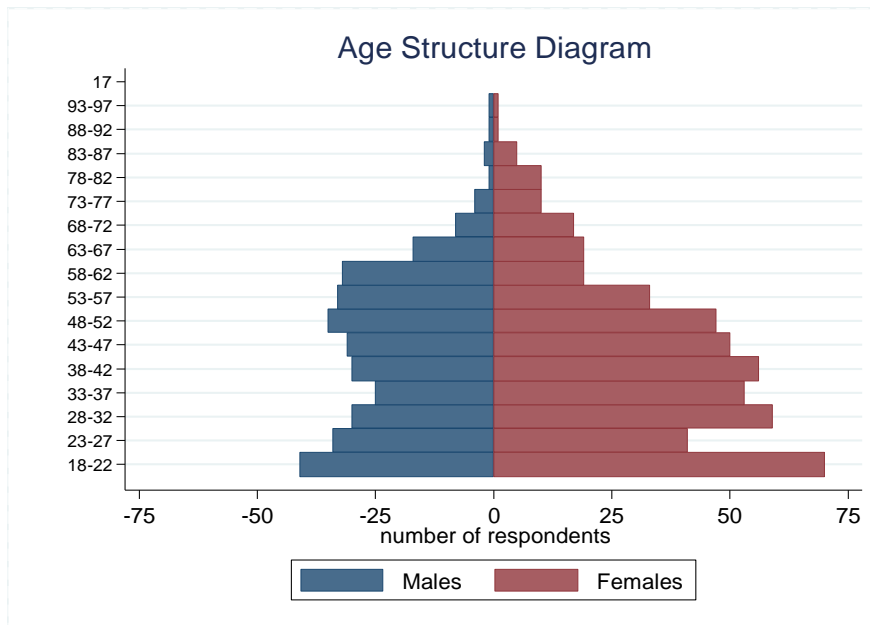
FIGURE 2

TABLE 2

	Non-Victims	Victims
Women (N=454)	41.8%	58.8%
Men (N=362)	56.0%	44.0%

4.2. VARIABLES

This paper aims to analyse how need for health care and health care use are influenced by domestic violence, controlling for a number of factors. In order to do it a set of models was run and interpreted. A number of dependent variables is used, that serve as indicators of need for health care and health care utilisation discussed in detail in section 3.2.1. They are regressed on two groups of independent variables. The first group, introduced in section 3.2.2 consists of control variables i.e. personal background characteristics controlled for in order to isolate the effects of the domestic

violence variables. The latter is the second set of variables described in section 3.2.3., that is linked to domestic violence.

4.2.1. DEPENDENT VARIABLES

First group of dependent variables used in this paper are indicators of need for health care. In general, need can be represented by the individuals' health status. Due to the constrains of the dataset it is impossible to construct an objective measure of health. Self assessed health (SAH) is used as one of indicators of need. A criticism of such measures of health is that they may bring systematic biases and reporting error into the analysis. Undoubtedly, since self-reported health reflects perceived health, it may measure something different from actual health. Still, considerable evidence suggests that self-reported measures are generally valid indicators of actual health (Maddox and Douglas 1973), (Ferraro 1980), and (Waldron et al. 1982). Idler and Kasl (1995), McCallum et al. (1994) and Connelly et al. (1989) show that SAH is a good predictor of mortality and morbidity. Furthermore, Gerdtham et al. (1997) have demonstrated that a continuous health status measure constructed from a categorical response is highly correlated with other continuous measures of health. A five-point Likert scale was used to define SAH formatted into five answer categories: bad, moderate, good, very good and excellent (see Appendix for precise wording of the survey question). Table 3 provides a overview of respondents answers according to the type of domestic violence experienced. It should be noted that answers of people who did not experience any form of domestic violence are more concentrated within categories "good" and "very good".

TABLE 3

Type of violence experienced	Health Status reported	Frequency
Psychological N=263	Bad	0.6%
	Moderate	23.4%
	Good	38.5%
	Very good	22.0%
	Excellent	15.5%
Physical N=204	Bad	1.3%
	Moderate	19.4%
	Good	43.2%
	Very good	22.1%
	Excellent	13.9%

Sexual N=71	Bad	0.7%
	Moderate	25.2%
	Good	35.3%
	Very good	21.6%
	Excellent	17.2%
No violence N=391	Bad	2.6%
	Moderate	13.5%
	Good	46.3%
	Very good	26.3%
	Excellent	11.1%

SAH is an ordinal variable, meaning that the five survey responses can be ordered in terms of degree but not in terms of numeric value. The response only indicates whether it is lower or higher than others. Due to its ordinal nature ordered logistic regression is used to analyze effects of predictors on SAH.

Furthermore, dummies for presence of specific medical conditions within a year from the date of filling in the questionnaire are used. The health conditions include: fractures, migraines, weight problems, sleeping problems, eating disorders, menstruation problems, blood pressure problems, skin problems and problems with eyes, throat, nose and ears. Because presence of a particular medical condition can have only two disjoint outcomes, a logistic model is used to analyze the probabilities of occurrences of such events. Since the survey contains a separate question for each one of a list of conditions, it was also possible to construct a variable giving the number of conditions experienced within a year. Even though it provides no information about severity it can be an indicator of need for health care. Due to the limited number of possible outcomes and no information about the severity of the conditions it also must be treated as ordinal variable and hence Poisson regression model is used.

The second group of dependent variables is composed of indicators of health care utilization. It can be measured by the number of services provided to a patient. A variable was constructed that sums up health care uses without distinguishing between its types. Although this variable has obvious drawbacks it is worthwhile including in the analysis. The fact that a subject reported different types of medical consumption does not necessarily mean that his health care utilization level is higher. It might be a case that one suffers from a number of mild conditions that require a

variety of interventions. On the other hand, taking into account the relatively low average number of yearly health care uses in Curacao (CBS) equal to 1.3, there are reasons to believe that reporting more than one health care use from the list is an indicator of higher healthcare utilization. The result is a simple count data that can be analyzed with Poisson regression.

Furthermore, dummies for specific medical uses within a year from the date of filling in the questionnaire are used. The medical uses are: GP visits, specialist visits, social welfare, mental care, polyclinic, hospitalization, sleeping medication and antidepressants. Because a health care use can only have two disjoint outcomes, a logistic model is used to analyze the probabilities.

4.2.2. CONTROL VARIABLES

Grossman(1972) claims that the most important determinants of demand for health care are: health status, earnings, age and education. Unfortunately the available dataset does not contain information on income of the respondents, so education and insurance scheme serve as the proxy of socio-economic status. The level of education is defined on a five level scale. It is based on Netherlands Antillean system which is a copy of the Dutch educational system. The categories are: 1 "no education", 2 "LBO / MAVO / VSBO", 3 "SBO / MBO", 4 "HAVO / VWO" and finally 5 "HBO / WO". The breakdown is presented in Figure 2. Dummies are created for each possible response.

FIGURE 2

Level of Education

10.55%

20.35%

36.68%

10.8%

21.61%

	no		LBO MAVO VSBO
	SBO MBO		HAVO VWO
	HBO WO		
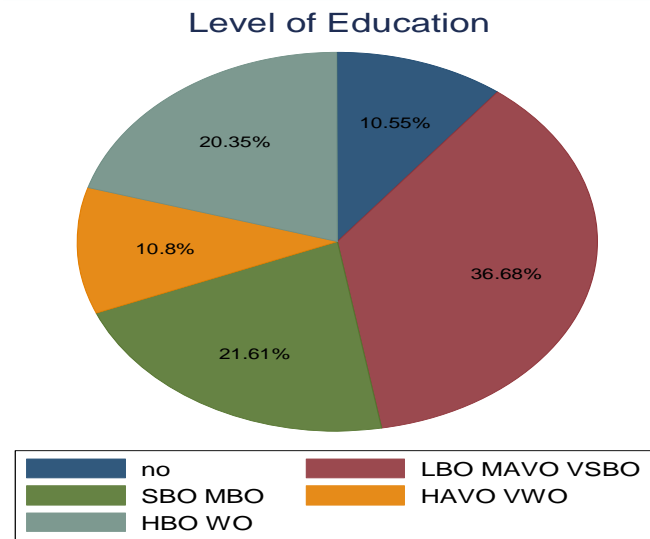
There are various insurance schemes available in Curacao (Figure 3). The most popular is the Social Insurance/Security Bank(SVB), which provides services for the private sector. It is a governmental organisation. SVB has a annual earning ceiling for eligibility. Individuals whose income exceeds it, seek coverage in private sector insurance. Civil servants have a separate insurance scheme under the name BZW. It covers employees of the public sector and their families. Furthermore, there is a government provided Pro-Pauper Insurance (PP) for the unemployed, poor and retired who lack insurance coverage. The above mentioned schemes do not differ much from one another in terms of quality or efficiency. The association with PP however serves as a good indicator of poor socio-economic status. It is represented by a dummy variable in the empirical modelling part. Even though in most empirical studies concerned with health care utilization (Gerdtham1997, Deb and Trivedi 1997, Gurmu 1997) education is expressed in the number of years of schooling, such variable would not be fully representative for Dutch educational system. In the Netherlands the time spent on education rarely mirrors an objective measure of recognitions acquired. Furthermore, due to policy changes the average schooling years are decreasing.

FIGURE 3

Type of insurance
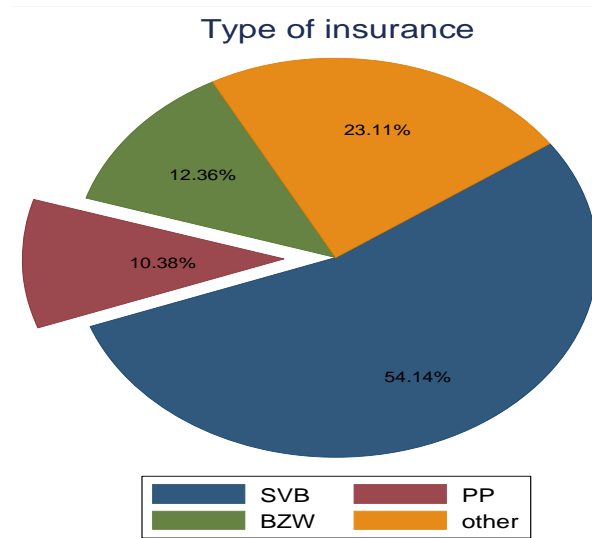
Controlling for sex by use of a dummy is motivated by different level of health care needs between sexes, sex specific health conditions and most importantly differences in tastes. Man and women may perceive their health status unlikely and other factors may serve as triggers for health care use.

Age is an important factor that, influences need for health care. One would expect that the older the individual the more health care he needs and if the need is met it results in higher health care utilization. Age also accounts for peoples tastes and therefore the choice of medical service or product. In some cases it is a matter of choice, whereas in others a necessity. There are conditions that are certainly more likely to be present later in human life. It is likely that the effect of age is not monotone, especially in case of health care use. After adding a polynomial of degree 2 to the models, age lost its significance, therefore constant effect of age is investigated.

One of the most common regressors in health care utilisation models is self assessed health (SAH). In this paper it is used both as dependent and independent variable, depending on a model. It results from a five-point Likert scale of answers to a question: How is your health in general? Although the answer to this question can be very subjective and depend on respondents mood SAH, proved to be a valid regressor in multiple studies analyzing health care utilization and mortality. Because of the very

low frequencies of answers in the bottom category ("Bad") for modeling purposes two bottom categories have been combined. This is most probably due to the so called end of scale bias, where respondents in general avoid extreme answers.

FIGURE 4
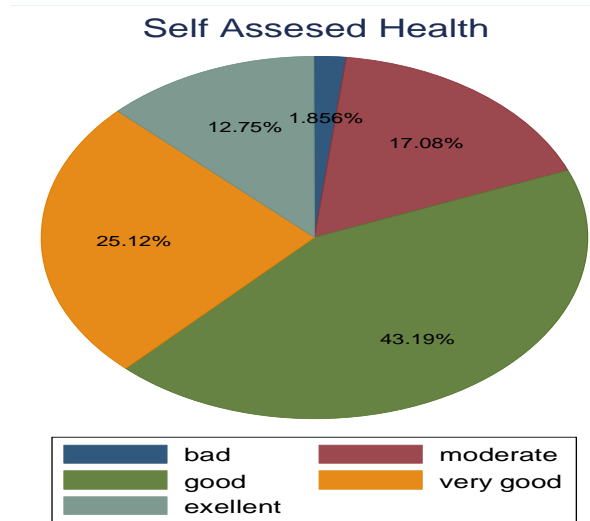
The models for health care use are run with and without controlling for health variables. It is expected that certain types of use are associated with particular health states.

It was impossible to create a good indicator of matriarchy in the family from the available data. The questionnaire only included the number of adults and the number of children in the household. The total number of members in the household is included in the group of control variables. It can serve as a socio-economic status indicator, since in Curacao most well of families live in big households. Furthermore, smaller family may indicate some level of matriarchy since a lonely mother would be unable to support the entire big family.

4.2.3. DOMESTIC VIOLENCE VARIABLES

MEASURING DOMESTIC VIOLENCE

A big challenge while researching domestic violence is measuring it. Most authors avoid quantifying the magnitude of domestic violence and simply use dummy variables, usually combined with a time factor e.g. has a victim experienced violent acts within last year or since the beginning of the current relationship. This still leaves a challenge of deciding what particular activities should be categorized as domestic violence. The available data about domestic violence from Curacao contains a variety of acts that differ greatly in severity, starting from not being able to receive own mail to rape.
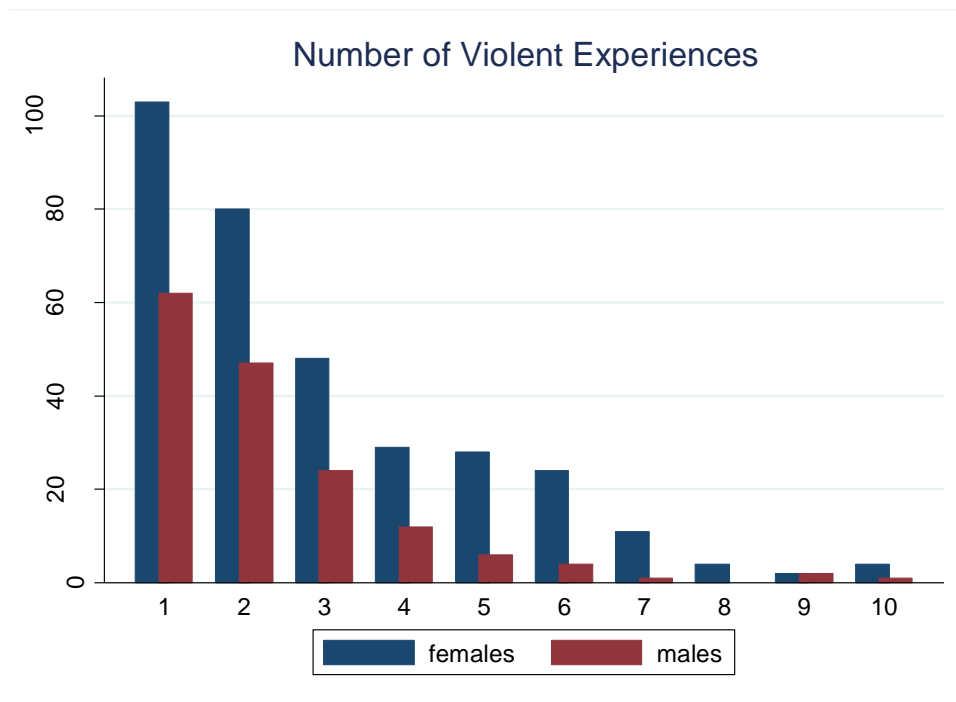
FIGURE 5

Figure 5 presents the distribution of number of different violent experiences distinguishing between sexes. It is very common to experience more then one violent act. The maximum number of different experiences is 10 and each one of them is characterized by various frequencies of occurrence. Under certain assumptions it is possible to attach a numerical value behind ones unique set of responses. The most

common tool to measure domestic violence, particularly in the United States, is Conflict Tactic Scales. It i s a set of questions to reveal ones behavior in a domestic conflict situation. By means of attaching weights to severity and frequency of acts and further aggregation it enables to measure domestic violence. The main drawback of CTS is its limitation to conflict resolution situation, whereas in developing countries violence may occur strictly for domination purposes. Abuse is sometimes used as punishment, without any conflict. A number of other attempts is known to researchers, like Index of Spuse Abuse used mainly for self reported violence, Abuse Assessment Screen used in screening by health care providers or Women's Experience with Battering Framework that focuses on subjects subjective perspective of the abuse experienced. The nature of the data available on Curacao enables construction of a tool similar to CTS. Due to a large number of missing values in frequencies a simpler ''count'' variable is used. Finally, the models also include dummy variables.

DOMESTIC VIOLENCE INDEX

For the sake of the research an instrument has been created that attempts to measure domestic violence (Domestic Violence Index). The original survey includes questions concerning domestic violence divided into three categories: psychological, physical and sexual abuse and subcategories (See Table 4). For the two latter ones, the respondents indicated the frequency of the experiences, rated on a six point scale, ranging from 1= happened once to 5= (almost) every day and additionally 6=it varies.

TABLE 4

Psychological abuse	Physical abuse	Sexual abuse
Harassment and Humiliation	Threatening	Sexual intimidation
Control	Physical abuse	Sexual aggression
	Severe physical abuse	

An attempt to quantify the concept of domestic violence raises many questions, especially when establishing the lower boundary of socially acceptable behaviour. For the sake of analysis an index has been created, that endeavours to express numerically the severity of individuals domestic violence experience. Even though the items under category psychological abuse fall under the definition of domestic violence used in this

research their significance is questionable. Furthermore, the survey does not include the frequency of such events. Taking this into account, only the data concerning physical and sexual abuse is used to calculate the index. The construction of this tool is based on the most popular most widely used scales in the literature concerned with family violence research (Barnett, Miller-Perrin, & Perrin, 1997), namely Conflict Tactics Scales (CTS). CTS respondents are asked to indicate how many times within a given time period they used reasoning, argument, verbal or physical aggression during disagreements or fights. The scores are usually obtained by summing up frequency weighted responses but the author recognizes the need for more collaborate means of scoring (Straus 1979). In the construction of the Domestic Violence Index (DVI) in this research the need for weighting amongst subcategories is evident. The violent behaviors described under each category differ significantly in severity. Moreover, the frequency weights also had to be adjusted. Tables 5 and 6 provide the overview of the weights used in the research. The frequency weights are equivalent to those advised by Straus (1979) in CTS, whereas the weights for severity are specific for the available data. DVI is an average of physical and sexual abuse.

TABLE 5

Physical abuse	Sexual abuse	Weight
Threatening	Sexual intimidation	1
Physical abuse	Sexual aggression	2
Severe physical abuse	Rape*	5

TABLE 6

Frequency	Weight
It happened once	1
It happened few times	3
More often than once a year but not every month	6
Mostly every month but not every day	15
(Almost) every day	25
It varies	10

The index is standardized on a 0 to 100 scale indicating the percentage of the possible total score. This is done by simply dividing the score for each respondent by the maximum possible score, multiplying by 100 and rounding to an integer. The

advantage of the percentage standardization is that it uses units that have meaning to the general public: i.e., percentage of the maximum possible score. However, there is no statistical advantage. The DVI can be expressed by a formula:

$$DVI = \frac{(1 \times T + 2 \times PA + 5 \times SPA) \times F_{phys} + (1 \times SI + 2 \times SA + 5 \times R) \times F_{sex}}{(1 \times 2 + 2 \times 3 + 3 \times 3) \times 25 + (1 \times 3 + 2 \times 3 + 1 \times 5) \times 25} \times 100$$

; where: T, PA, SPA, SI, SA and R stand for number of violent experiences per category and F are the frequency weights.

To illustrate the density of the DVI, Kernel density estimation is used (Figure 5). It compares the indexes for males and females from the sample. As expected the Index has lower density for females for low values and higher density for higher values. Furthermore, the maximum value is higher for females. Kernel density estimation is superior to a traditional histogram, which is limited by the width and the end points of the bins. Kernel estimators smoothen the effect of each contributing data points over group of data points in its neighborhood. The extent of this neighborhood is specified by bandwidth and Kernel function. If we denote bandwidth by b, the estimated density point x, according to Epanechnikov function is:

$$\hat{F}(x) = \frac{1}{n} \sum_{i=1}^{n} \frac{3}{4} \times \left[1 - \left(\frac{x - x(i)}{b} \right)^2 \right]$$

FIGURE 5

Kernel density estimation for DMI
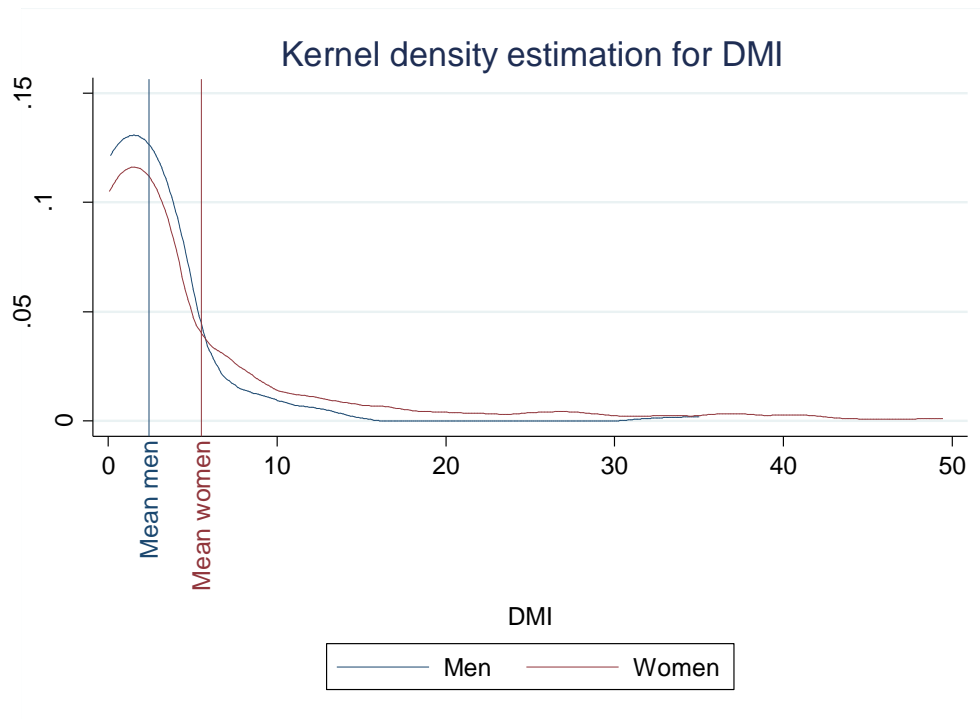
The major drawback of the DVI is a large amount of missing values for frequencies. The missing values have been replaced by the mean frequencies from the respondents who did indicate the frequencies. A control dummy has been created for all observations for which the mean has been used in order to check whether the assumption was correct. Figure 5 only includes non-zero observations. When those are included, the distribution becomes even more skewed. In order to deal with this problem natural logarithm of DVI is used in the models. For this reason one has to be very careful with the interpretation of the coefficients.

COUNTS OF EXPERIENCES

In order to control for effect of different kinds of domestic violence and because of the drawback of the DVI simpler variables are also used. Three variables for each category of domestic violence included in the questionnaire (psychological, physical and sexual) are used. The frequency and severity of the experience is not taken into account. The "count" variables are simply number of different violent experiences reported by the respondent per category. Despite is disadvantages there are no subjective

assumptions used to construct those variables and it enables comparison between the categories of violence.

Figures 6, 7 and 8 illustrate comparison of count variables per category between sexes. As expected female respondents reported more violence than male for all kinds of violence. The distributions are similar for psychological and physical abuse. In case of sexual abuse (Figure 8) the incidence is much lower and predominant for females.
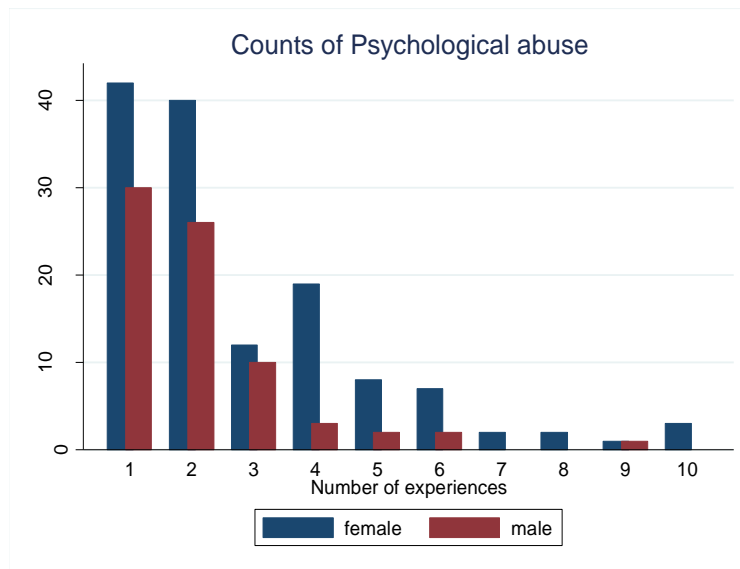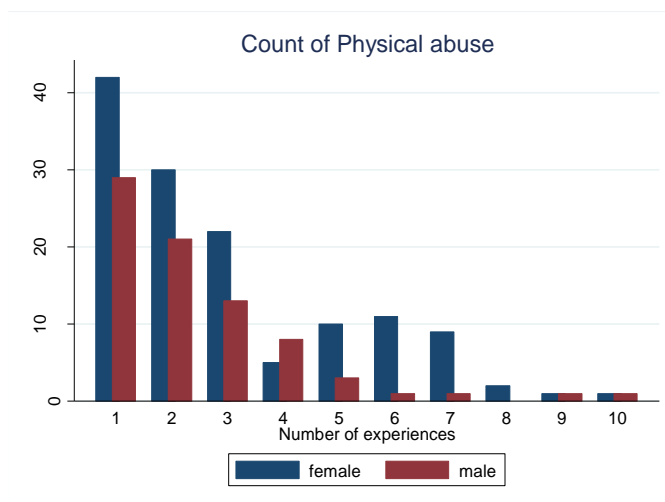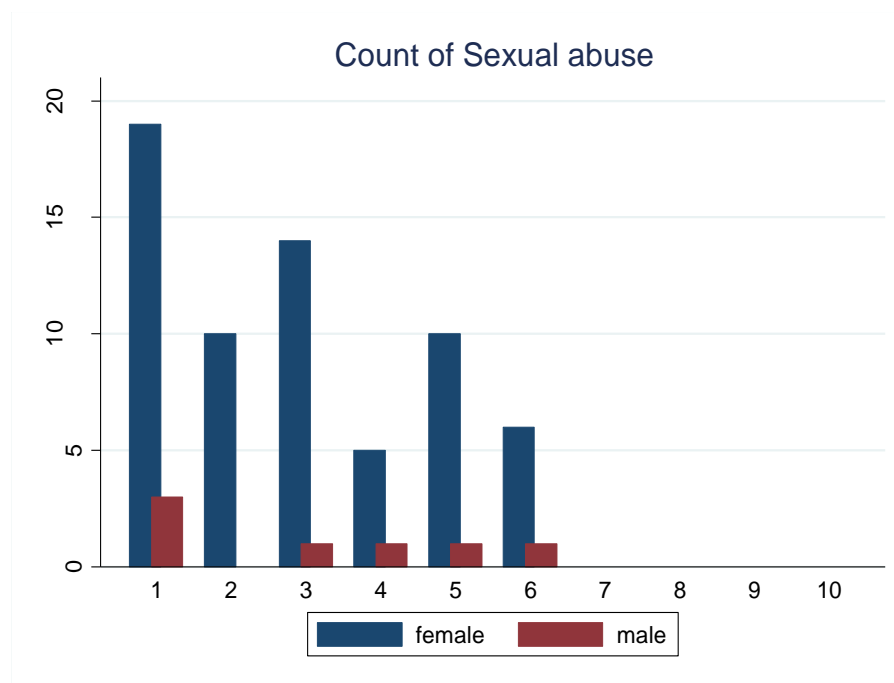
FIGURE 6

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FIGURE 7

FIGURE 8

5. ANALYSIS

Due to the nature of the available data two kinds of models are used, namely logistic regression and Poisson regression. For models estimating dummies of medical conditions and specific health care uses the logistic regression is used. For the models with dependent variables in form of count data a Poisson regression is used and ordered logistic regression for SAH.

5.1. LOGISTIC REGRESSION, ORDERED LOGISTIC REGRESSION AND POISSON REGRESSION

For modeling of dichotomous outcomes like dummy variables in this research a logistic regression is used. There are certain limitations of linear probability modeling of binary responses: it allows for probabilities greater than 1 and lower than 0 and the partial effects of all explanatory variables are constant. This is overcome by fitting the data to a logistic function, which takes values between 0 and 1 for all real numbers. The logistic function relates the independent variables to the probability that Y=1:

$$P[Y = 1] = \frac{e^{a+b_1x_1+b_2x_2+\cdots+b_kx_k}}{1 + e^{a+b_1x_1+b_2x_2+\cdots+b_kx_k}}$$

, where a, b1, b2 are model parameters to be estimated.

Instead of classifying an observation into one group or the other, logistic regression predicts the probability that an indicator variable is equal to 1.

Self assessed health is ordinal, where one can rank the values but the distance between them is unknown. In order to incorporate the ordinal nature of the response variable the ordinal logistic regression is used.

$$P(y_i = j \mid x_i) = \frac{\exp(\tau_j - x_i\beta)}{1 + \exp(\tau_j - x_i\beta)} - \frac{\exp(\tau_{j-1} - x_i\beta)}{1 + \exp(\tau_{j-1} - x_i\beta)}$$

Poisson regression is the most popular method to analyze count data that takes non-negative values. It assumes Poisson distribution of the dependent variable and the expected value is modeled by a number of predictors:

$$E[Y \mid x_1, x_2, \ldots, x_k] = e^{a+b_1x_1+b_2x_2+\cdots+b_kx_k}$$

Poisson regression yields the change in expected value of the outcome given a one unit change of the independent variable. In general the parameter estimates from non-linear models, like the logistic regression and models to analyze count data, like Poisson regression are transformed into marginal effects. It is the change in the expected value of the response variable due to a unit change in explanatory variable. They are much easier to interpret for the general public then raw estimates or also popular odds ratio. In case of ordered logistic regression where the marginal effect are estimated on a specific category, in this case the lowest combined category (bad and moderate health). All results in this paper are presented in marginal effect form.

5.2.Models

Because of the large amount of dependent variables of interest several statistical models have been constructed. Three dependent variables have an ordinal nature. For self assessed health two lowest categories on the Likert scale have been grouped together, which resulted in a four level ordinal variable. The number of medical conditions and the number of health care uses are simple count data. All dependent variables in the form of count data are analyzed using Poisson regression. On the other hand, for the analysis of all dummy variables a simple logistic regression is used. This procedure is used for both dummies indicating different health problems and health care uses. Self assessed health was included in the set of predictors only for the models investigating health care utilization. Separate models for each dependent variable were constructed including different approaches to capturing the effect of domestic violence:

- Dummies for presence of domestic violence and dummies for different kinds of domestic violence

- General domestic violence index and domestic violence distinguishing between sexual and physical violence

- Total count of different experiences and counts per type of domestic violence

Models for health care utilization were run without controlling for presence of different medical conditions and with them to observe the effect on domestic violence variables. Tables 7 provides an overview of all variables used in the models investigating health care need, whereas Table 8 health care utilization.

Table 7

Dependent Variables	Control Variables	Domestic Violence Dummy	Domestic Violence Index	Count of domestic violence
•SAH •Number of illnesses •Dummies: •illnesses	•Age •Sex •Household size •Education •Insurance coverage	•Physical •Psychological •Sexual	•Physical •Sexual	•Physical •Psychological •Sexual

Table 8

Dependent Variables	Control Variables	Domestic Violence Dummy	Domestic Violence Index	Count of domestic violence
•Number of health care uses •Dummies: •Healthcare uses	•Age •Sex •Household size •Education •Insurance coverage •SAH •Dummies of illnesses	•Physical •Psychological •Sexual	•Physical •Sexual	•Physical •Psychological •Sexual

Different approaches to domestic violence are used in this paper. Dummy variables are the most commonly used means of controlling for victimization. In order for the results to be comparable with finding from other papers simple dummy variables are included in the models. Furthermore, the probability of bias while investigating sensitive subject is exceptionally high when the questionnaire goes into too much detail. A simple dummy is probably the most bias free indicator of victimization but the conclusions that can be drawn from the results are limited. Domestic violence index is an attempt to quantify domestic violence in terms of severity and frequency of experiences. It is expressed as a score on scale from 1-100, which makes it very easy to interpret. It is based on multiple assumptions and is limited to physical and sexual violence. The count variable is simply a domestic violence index version, free of all the

assumed weights. If the domestic violence index was constructed correctly it is expected to yield more significant results than the count variable.

6. Results

Because of the large amount of models in the research only the most relevant results concerning the domestic violence predictors are presented in this chapter. The effects of all variables are discussed but the actual results are available on request. The models investigating health care utilization were run twice: controlling for the dummies of illnesses and only with the control, self assessed health and domestic violence variables. Table 9 presents the overview of the results for models for health care need. The columns indicate the dependent variables of the models, whereas the rows show different domestic violence variables. The values presented are marginal effects, number of stars indicate the level of significance: *-sig. at 10%, **-sig. at 5%, ***-sig. at 1% and no star are not significant at 10%. The last row indicates the number of observations. Table 10 has the same form but is concerned with the second set of dependent variables indicating the impact on health care utilization. For the sake of comparability the results of health care utilization models presented in Table 10 come from the models excluding dummies of illnesses. In this situation the sets of independent variables across all models presented are the same. General results from the models controlling for illnesses are presented in Figure 9.

Table 9

Dependent Var. / Indep. Variables	SAH	N of illnesses	Fracture	Migraine	Weight problems	Bad sleep	Eating Disorder	Menstruation Problems	Blood Pressure	Skin Problems	Face problems
DV	0.305*	0.405***	0.001	0.114***	0.086***	0.043*	0.012	0.083**	0.057***	0.047**	0.083***
Psych	0.022	0.137	0.004	0.056*	0.034	0.012	0.020	0.017	-0.002	0.013	0.035
Phys	0.031	0.340***	0.017	0.057*	0.099***	0.044*	0.008	0.060	0.066***	0.028	0.030
Sex	-0.028	-0.004	-0.042	-0.001	0.012	-0.371	-0.023	0.038	-0.007	0.038	0.050
DVI	0.004	0.171***	-0.001	0.039***	0.049***	0.007	0.007	0.028*	0.021**	0.021***	0.021
Phys	0.006	0.127***	0.014*	0.023*	0.036**	0.015	0.000	0.005	0.022**	0.007	-0.003
Sex	0.002	0.043	Omitted	0.017	0.013	-0.021	0.011	0.031*	-0.002	0.020**	0.032
Count DV	0.005*	0.038***	-0.004	0.006*	0.012***	0.003	0.002	0.007*	0.003	0.006***	0.007*
Psych	0.014**	0.015	-0.025**	0.002	0.025**	0.001	-0.004	0.002	0.001	0.005	0.008
Phys	0.004	0.085***	0.015***	0.010	0.002	0.016**	0.011**	0.010	0.012*	0.007	0.002
Sex	-0.006	-0.020	Omitted	0.005	0.009	-0.028	-0.004	0.011	-0.009	0.004	0.016
N	790	749	699	770	776	766	769	446	769	766	776

Table 10

Dependent Var. Indep. Variables	N of HCU	GP visits	Specialist visits	Social welfare	Mental health	Polyclinic	Hospitalization	Sleeping medication	Antidepressants
DV	0.202**	0.005	0.028	0.045**	0.027	0.003	0.001	0.066***	0.049***
Psych	-0.041	-0.027	-0.033	0.008	-0.013	-0.010	-0.026	0.043*	0.015
Phys	0.133	0.026	0.036	0.040**	0.027	-0.016	-0.018	0.018	0.023
Sex	0.355**	0.037	0.027	0.023	0.024	0.048	0.073**	0.041	0.018
DVI	0.135***	-0.002	0.014	0.019***	0.015**	0.007	0.015	0.020**	0.014**
Phys	0.014	-0.008	-0.002	0.013**	0.005	-0.011	-0.008	0.004	0.014**
Sex	0.176***	0.023	0.013	0.009	0.014*	0.026*	0.004*	0.023*	-0.003
Count DV	0.038***	-0.001	0.005	0.004***	0.004**	0.001	0.004*	0.006**	0.001
Psych	-0.054*	-0.029**	-0.011	-0.002	-0.004	-0.002	-0.012	0.001	-0.006
Phys	0.072**	0.016	0.017	0.009**	0.007	-0.001	0.005	0.006	0.011**
Sex	0.123***	0.015	0.010	0.008	0.011*	0.014	0.028***	0.014*	-0.002
N	788	788	783	770	774	781	781	780	780

In most cases a significant effect of domestic violence was found amongst different methods of capturing the victimization e.g. in case of social welfare, significant results were found for physical violence victims in all groups of variables. There are more mixed results like those of skin problems that indicate a significant effect of general domestic violence indicators and only in case of domestic violence index - the sexual abuse. Little evidence of influence of abuse was found on face problems, eating disorder, GP visits, specialist visits and polyclinic. Several marginal effects are negative and significant, which indicates a lower risk of medical problem or health care utilization. This is only the case for victims of psychological violence. According to the results for count variable they are in less risk of fractures and are less likely to visit a GP. Multiple other coefficients in the utilization models, concerning psychological violence are negative but not significant at 10% level.

Some general conclusions about the influence of different kinds of domestic violence on victims' health and health care utilization can be drawn from the results. Psychological violence increases the probability of migraines and weight problems and decreases the probability of visiting a GP. The victims of physical abuse are more likely to suffer from migraines, weight problems, fractures, bad sleep, blood pressure and eating disorders. They are also greater users of antidepressants and social welfare. Sexual violence victims report more menstruation and dermatological problems than others and have an increased probability of use of mental care, sleeping medication and hospitalization. These results confirm hypotheses 3 and 6 but are only partially in line with the predictions based on literature review.

Furthermore, the models of health care utilization controlling for dummies of medical problems indicate the patterns of medical consumption of people suffering from various conditions. Individuals suffering from migraine report significantly higher use of antidepressants and sleeping medications. Fractures lead to more polyclinic care, bad sleep to more sleeping medication, blood pressure to social welfare and dermatological and menstruation problems to more specialist visits. Furthermore, eating disorders increase the probability of polyclinic care and antidepressants and

sleeping medication intake. Figure 9 presents all the described effects of domestic violence. Red arrow represents a negative impact.
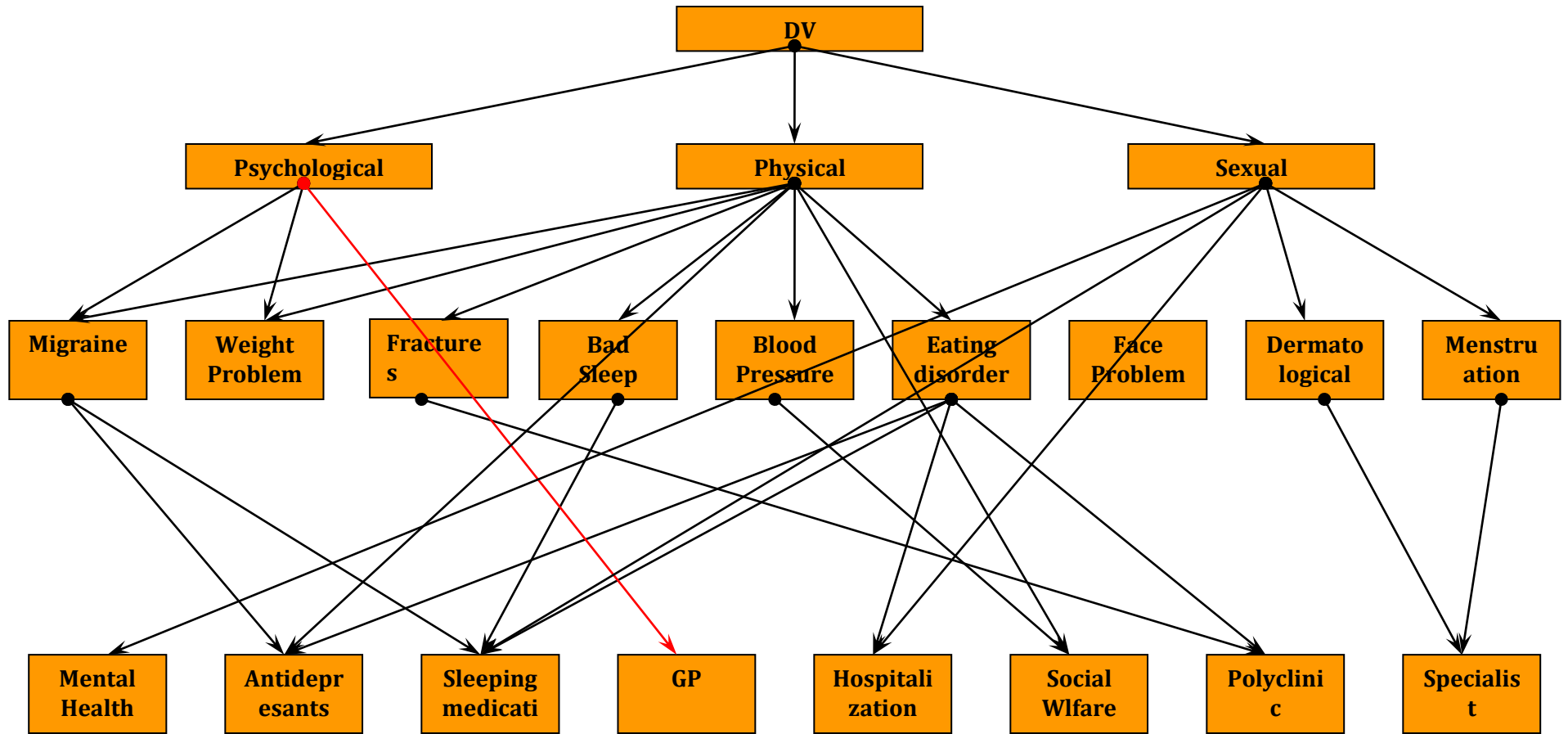
Figure 9

TABLE 11

	N of HCU		N of HCU
DV	0.202**	➡	0.164
Psych	-0.041	➡	-0.103
Phys	0.133	➡	0.048
Sex	0.355**	➡	0.534*
DVI	0.135***	➡	0.123**
Phys	0.014	➡	0.063
Sex	0.176***	➡	0.147**
Count DV	0.038***	➡	0.034**
Psych	-0.054*	➡	-0.070
Phys	0.072**	➡	0.0635
Sex	0.123***	➡	0.133**

Table 11 demonstrates how controlling for illnesses changed the effects of domestic violence on healthcare use. All variables decrease in significance and only sexual violence remains significant on the 10% level. This means that the effect of sexual violence on the health care use is not captured by the health state of the victims. Figure 9 shows that sexually abused people are more likely to be hospitalised, take sleeping medication and seek mental health consultation. It is possible that those people seek help in the public health institutions regardless of their health status.

It is difficult to conclude which measure of domestic violence is most valid. The results for the dummy variable (most general variable) were not more significant than other measures. Even in a very sensitive area of sexual abuse, the domestic violence index proved to be a better predictor for health care need and utilisation. In most cases the results are similar for all 3 groups of variables.

The results of control variables are very similar across different models. To demonstrate their effect marginal effects are presented in Table 12 for models of number of illnesses and number of health care utilisations.

Table 12

Variable	No. Of Illnesses	No. Of Healthcare uses
Sex	0.533***	0.308***
Age	-0.001	0.005*
Insurance PP	-0.098	0.162
Household size	0.002	0.002
Education		
-HBO WO	-0.523***	0.172*
-HAVO VWO	-0.307*	0.206

-SBO MBO	-0.566***	0.174
-LBO MAVO VSBO	-0.501***	0.146
-No education	------	
SAH		
-Bad and moderate		------
-Good		-0.977***
-Very good		-1.366***
-Excellent		-1.361***

*For variable Education and Self Assessed Health "No education" and "bad and moderate" health serve as base level

Being female increases the likelihood of having an additional illness by 53 percentage points and having one additional use of healthcare by 31 percentage points. Age has a significant effect on health care utilisation but it is relatively small. From the set of socio-economic factors only education was found to be significant. Surprisingly a higher level of education does not necessarily mean lower probability of additional health problem. The results rather suggest that having no education is a strong risk factor. As expected Self Assessed Health proved to be a good predictor of health care utilisation, but the effects of top two categories is not significantly different.

Because of the large amount of models run and a relative difficulty to provide a general interpretation across them a series of probability graphs was constructed. They give a clear idea of the association between given domestic violence variable and health care need and utilization. Figure 10 shows probability plots for the self assessed health over the number of violent experiences. The changes in probabilities are clearly visible for categories "bad and moderate health" and for "very good health".

Figure 10
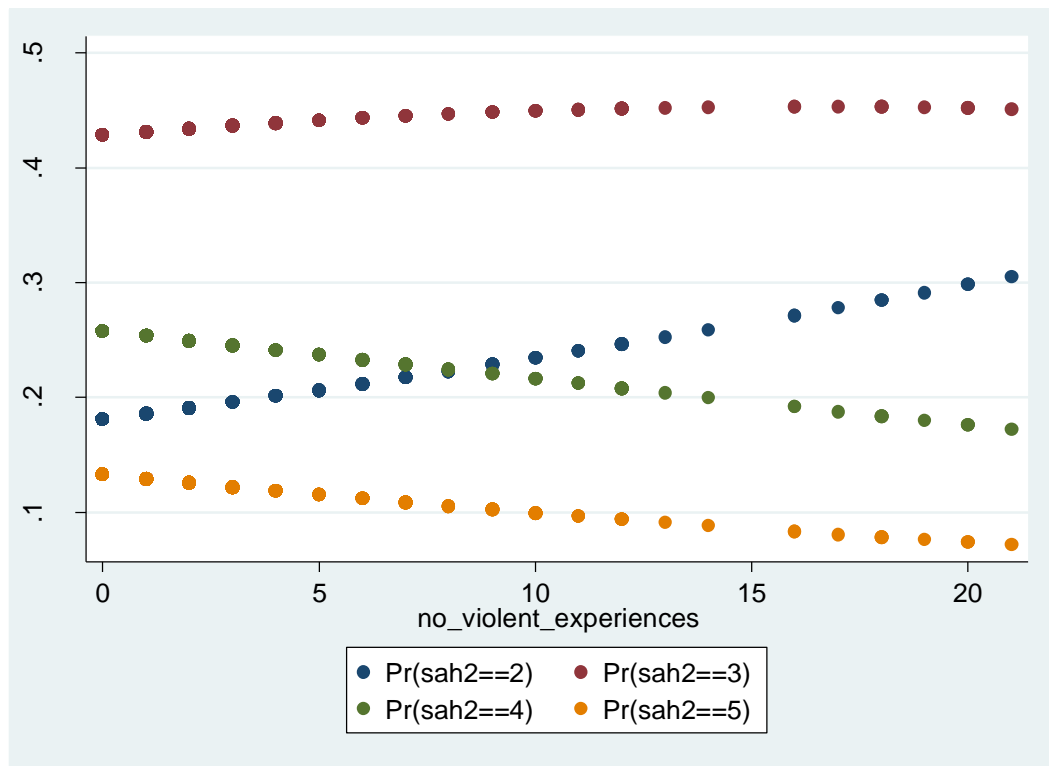
Number of violent experiences clearly increases the probability of "bad and moderate health" and decreases the probability of being in "very good health". As described in previous chapter SAH is a very good indicator of need for health care. Figure 11 shows the expected number of illnesses against the domestic violence index. There is a clear increasing relationship between the severity of domestic violence experience and the number of illnesses. Graphs 11 and 11 clearly confirm hypotheses 1 and 2.

Figure 11
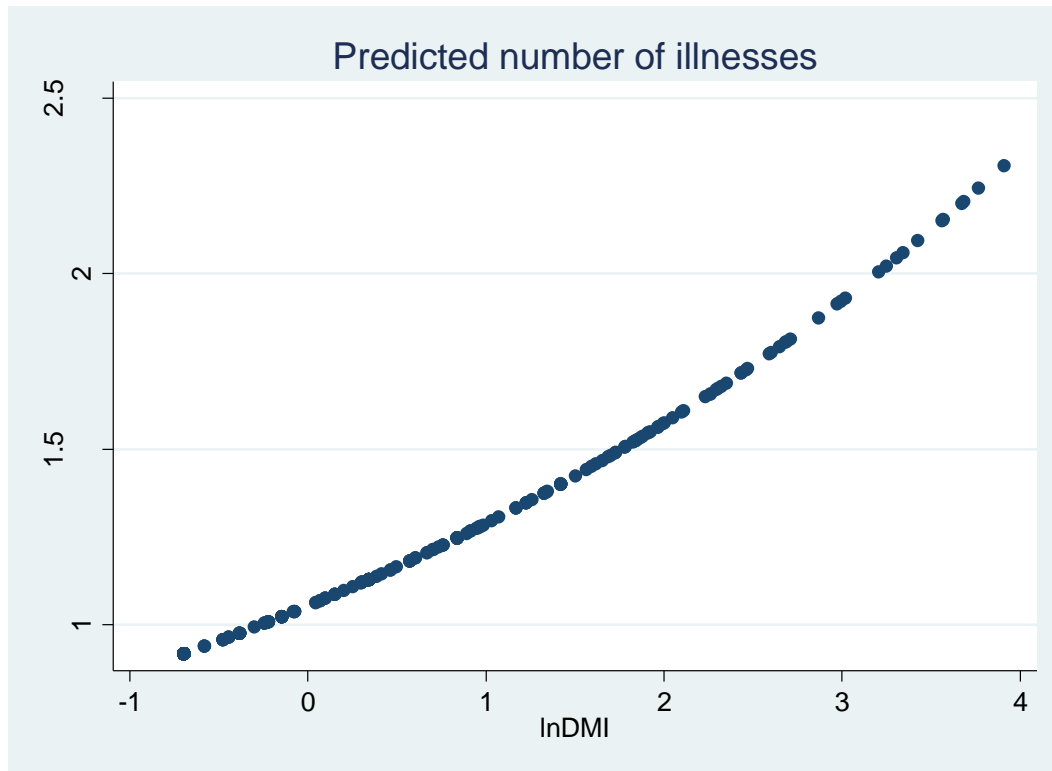
Finally, Figure 12 describes the expected numbers of medical uses against domestic violence index and is in line with hypotheses 4 and 5.

These results indicate taht domestic violence is an important policy concern and a violation of human rights. This paper shows that in Curacao, like in other parts of the world it is associated with negative health outcomes and increased health care utilisation. This paper points out an important issue that requires immediate actions.

Figure 12

Predicted number of medical uses
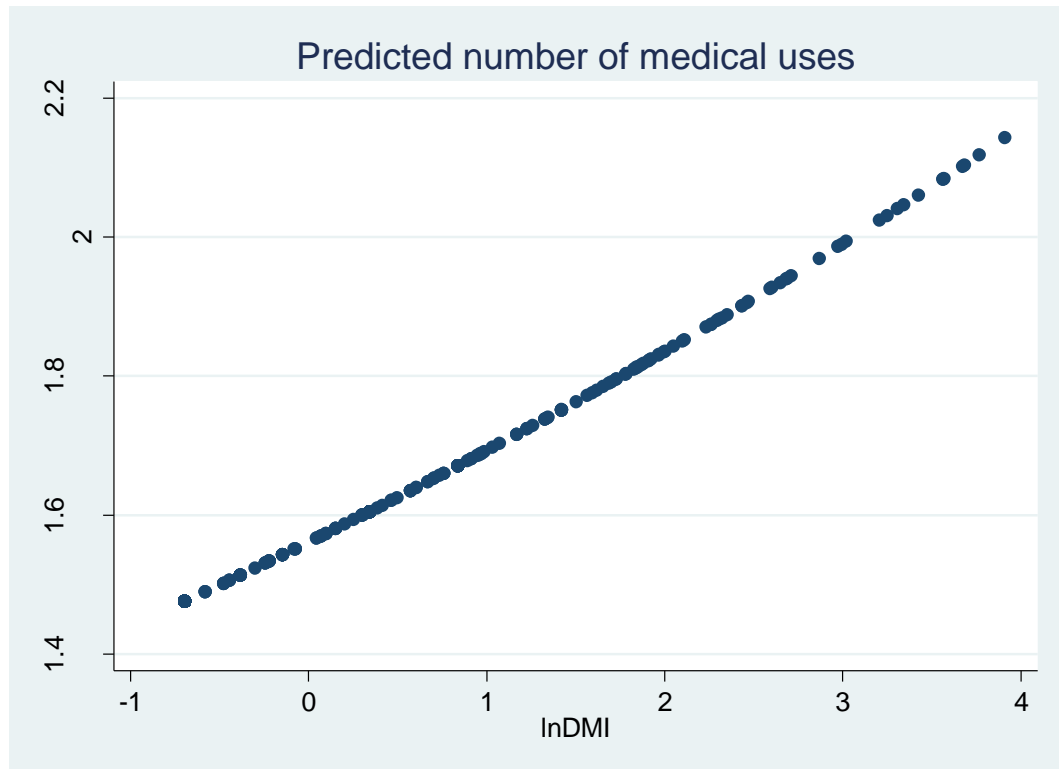
7. Discussion

This research is the first to examine the association of domestic violence with health outcomes and health care utilisation in Curacao. The results based on a representative sample clearly indicate that the prevalence of domestic violence in Curacao is substantial. There is also strong evidence supporting all the stated hypotheses. The impact on both health problems and medical consumption is strong. These findings are in line with the evidence found in the literature from other countries. All types of violence: psychological, physical and sexual have specific effects on the victims health and consequently on the medical use.

The database strongly suggests that domestic violence as defined for the purposes of this research is not gender specific. There is a large number of male victims especially of psychological and physical violence. Many feminist researchers suggest collecting data only from women and focusing on intimate partner abuse. In case of Curacao,

such approach would give an incomplete picture that would decrease the magnitude of the problem. Although females suffer greatly from domestic violence, other forms like child abuse, elderly abuse and finally male abuse should not be neglected. Many pressure groups want to focus the policy efforts on females but researchers need to deliver sound analyses.

Surprisingly, negative associations were found between domestic violence and fractures and GP visits. The less frequent visits to the general practitioner can be explained by shame and fear factors. Victims of psychological abuse are less likely to reach out to the medical services to seek help. As for the negative results for fractures it is difficult to imagine that domestic violence victims are less likely to suffer from physical harm. It is most likely that it is a result of a reporting bias. The individuals were afraid or ashamed to mention physical harm in a questionnaire about their household situation. This bias is likely to be valid for other variables as well.

Even though the results of this research are consistent with other literature and robust it is important to mention several limitations. First of all, the causality in relation between domestic violence and the negative outcomes is assumed. The cross sectional design of this research does not provide any evidence that indeed domestic violence is the "cause" of negative health outcomes. Secondly, reporting bias remains a big problem while investigating sensitive subjects like domestic violence. The recall and disclosure bias is assumed to be relatively strong. While reading this paper one has to have in mind that the results significance are most probably underestimated.

There is a whole range of important questions concerning domestic violence that still need to be addressed. Further examination of the available database could be used to create risk profiles of victims. By establishing the most vulnerable group the policy efforts can be more focused. Timing of the abuse could provide very valuable insight – when it first started, with what frequency and what kind of abuse. Such data would allow the researchers to establish a risk pattern throughout victims life. Some universal frameworks should be developed that would allow for comparability between studies. As hard as it is, a single definition of domestic violence should be

available for research purposes. It is especially difficult in case of emotional abuse, since different behaviours are acceptable across cultures. Further research should also focus on negative outcomes of domestic violence other than health care utilisation and need. Possible areas of exploration include general well being, social contacts or productivity.

8. Acknowledgements

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