

**THE ADVERSE EFFECTS OF DOMESTIC VIOLENCE ON
PSYCHOSOCIAL WELL-BEING**

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The purpose of this study was to investigate the effects of domestic violence on psychosocial well-being. Comparisons were made between the effects of psychological, physical and sexual abuse. Possible gender differences in the prevalence and effects of domestic violence were also taken into account. The data used in this study was collected from the staff of the Central Finland Health Care District in 2010. A total of 1 952 people participated in the study. The dependent variables included in this study were depressive symptoms, sleep quality and well-being as measured by both self-evaluation and MHC-SF questionnaire. The relationship between domestic violence and well-being was studied using crosstabs, regression analyses, variance analyses and mediator analyses. The results showed that 44 % of women and 24 % of men had experienced some kind of domestic violence. “Psychological abuse only” was the most common abuse group, followed by “psychological & physical abuse”. In all abuse groups, the number of women was significantly higher than that of men. Participants with domestic violence experiences scored significantly worse on all measures used in the study and this effect was strongest among those experiencing psychological abuse only. This result is compatible with previous research findings emphasizing the importance of psychological domestic violence. Findings from the mediation analyses suggest that these adverse effects of psychological abuse can at least partially be explained by decrease in sleep quality. The results also suggest that domestic violence might have different effects on women and men. These findings should be taken into account at the various services aimed at decreasing the adverse effects of domestic violence.

Key words: domestic violence, psychological abuse, physical abuse, sexual abuse, psychosocial well-being, depression, MHC-SF, sleep

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INTRODUCTION

Study setting & definitions

Nowadays domestic violence is widely regarded as a major social problem that affects the health and well-being of numerous people worldwide. However, the definition of domestic violence varies between different studies, samples and languages. Other closely related terms include intimate partner violence, family violence and family abuse. In this study “domestic violence” is used in a meaning of close-relationship violence, which includes intimate partner violence but is not restricted to it. This broader definition of domestic violence can also refer to abuse happening between parents and children, siblings and former partners. Domestic violence can be physical, sexual or psychological, although these different forms of abuse are not always clearly distinguishable and often occur together (Finnish Ministry of Social Affairs and Health (STM), 2008; The World Health Organization (WHO), 2002). Physical abuse includes different forms of violence, such as slapping, kicking and pushing, throwing objects at the victim and usage of a weapon. Sexual abuse, in turn, includes rape and other ways of forcing or pressuring another person into sexual acts. Psychological abuse can appear as intimidation, controlling behaviors, constant belittling, name-calling and emotional bullying. However, these definitions of domestic violence are not set on stone either, and the meaning of the terms used can differ significantly from one study to another.

Along with the definitions of domestic violence, the research questions and samples have changed through time as well. Especially the earlier studies on the subject focused only on physical or sexual violence and used mainly clinical samples retrieved from shelters and healthcare settings, whereas nowadays it has become more and more common to take into account the different forms of psychological abuse as well and use population-based samples (Hamel, 2007). In the future the research on domestic violence is likely to broaden, as differentiations are made between domestic violence types, gender, perpetrators, and other factors (Langhinrichsen-Rohling, 2005). The existing literature has established that domestic violence has several negative effects on the lives of both victims and perpetrators, and that it also puts a strain on society in the form of increased costs in social and health care settings (Campbell, 2002). However, there are still many unanswered questions related

to domestic violence as well as long-lasting debates among researchers.

In this study I am aiming to add to the existing knowledge on domestic violence by investigating the many consequences it has on psychosocial well-being. I am going to compare the effects of physical, sexual and psychological abuse, analyse possible gender differences in the sample and investigate potential mediation effects between domestic violence experience and well-being. But first I will present what is already known about the issue.

Prevalence of domestic violence

Studies show that domestic violence is a very common problem around the world, although the exact prevalence rates found vary from one study to another. According to a study conducted by WHO in ten different countries, 15 % to 71 % of the women, who had ever had a relationship, had experienced physical or sexual violence at least once by their intimate partners (Ellsberg, Jansen, Heise, Watts, & García-Moréno, 2008). A meta-analysis conducted by Alhabib, Nur and Jones (2010) showed that between different continents the mean lifetime prevalence rates of domestic violence were 22-35 % for physical and 15-25 % for sexual abuse. In population-based studies conducted in the USA and Canada the lifetime prevalence of physical domestic violence experienced by women has been 25-30 % (Campbell, 2002). In Finland, Piispa, Heiskanen, Kääriäinen and Sirén (2006) have studied the prevalence of domestic violence among women living together with their male partners. They reported that 20 % of these women had experienced physical or sexual violence or threats at least once in their current relationship and 49 % had experienced abuse in a previous relationship.

There is much less research data about the domestic violence experienced by men and study results on the subject have often been contradictory. A systematic review by Desmarais, Reeves, Nicholls, Telford and Fiebert (2012) analyzed 249 articles containing prevalence rates for physical abuse among six English-speaking countries. The results concluded that 36 % of women and 22 % of men had experienced physical domestic violence at least once in their lives. According to Heiskanen and Ruuskanen (2010), 16 % of the Finnish men currently living in a relationship or having a previous relationship had experienced physical or sexual abuse or threats at least once by their current partner and 22 % had experienced abuse at least once by their ex-partner. Malloy, McCloskey, Grigsby and Gardner (2003) state in their review that although the overall prevalence rates of domestic violence are

relatively similar among women and men, women are significantly more likely to experience sexual abuse as well as more serious physical violence.

Psychological abuse is less investigated and even more difficult to define than physical or sexual abuse, but in the past years there has been a growing research interest towards the psychological aspects of domestic violence as well. According to Alhabib et al. (2012), the mean lifetime prevalence rates of psychological abuse vary from 10 % to 50 % between different continents. A review by Carney and Barner (2012) states, in turn, that the overall prevalence rates for psychological abuse in industrialized, English-speaking countries might average as high as 80 %. According to the authors, 40 % of the studied women had experienced verbal aggression or insults in their relationships, 41 % reported at least some form of coercive control and 7 % had been stalked. For men, the corresponding rates were 32 % for verbal aggression, 43 % for coercive control and 2 % for stalking. Graham-Kevan (2007) also states that the overall rates of psychological abuse are similar among men and women, but some gender differences might exist between abuse subtypes. According to Outlaw (2009), women and men face similar rates of verbal abuse in their intimate relationships, but women are significantly more likely to experience social and economic control by their partners.

Domestic violence is not only related to adult relationships, but it is frequently experienced by children as well. According to research literature, approximately 11-14 % of people have experienced childhood psychological abuse and 8-20 % have experienced physical abuse by their parents or other family members (Clemmons, Walsh, DiLillo, & Messman-Moore, 2007; Felitti et al., 1998; Mullen, Martin, Anderson, Romans, & Herbison, 1996). In the case of childhood sexual abuse, the statistics usually include all possible perpetrators (not only family members), yielding to prevalence rates of 8-22 % (Clemmons et al., 2007; Felitti et al., 1998; Mullen et al., 1996). In a study conducted by Teicher, Samson, Polcari and McGreenery (2006), 42 % of the participants reported having experienced at least one form of domestic violence as a child. In Finland the corresponding rates are even higher, with as many as 72 % of children having experienced mild violence and 8 % having experienced serious violence at least once by their parents (Sariola, 1990). More recent statistic by the Central Union of Child Welfare show that even though the approval of violent punishment methods has steadily been decreasing, as many as 25 % of Finnish parents still use physical or psychological violence towards their children (Sariola, 2014).

Although distinction between the different forms of domestic violence has resulted to many important findings, studies conducted on the subject also show that the different abuse types are far from separate, as psychological, physical and sexual abuse tend to co-occur in the case of both child- and adulthood domestic violence (Carney & Barner, 2012; Felitti et al., 1998; Krahe, Bieneck, & Möller, 2005; Mullen et al., 1996; Outlaw, 2009; Piispa et al., 2006; Teicher et al., 2006). As stated previously, psychological abuse seems to be the most common form of domestic violence and the findings by Outlaw (2009) suggest that it also acts as a risk factor for other forms of violence. There are also several socio-economic factors that are linked with increased likelihood of domestic violence. These include young age, student status, unemployment and low income, substance abuse and disturbed family background (Bonomi et al., 2007; Coker et al., 2000; Desmarais et al., 2012; Krahe et al., 2005; Mullen et al., 1996; Piispa et al., 2006). Abuse experienced in childhood seems to increase the risk of domestic violence later in life as well (Bonomi et al., 2007; Krahe et al., 2005).

Effects of domestic violence

Domestic violence has several well-established effects on health and well-being. First of all, people experiencing physical or sexual domestic violence suffer from injuries and various physical symptoms, including headaches, back pain, gastrointestinal problems and gynecological conditions (Campbell, 2000; Coker et al., 2002; Ellsberg et al., 2008). Domestic violence is also related to mental health disorders, with as many as 60 % of the victims being reported to meet the requirements for a mental-health diagnosis (Golding, 1999; Nathanson, Shorey, Tirone & Ratigan, 2012). The most common mental-health consequences of domestic violence are depression and posttraumatic stress disorder (PTSD), which are also often comorbid (Campbell, 2000; Nathanson et al., 2012). It is also important to notice that the depressive and traumatic symptoms have a significant effect on well-being even when the exact diagnostic criteria are not met (Basile, Arias, Desai, & Thompson, 2004). In addition, people with a domestic violence history are more anxious, suicidal and more prone to substance abuse than those who have not experienced abuse (Campbell, 2000; Coker et al., 2002; Ellsberg ym., 2008; Golding, 1999; Nathanson et al., 2012). Other psychosocial consequences of domestic violence include sleep disturbances and social dysfunction (Bonomi et al., 2006; Campbell, 2002; Humphreys & Lee, 2005; Humphreys, Lee, Neylan, & Marmar, 1999; McCaw, Golding,

Farley, & Minkoff, 2007)

These findings concerning the effects of domestic violence on health and well-being have been established by researching intimate partner violence, but studies show that abuse experienced in childhood has similar effects on adult well-being as well. Childhood domestic violence is linked with decreased physical health and life satisfaction, poor self-esteem, depression, PTSD, psychotic symptoms, decreased sleep quality, attempted suicide, substance abuse, eating disorders, decline in socioeconomic status and decreased likelihood of graduating from secondary education (Bebbington et al., 2004; Bellis, Hughes, Jones, Perkins, & McHale, 2013; Felitti et al., 1998; Mullen et al., 1996; Wegman & Stetler, 2009; Woods et al., 2010).

The fact that domestic violence encountered as a child continues to have an effect in adulthood demonstrates that the consequences of domestic violence can be notably long-lasting. The well-being effects of domestic violence are not only related to immediate abuse but they may persist long after the abuse itself has ended - a notion that is established in many empirical studies (Campbell, 2002; Ellsberg et al., 2008; Humphreys & Lee, 2005; Lindhorst & Bednell, 2012; Woods et al., 2010). Many of these studies have used a lifetime definition for abuse prevalence, which further indicates that the effects of domestic violence can be serious and continuous even in the case of occasional abuse. Most of the studies conducted on the subject have been cross-sectional, but a rare longitudinal study by Lindhorst and Beadnell (2011) was able to specify the length of the well-being effects caused by domestic violence. According to their study, the women experiencing serious physical abuse had more depressive and anxious symptoms than their reference groups even 8 years after the experience of domestic violence. After 13 years the effect of abuse ceased to be significant. No similar studies have been conducted on psychological domestic violence.

However, as studies conducted on psychological abuse have become more common, a growing body of evidence suggests that psychological domestic violence is even more harmful than physical or sexual abuse (Lawrence, Yoon, Langer, & Ro, 2009; Langhinrichsen-Rohling, 2005; McCaw et al., 2007; Nathanson et al., 2012; Norwood & Murphy, 2011). In the case of childhood domestic violence, the different forms of abuse do not seem to differ as clearly with their effects on adult well-being, but the coexistence of several abuse types as well as the severity of abuse are associated with more serious well-being effects (Bellis et al., 2013; Clemmons et al., 2007; Mullen et al., 1996;

Teicher et al., 2006). The notion that the seriousness, length and recency of abuse affect the level and number of well-being symptoms has gained support also in the case of adulthood domestic violence (Bonomi et al., 2006; Lindhorst & Beadnell, 2011).

A vast majority of research on the effects of domestic violence have been conducted using female samples only, but there is a growing number of studies suggesting that male victims of domestic violence suffer from similar well-being consequences, too (Hines & Douglas, 2010; Reid et al., 2008). However, studies show that women experiencing domestic violence suffer from more injuries, are more often killed by their spouses and use health care and justice services more often than men (Archer, 2000; Malloy et al., 2003; Krahe et al., 2005; Tjaden & Thoennes, 2000). Women also report more psychosocial symptoms resulting from domestic violence, such as fear towards their partners, lower sense of personal control and more stress and depressive symptoms (Malloy et al., 2003). There are also some research findings suggesting that women and men might not only differ on the quantity of these well-being effects, but that the consequences of domestic violence might even be qualitatively different. The previous findings by Siltala, Holma and Hallman-Keiskoski (2014) suggested that psychological abuse mainly affects the psychosocial well-being of women, whereas men are more affected by physical abuse. Reid et al. (2008) also found out in their sample of men that physical abuse had stronger effect on mental well-being and level of depression than non-physical abuse - but only in the case of men aged 55 years or older. With younger men, in turn, the experience of domestic violence did decrease emotional and social well-being but had no effect on overall mental well-being or depression.

Current study & research questions

In this study I will investigate the effects of domestic violence on psychosocial well-being. My purpose is to report and compare the different effects of psychological, physical and sexual abuse on several different well-being variables, including perceived well-being, depressive symptoms, psychosocial well-being and sleep. A previous study conducted from the same sample emphasized the importance of psychological abuse and indicated that the effects of domestic violence are different on women and men (Siltala et al., 2014). The present study intends to expand these previous findings by adding more well-being variables and analyzing the possible interaction effect between domestic violence type and gender. The hypotheses tested in this study are as follows:

- H1) People experiencing domestic violence have worse well-being than those who have never experienced domestic violence
- H2) Psychological abuse has stronger negative effects on well-being than physical or sexual abuse
- H3) The effects of domestic violence are different on women and men (interaction effect)
- H4) Sleep acts as a mediator between domestic violence and other well-being variables

METHODS

Sample

As described by Ahtiainen (2012), the data used in this study was collected from the staff of the Central Finland Health Care District. 1 952 people participated in the study, which was 54 % of all the employees of the health care district. The detailed demographics of the respondents are presented in Table 1. 86 % of the respondents were women and 14 % were men. 57 % of the respondents were nurses and 7 % doctors. 23 % belonged to the occupational group “Other1” (research and therapy staff, research and therapy assistants, office staff & IT staff) and 14 % to “Other2” (cleaning, cooking, laundry, technical, storage & logistic staff). The approximate response rates within occupations were 45 % for doctors, 69 % for nurses and 59 % & 77 % for other employees. The age of the respondents varied from under 30 year olds to over 60 year olds, the biggest group being the 41-50 year olds. 91 % of the respondents worked full-time and 75 % were permanent workers. The most common forms of working hours were one-shift work and three-shift work.

Table 1. Sample demographics

	f	%
Gender		
Women	1 682	86,3
Men	268	13,7

Age		
≤ 30	316	16,2
31-40	373	19,1
41-50	623	31,9
51-60	556	28,5
≥ 61	84	4,3
Form of employment		
Permanent	1 463	74,9
Fixed-term	489	25,1
Nature of work		
Full-time	1 778	91,1
Part-time	174	8,9
Working hours		
One-shift	941	48,2
Two-shift	272	13,9
Three-shift	615	31,5
One-shift with on-call hours	85	4,4
Other	39	2,0
Occupation		
Doctor	131	6,7
Nurse	1 102	56,5
Other1 *	440	22,5
Other2**	279	14,3

*Other1 (Research and therapy staff, research and therapy assistants, office staff, IT staff)

*Other2 (Cleaning, cooking, laundry, technical, storage and logistic staff)

Methods & variables

The original data used in this study was collected in May 2010 as a part of a larger project promoting health and occupational well-being at the hospitals in Central Finland (Ahtiainen, 2012). A link to a web-based questionnaire with an accompanying cover letter was sent to all employees of the Central Finland Health Care District, who at the time of the study had an @kssph.fi -email address. In addition, printed questionnaires were delivered to some workplaces. The questionnaire measured the health,

wellbeing and lifestyle of the respondents by a total of 52 items, which were mainly multiple choice questions with an yes/no or Likert scale response options.

The items included in this study were chosen based on the research questions. The independent variable in this study was **domestic violence** experience, which was measured by asking the participants if they had ever experienced a) psychological b) physical or c) sexual domestic violence. Three response options were given for each item: “yes”, “can not tell” and “no”. Only the “yes” and “no” answers to each of the three items were included in the statistical analyses.

The first dependent variable of this study was **perceived well-being**. In the original questionnaire there were two separate items measuring perceived well-being and ability to work, which both had Likert scale response options ranging from 1 (=bad) to 5 (=good). But since preliminary comparisons showed a very high correlation (.82) between these two variables, they were combined for further statistical analyses. The new variable of general, self-assessed well-being was created by computing the mean of the two original items and then reclassifying these values into three groups of well-being. Respondent’s well-being was labelled “high” if the mean score of the two original items was ≥ 4.0 , “moderate” if $MS = 3.0-3.5$ and “low” if $MS \leq 2.5$.

The items used for measuring **depression** were based on a short version of PRIME-MD (Primary Care Evaluation of Mental Disorders) evaluation questionnaire (Ahtinen, 2012; Whooley et al., 1997). The three items included in the questionnaire were:

1. During the past two weeks, have you often been bothered by little interest or pleasure in doing things?
2. During the past two weeks, have you often been bothered by feeling down, depressed, or hopeless?
3. Do you feel that you need help with these issues?

A new dichotomous depression variable was computed based on the answers to these three questions. A participant was labelled “depressed” if he/she had answered “yes” to at least one of the first two questions and in addition felt a need for help. If these requirements were not fulfilled, a participant was labelled “not depressed”.

The items measuring **psychosocial well-being** were retrieved from the MHC-SF (Mental Health Continuum Short Form) scale developed by Keyes (2009). MHC-SF includes 14 questions on three different clusters, which measure emotional well-being (questions 1-3), social well-being (questions 4-8) and psychological well-being (questions 9-14). The whole MHC-SF scale and response options are presented in the appendix. According to their responses, participants were coded into three categories of mental health, which were “flourishing”, “moderate” and “languishing”. To be labelled flourishing, a person must have answered “every day” or “almost every day” to at least one item from cluster I and to at least total of six items from the other two clusters. Accordingly, if a person answered “never” or “once or twice” to at least one item from the first cluster and to at least six items from the two other clusters, he/she was labelled languishing. If the criteria was not met for either of these two categories, a person was labelled as having moderate mental health.

In addition to this three-way categorization, participants’ total response scores were also counted and standardized separately for each MHC-SF cluster, 1.00 becoming the maximum (=high well-being) and 0.00 the minimum score in each case. These scores are comparable and separately describe the social, emotional and psychological well-being of the participants. Thus the cluster scores were used to complement the categorial information provided by the MHC-SF classification in order to gain a more detailed picture of the participants’ psychosocial well-being.

In the original questionnaire there were altogether eight sleep-related items. Seven of these were Likert scale self-assessments measuring **sleep quality** and one asked about the daily length of sleep. Because of the large number and similarity of the sleep-related questions, an exploratory factor analysis was performed with these items in order to reduce the amount of variables for further analyses. The factor analysis produced a single-factor model, which included all the eight items of the questionnaire. However, the length of sleep was excluded from the final model for both statistical and explanatory reasons; it was the only item with a load < .500 and it differentiated qualitatively from the other sleep-related questions. Thus the final product was a single-factor model of seven items, which describes the perceived quality of sleep. The factor points were saved and used as a new variable in the further statistical analyses. Sleep was used as a dependent well-being variable as well as a possible mediator between domestic violence experience and other well-being variables.

Statistical analyses

Because of some missing values, the sample size varied from 1 671 to 1 910 in the executed analyses, which was 85,6 % - 97,8 % of all respondents.

Because the variables used in this study were not normally distributed, the initial correlations between them were studied using Kendall's Tau correlation coefficient. Cross tabulations were used to analyze connections between domestic violence and nominal scale well-being variables. The crosstabs were performed first with the whole sample and then separated by gender. Because there were some small cell counts especially in the groups of men experiencing domestic violence, the crosstabs were performed using Monte Carlo Simulation method.

After the correlation analyses, the next step in the research process was to find out whether domestic violence type and gender have an interaction effect on well-being. In the case of the nominal scale dependent variables (depression, perceived well-being & MHC-SF classification), the possible interactions were studied using either logistic regression or ordinal logistic regression, whereas with the continuous scale variables (MHC-SF cluster scores & sleep) variance analysis was used in turn.

Multiple regression analyses were used together with the Sobel test in order to interpret the possible mediator effect of sleep on the continuous MHC-SF cluster scores. Because the variables were not normally distributed, a bootstrapping was performed as recommended by Preacher & Hayes (2004; 2008). In the case of categorical well-being variables, the mediator model included domestic violence types as independent variables, depression, perceived well-being & MHC-SF classification as dependent variables and sleep as a mediator variable. "No violence" group was used as a reference group. All possible direct and indirect effects were tested via bootstrapping.

The mediator analyses including the categorical well-being variables were performed using Mplus 7 software. All other statistical analyses (including the mediator model of MHC-SF cluster scores) were performed using the IBM SPSS Statistics 20 -program.

RESULTS

Frequencies & crosstabs

A total of eight different combinations of domestic violence were found from the data and these groups are presented in Table 2. However, the two smallest groups (physical & sexual violence, sexual violence only) had so few cases that they were excluded from all further statistical analyses. Respectively, only the three biggest groups could be included when analyzing the interaction effect of gender and domestic violence, because the sample included so few men who had experienced sexual domestic violence. The number of women was higher in all groups of domestic violence and this difference was statistically significant, $\chi^2 (7) = 39.11, p < .001$. The relationships between domestic violence and depression, perceived well-being and MHC-SF classification are presented in Tables 3, 4 and 5. Crosstabs showed that there were significant differences between tested groups in the case of both depression ($\chi^2 (5) = 23.35, p < .001$), perceived well-being ($\chi^2 (10) = 22.51, p = .018$) and MHC-SF classification ($\chi^2 (10) = 25.81, p = .007$). As can be seen from the adjusted residuals, the participants without domestic violence experiences scored better on every well-being scale and “psychological abuse only” was the only abuse group associated with decreased well-being on all three measurements .

Table 2: Frequencies of different types of domestic violence

Type of abuse	All participants (N=1809)	Women (N=1566)	Men (N=243)
No violence	59,2 %	56,5 %	76,5 %
Psychological only	19,9 %	20,8 %	14,0 %
Psychological & physical	13,3 %	14,1 %	7,8 %
Psychological, physical & sexual*	3,9 %	4,5 %	0,4 %
Psychological & sexual*	1,3 %	1,4 %	0,4 %
Physical only*	1,9 %	2,1 %	0,8 %
Physical & sexual**	0,1 %	0,1 %	-
Sexual only**	0,4 %	0,4 %	-

*Excluded from analyses of interaction effect

**Excluded from all further analyses

Table 3: Domestic violence and depression

Domestic violence type	Depressed	Not depressed
No violence	4,5 % *	95,5 % **
Psychological only	9,4 % **	90,6 % *
Psychological & physical	11,2 % **	88,8 % *
Psychological & sexual	17,4 % **	82,6 % *
Psychological, physical & sexual	8,5 %	91,5 %
Physical only	5,7 %	94,3 %

* Adjusted residual $\leq -2,0$ ** Adjusted residual $\geq 2,0$

Table 4: Domestic violence and perceived well-being

Domestic violence type	Perceived well-being		
	High	Moderate	Low
No violence	76,6 % **	21,0 % *	2,4 %
Psychological only	68,3 % *	27,5 %	4,2 %
Psychological & physical	68,8 %	28,7 %	2,5 %
Psychological & sexual	69,6%	30,4 %	0,0 %
Psychological, physical & sexual	62,0 % *	31,0 %	7,0 % **
Physical only	47,3 %	22,9 %	2,9 %

* Adjusted residual $\leq -2,0$ ** Adjusted residual $\geq 2,0$

Table 5: Domestic violence and MHC-SF classification

Domestic violence type	MHC-SF classification		
	Flourishing	Moderate	Languishing

No violence	75,1 % **	24,0 %	0,9 % *
Psychological only	67,2 % *	28,7 %	4,1 % **
Psychological & physical	71,6 %	25,3 %	3,1 %
Psychological & sexual	71,4 %	28,6 %	0,0 %
Psychological, physical & sexual	60,0 % *	36,9 % **	3,1 %
Physical only	71,4 %	25,7 %	2,9 %

* Adjusted residual $\leq -2,0$ ** Adjusted residual $\geq 2,0$

Interaction effects: Depression

A logistic regression analysis was conducted to predict the depressive symptoms of the participants using domestic violence and gender as predictors. A full factorial model was performed first in order to find out whether there was an interaction effect between domestic violence type and gender. But since the test of the full model against a constant only model was not statistically significant, the interaction effect was removed from the regression model. A test of the final model including the main effects of gender and domestic violence type against the constant only model was statistically significant ($\chi^2 (5) = 23.72, p < .001$). As can be seen from the test values displayed in Table 6, both types of domestic violence significantly increased person's likelihood to be labelled "depressed". For participants in the "psychological abuse only" group the odds for being not depressed was 0.44 times that of those not experiencing domestic violence. For participants experiencing both psychological and physical abuse, the respective odds was 0.36. The Hosmer-Lemeshow test showed a good fit for the constant-only model, but according to the Nagelkerke R^2 test, the overall explanatory power of the model was relatively low.

Table 6: Logistic regression model of depression

Predictor	B	S.E.	Wald	df	p	OR
Gender (1 = women, 0 = men)	.278	.279	1.00	1	.318	1.32
Psychological abuse only*	-.823	.235	12.31	1	.000	.44
Psychological & physical abuse*	-1.02	.254	16.19	1	.000	.36

Constant		2.84	.264	114.87	1	.000	-
<hr/>							
Test							
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Hosmer-Lemeshow	=	.302, $p = .860$					
Pseudo R ² (Nagelkerke)	=	.032					
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* “No violence” as a reference group

Interaction effects: Perceived well-being & MHC-SF classification

Ordinal logistic regression analysis was used to predict the perceived well-being and the MHC-SF classification of the participants using domestic violence and gender as predictors. In both cases, the model construction was started by computing a full factorial model including both main and interaction effects of the predictors. However, no statistically significant interaction effects were found and thus the interaction effect was removed from both regression models. The final models including the main effects of gender and domestic violence were tested against the intercept-only models. The result was statistically significant for both perceived well-being ($\chi^2(3) = 13.29, p = .004$) and MHC-SF classification ($\chi^2(3) = 16.26, p = .001$). The predictors and their test values are displayed in Table 7 and Table 8.

In both models, people experiencing psychological abuse only gained significantly lower well-being scores than those not experiencing domestic violence. For the participants in the “psychological abuse only” group, the odds of belonging to the group of high perceived well-being versus the odds of belonging to the combined middle and low categories was 0.65 times of that of those not experiencing domestic violence. Likewise, the odds of the combined middle and high categories versus low well-being is 0.65 times greater, given that all of the other variables in the model are held constant. For MHC-SF categorization, the odds of being labeled flourishing versus the combined categories of languishing and moderate well-being was 0.63 times greater for participants experiencing psychological abuse only. In the case of both psychological and physical abuse, the effect was statistically significant only on perceived well-being. Here the respective odds of belonging to the high perceived well-being group versus the combined middle and low categories are 0.68 times of that of people not experiencing domestic violence, given that all of the other variables in the model are held

constant.

Women scored higher on both well-being variables, but this gender effect was statistically significant only in the case of MHC-SF classification. The Pearson’s chi-square statistic showed a good fit for both models. However, the Nagelkerke R² test showed that the overall explanatory power of these regression models was quite low.

Table 7: Ordinal logistic regression model of perceived well-being

Predictor	B	S.E.	Wald	df	p	OR
Gender (1 = women, 0 = men)	.112	.159	.50	1	.481	1.12
Psychological abuse only*	-.432	.134	10.40	1	.001	.65
Psychological & physical abuse*	-.391	.157	6.20	1	.013	.68

Test	
Pearson’s goodness-of-fit =	$\chi^2 (7) = 4.85, p = .678$
Pseudo R ² (Nagelkerke) =	.011

* “No violence” as a reference group

Table 8: Ordinal logistic regression model of MHC-SF classification

Predictor	B	S.E.	Wald	df	p	OR
Gender (1 = women, 0 = men)	.411	.158	6.74	1	.009	1.51
Psychological abuse only*	-.462	.137	11.35	1	.001	.63
Psychological & physical abuse*	-.254	.165	2.36	1	.124	.78

Test	
Pearson’s goodness-of-fit =	$\chi^2 (7) = 13.47, p = .061$
Pseudo R ² (Nagelkerke) =	.014

* “No violence” as a reference group

Interaction effects: MHC-SF cluster scores

Two-way between subjects ANOVAs were conducted to investigate the main and interaction effects of domestic violence type and gender on the total scores of the three MHC-SF clusters. The mean scores and standard deviations are displayed in Table 9 .

As expected, the participants who had not experienced domestic violence scored higher on all three MHC-SF clusters. This main effect of domestic violence type was statistically significant on both emotional well-being ($\chi^2 (2,1665) = 8.66, p < .001$), social well-being ($\chi^2 (2,1665) = 14.74, p < .001$) and psychological well-being ($\chi^2 (2,1665) = 4.46, p = .012$). The well-being scores of women were also higher on all MHC-SF clusters and within all types of domestic violence. However, this main effect of gender was statistically significant only on clusters describing emotional well-being ($\chi^2 (1,1665) = 11.37, p = .001$) and social well-being ($\chi^2 (1,1665) = 12.52, p < .001$). Post hoc tests using the Bonferroni correction showed that there was a statistically significant difference between “no violence” and “psychological abuse only” groups, the participants experiencing psychological abuse scoring lower on both emotional, social and psychological well-being ($p = .001, p < .001$ and $p = .001$, respectively). The participants experiencing both psychological & physical abuse differentiated significantly from the “no violence” group only on the cluster of social well-being ($p = .011$).

Diagrams 1, 2 and 3 (appendix) demonstrate the gender difference within the MHC-SF cluster scores. It appears that when compared to the “psychological abuse only” group, the experience of both psychological and physical domestic violence decreases the well-being scores of men and increases those of women. This interaction effect was, however, statistically significant only on social well-being ($\chi^2 (2,1665) = 4.72, p = .009$). Gendered post hoc tests further demonstrated that for women the only significant difference was between “psychological abuse only” and “no violence” groups ($p < .001$), whereas in the case of men both “psychological abuse only” ($p = .036$) and “psychological and physical abuse” ($p = .001$) differentiated significantly from the “no violence” group.

Table 9: Mean scores and standard deviations within the MHC-SF clusters

Domestic violence type	Total		Women		Men	
	MS	SD	MS	SD	MS	SD

I Emotional well-being

No violence	.82	.17	.82	.16	.80	.19
Psychological only	.77	.20	.77	.20	.74	.20
Psychological & physical	.80	.19	.81	.19	.67	.24

II Social well-being

No violence	.64	.21	.64	.21	.63	.21
Psychological only	.58	.21	.58	.21	.53	.23
Psychological & physical	.60	.21	.61	.21	.44	.18

III Psychological well-being

No violence	.80	.16	.80	.16	.78	.17
Psychological only	.76	.18	.76	.19	.74	.18
Psychological & physical	.77	.18	.77	.18	.71	.15

Interaction effects: Sleep

A two-way between subjects ANOVA was conducted in order to investigate the main and interaction effects of domestic violence type and gender on sleep quality of the respondents. The mean scores and standard deviations of sleep quality are displayed in Table 10. The factor scores suggested that men have better sleep quality than women in the “no violence” group and worse when experiencing domestic violence, but the ANOVA showed that only the main effect of domestic violence type was statistically significant, $\chi^2 (2,1665) = 9.14, p < .001$. Post hoc tests using the Bonferroni correction revealed that people experiencing psychological abuse gained significantly lower scores on sleep quality than the “no violence” group ($p < .001$), but the differences between other groups were not statistically significant.

Table 10: Means and standard deviations of sleep quality factor points

	Total		Women		Men	
Domestic violence type	MS	SD	MS	SD	MS	SD

No violence	.109	.88	.108	.89	.114	.86
Psychological only	-.135	.96	-.111	.95	-.372	1.06
Psychological & physical	-.040	.91	-.023	.91	-.244	.89

Sleep as a mediator

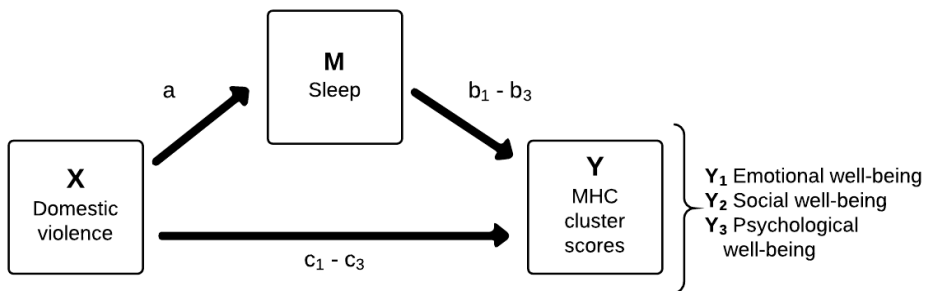


Diagram 3: The mediator models of domestic violence, sleep and MHC-SF cluster scores

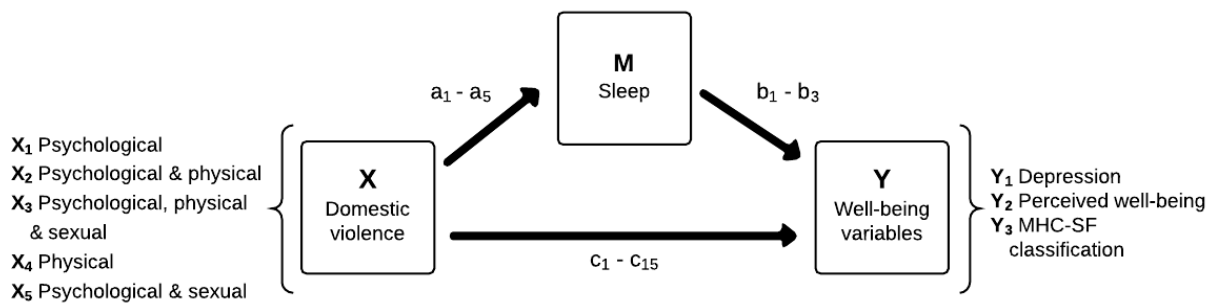


Diagram 4: The mediator models of domestic violence, sleep and categorical well-being variables

The previous analyses had established a significant connection between domestic violence and MHC-SF cluster scores. In addition, statistical analyses showed that sleep quality correlated

significantly with emotional well-being ($r = .38, p < .010$), social well-being ($r = .31, p < .010$) and psychological well-being ($r = .36, p < .010$). Thus the initial requirements for mediation analysis were met. The models used for interpreting the mediator effect of sleep on MHC-SF cluster scores are illustrated in Diagram 3. The regression analyses suggested a partial mediation for all three MHC-SF clusters since the direct effect (path c) remained significant also when controlling for the indirect effect (path $a*b$). The total indirect effect was .002 ($z = -2.80, p = .005$) for emotional well-being, .002 ($z = -2.60, p = .009$) for social well-being and .002 ($z = -2.80, p = .005$) for psychological well-being.

The mediator model used for testing the relationships between domestic violence experience, sleep and categorical well-being variables is displayed in Diagram 4. Out of the 15 possible indirect paths, only the three including psychological abuse only (paths a_1*b_1, a_1*b_2 & a_1*b_3) yielded statistically significant results. The experience of psychological abuse as mediated by sleep quality was linked with more depressive symptoms ($B = 0.151, p = .003$), lower perceived well-being ($B = -0.149, p = .002$) and lower MHC-SF classification ($B = -0.135, p = .002$). In the case of perceived well-being and MHC-SF classification, the mediation was complete since the direct effect (path c) became insignificant when controlling for the indirect effect (path $a*b$). In the case of depression the mediation was partial since the direct effect remained significant as well. All the direct effects of this mediation model can be found in Table 11 along with the odds ratios for the effects of domestic violence and sleep on well-being variables.

Table 11: Direct effects and odds ratios within the mediator model of domestic violence, sleep and categorical well-being variables

Variable	B	S.E.	<i>p</i>	OR
Sleep on				
Psychological abuse	-0.185	0.058	.001	-
Psychological & physical abuse	-0.090	0.064	.162	-
Psychological, physical & sexual abuse	-0.154	0.114	.177	-
Physical abuse	0.221	0.136	.103	-
Psychological & sexual abuse	-0.273	0.216	.206	-
Depression* on				
Sleep	-0.816	0.078	.000	0.44

Psychological abuse	0.641	0.232	.006	1.90
Psychological & physical abuse	0.960	0.253	.000	2.61
Psychological, physical & sexual abuse	0.540	0.463	.244	1.72
Physical abuse	0.462	0.754	.540	1.59
Psychological & sexual abuse	1.318	0.626	.035	3.74
Well-being on				
Sleep	0.803	0.060	.000	2.23
Psychological abuse	-0.222	0.141	.116	0.80
Psychological & physical abuse	-0.232	0.157	.139	0.79
Psychological, physical & sexual abuse	-0.596	0.274	.030	0.55
Physical abuse	-0.233	0.383	.543	0.79
Psychological & sexual abuse	0.067	0.403	.869	1.07
MHC-SF on				
Sleep	0.731	0.061	.000	2.08
Psychological abuse	-0.153	0.143	.287	0.86
Psychological & physical abuse	0.032	0.168	.847	1.03
Psychological, physical & sexual abuse	-0.522	0.269	.053	0.59
Physical abuse	-0.212	0.412	.607	0.81
Psychological & sexual abuse	0.156	0.454	.731	1.17

* Higher values = more depressive symptoms

DISCUSSION

Principal findings

The purpose of this study was to investigate the effects of domestic violence on psychosocial well-being. More precisely, the aim of the study was to compare the effects of different domestic violence types and to investigate whether there are gender differences in the prevalence and effects of domestic violence. In

addition to analyzing direct correlations between domestic violence experience and well-being, the possible mediation effect of sleep on these variables was also taken into account.

The prevalence of domestic violence was higher in this sample than previously found in Finnish population-based studies and domestic violence had several negative effects on psychosocial well-being. The 41% of the participants with domestic violence experiences constantly scored worse on all measurements used in the study, confirming the first research hypothesis. As the regression models and post hoc comparisons indicated, this negative effect of domestic violence experience can mostly be traced to psychological abuse. Psychological abuse alone was a constant significant predictor of decreased psychosocial well-being, whereas other abuse groups affected well-being only occasionally. These findings support the second research hypothesis as well and they are compatible with previous literature emphasizing the importance and negative effects of psychological abuse (Lawrence et al., 2009; Langhinrichsen-Rohling, 2005; McCaw et al, 2007; Nathanson et al., 2012; Norwood & Murphy, 2011). On the other hand, it must be remembered that different abuse forms are not completely distinguishable, since physical violence always includes an psychological aspect as well and this is especially true when the abuse is happening in a close relationship. It has also been argued that psychological abuse might work as a intensifying factor rather than a sole cause of the detrimental effects of domestic violence (Norwood & Murphy, 2011), but the findings of this study do not support this view since the decrease in well-being was most significant among people experiencing psychological abuse only. The importance of psychological abuse has also been highlighted by the domestic violence survivors themselves, even in the cases where physical violence has been present as well (Norwood & Murphy, 2011).

Despite all these findings, there has not been much discussion as to why the effects of psychological abuse are so serious and long-lasting that they even surpass those of physical and/or sexual abuse. One possible explanation is that words truly hurt more than sticks or stones; psychological abuse may have a greater and more persistent impact on the personality and self of the victim than physical domestic violence (Graham-Kevan, 2007; Langhinrichsen-Rohling, 2005; Norwood & Murphy, 2011). The length of abuse has also been associated with the adverse health effects of domestic violence (Bonomi et al., 2006), which might provide another explanation for the impact of psychological abuse. Although it was not possible to specify the length of experienced domestic violence

in this study, it is likely that psychological abuse is more prolonged and constant by nature than acts of physical and/or sexual violence. Psychological domestic violence is likely to last longer because on both personal and cultural level, psychological abuse is less often recognized as a serious problem requiring intervention. On the other hand, impaired social functioning associated with domestic violence most likely further reduces victims' ability to seek help to their situation and thus helps to prolong the abuse exposure.

Another interesting insight into the effects of psychological abuse was gained when the mediation analyses yielded significant results, supporting the fourth research hypotheses. It has been known that domestic violence has an adverse effect on sleep quality (Campbell, 2002; Humphreys & Lee, 2005; Humphreys et al., 1999), but to my knowledge, the mediation effect of sleep quality on domestic violence experience and well-being has not been studied before. The results of the mediator analyses imply that the impact of psychological domestic violence can at least partially be explained by the decreased sleep quality.

The third research hypothesis was about the possible gender differences in the sample, and several interesting results were gained. Firstly, 44% of women and 24 % of men had experienced some type of domestic violence and the number of women was significantly higher in all abuse subgroups. These findings are in line with previous studies suggesting that women encounter domestic violence more often than men. But on the other hand, the notion that women also suffer from more serious psychosocial symptoms as a result of domestic violence (as suggested by Malloy et al., 2003) did not receive support since women in general gained higher well-being scores than men. Additionally, the regression models demonstrated that the experience of both psychological and physical abuse might have an opposite effect on the well-being scores of women and men (see Charts 1-3 in appendix). This is an extremely interesting and new finding, although the interaction effect was statistically significant only in the case of social well-being.

These findings definitely deserve further investigation and - if confirmed - raise interesting questions about the factors behind this gender effect. Possible explanations include men's and women's different coping strategies as well as gender roles and other socio-cultural factors. Domestic violence experienced by men is still commonly trivialized and ridiculed and the abused men can feel that they have no means of gaining help (Archer, 2000; Hines and Douglas, 2010). There is also evidence that

women are more likely than men to terminate an abusive relationship (Ackerman, 2012) and thus men might be exposed to domestic violence for a longer time. These findings could explain why men might be more affected by physical domestic violence than women. On the other hand, the abuse experienced by women and men might not be similar. There are different subtypes within both psychological and physical domestic violence, as well as differences within the severity and duration of abuse, but these factors could not be taken into account in this study.

Strengths & limitations

Most of the previous speculations concerning the results of this study should be taken with caution, since the found effects were not constant. However, the lack of more statistically significant results might mostly be due to sampling issues. Gendered comparisons and the conclusions that can be drawn from them were particularly restricted because of the small number of men experiencing physical and especially sexual domestic violence. It is impossible to say whether the statistical differences would have been more or less significant if the sample had included more men with domestic violence experiences. Because of the overall small number of cases in the domestic violence groups including physical and sexual abuse, it was also not possible to include all the different domestic violence types in all statistical analyses. This might have caused the effects of psychological abuse to be overemphasized in the results. Thus it would be important to repeat this study with a bigger sample in order to gain more accurate results. Although it is very unlikely that the effect of psychological abuse would disappear completely when including more groups of (physical and sexual) domestic violence since it was strong, consistent and compatible with previous findings, it would be interesting to find out what kind of effects the different abuse combinations have on well-being.

Another major disadvantage of this study was that the used data did not enable the identification of perpetrator or timing of domestic violence. As a result, the sample of domestic violence survivors is likely to include people with very different abuse experiences and the comparativeness of these cases is somewhat questionable. However, the lifetime definition of abuse prevalence has frequently been used in domestic violence research with successful results (see for example Ellsberg et al., 2008). As stated before, the well-being consequences of childhood abuse are very similar to that of adult domestic

violence and thus it is not absolutely necessary to separate these two phenomena (Bellis et al., 2013; Campbell, 2000; Coker et al., 2002; Ellsberg ym., 2008; Nathanson et al., 2012; Mullen et al., 1996; Wegman & Stetler, 2009). When it comes to the reliability of the lifetime definition of domestic violence, it can be argued that resulting from a recall-bias the results are rather under- than overestimated (Ellsberg et al., 2008). In a sample including only recent domestic violence experiences, the well-being effects are likely to be even more significant than was the case with this study. The same goes with the lack of given definitions for domestic violence in the original questionnaire, since people most likely do not always recognize their experiences as domestic violence and this can be even more difficult in the case of psychological abuse. Because of the cross-sectional design used in this study, it is also not possible to conclude causality between domestic violence and psychosocial well-being, but on the other hand, this problem affects almost all studies conducted on the subject.

The sample used in this study was not population based and thus the generality of its results is somewhat questionable. However, the sample was relatively large and the results undeniably demonstrate that domestic violence is not only or even mainly restricted to clinical populations, but it is a frequent problem among the working, middle-class professionals as well. Also in this sense the findings of this study are more likely to be under- than overestimated, since the prevalence of domestic violence is found to be even higher in samples derived from various healthcare settings (Alhabib, Nur and Jones, 2010; Notko et al., 2011). In addition to the large sample size, the biggest strenght of this study is that it includes a variety of different variables and is not only restricted to direct effects between domestic violence and well-being. It is also notable that the study included both female and male participants in the same design, although there were methodological problems restricting the analysis of gender differences.

Policy & research implications

The results gained in this study pose several implications to the social and health care services related to domestic violence. Despite several policy recommendations, domestic violence is not systematically screened in social and health care services and thus a majority of victims are never recognized (Piispa et al., 2006; STM, 2008; WHO, 2002). There are also many myths and beliefs related to domestic violence, which pose further limitations to abuse recognition and interventions (Hamel & Nicholls, 2007;

Langhinrichsen-Rohling, 2005). The results of the present study help to tackle these myths and suggest guidelines for more effective and inclusive domestic violence interventions.

Firstly, psychological abuse is still not regarded as an equally serious issue to physical violence - even though the adverse consequences of psychological abuse are emphasized both in the present study and previous research literature. People working in the social and health care settings should better be aware of the adversity of psychological abuse and address this issue along with physical and sexual domestic violence. Because psychological abuse is so common, this could greatly increase the number of domestic violence survivors having a contact with supportive services. It has also been suggested that psychological abuse is a predictor for physical abuse (Graham-Kevan, 2007; Langhinrichsen-Rohling, 2005; Outlaw, 2009) and thus early interference might even prevent the occurrence of physical violence.

Previous studies have shown that people experiencing domestic violence are more likely to use various health care services (Alhabib et al., 2000; Campbell, 2002; Notko et al., 2011), but the sample used in the present study indicates that domestic violence is not only restricted to clinical populations. The prevalence of domestic violence was higher in this sample than previously found in Finnish population-based studies, which demonstrates that domestic violence is common among working professionals, as well, and that it has several adverse effects on the health and well-being of these people. However, without active screening procedures the possible abuse behind the well-being problems of people seeking health care is likely to remain unrecognized, because people do not actively bring up their domestic violence experiences (Phelan, 2007). Hence domestic violence interventions should not be restricted only to violence-specific services, but the problem should be taken into account in various low-threshold services, including occupational health care settings. More inclusive and effective interfering with domestic violence could have great benefits on both individuals and society, as the problems resulting from domestic violence could be addressed and the well-being costs resulting from these issues would be decreased.

The present study also provided a possible explanation model for the well-being effects of domestic violence. The found mediator effect of sleep suggests that the adverse effects of domestic violence might be reduced by improving the sleep quality of the abuse survivors. This could be a

relatively straightforward way of addressing the consequences of domestic violence, although naturally it can not be the only form of intervention and the phenomenon deserves further investigation.

The adverse effects of domestic violence could also be decreased by giving more attention to domestic violence experienced by men. Even though women face domestic violence more often, the abuse experienced by men is not a trivial issue. More effective recognition of the male victims of domestic violence is thus needed, but it might be that the type of abuse must also be taken into account together with gender. The results of the present study suggest that men might suffer more when physical and psychological abuse are combined and thus men and women might need different kind of support and gender specific services. This poses a challenge to supportive services, since the current violence-specific models and services, such as shelters and therapy groups, are mostly aimed at female victims and male perpetrators only.

However, this possible gender difference needs to be studied more before making wider conclusions and policy implications. The same goes with other relationships between domestic violence and psychosocial well-being implied by this study. It would be important for future studies to distinguish between the time, severity and perpetrator of domestic violence as well as different subtypes of psychological abuse. Much is already known about the effects and correlates of domestic violence, but more studies including these aspects of domestic violence are needed in order to gain a comprehensive picture of the phenomenon and to plan more effective interventions and supportive services.

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APPENDIX

Appendix 1: MHC-SF clusters and items

Cluster	Items
	”During the past month, how often did you feel...?”
I Emotional well-being	1. happy 2. interested in life 3. satisfied with life
II Social well-being	4. that you had something important to contribute to society 5. that you belonged to a community (like at your workplace, or a social group) 6. that our society is becoming a better place 7. that people are basically good 8. that the way our society works makes sense to you
III Psychological well-being	9. that you liked most parts of your personality 10. good at managing the responsibilities of your daily life 11. that you had warm and trusting relationships with others 12. that you had experiences that challenged you to grow and become a better person 13. confident to think or express your own ideas and opinions 14. that your life has a sense of direction or meaning to it

Appendix 2: The response options of the MHC-SF scale and their scoring

Response	Points
Never	0
Once or twice	1
About once a week	2
About two or three times a week	3
Almost every day	4
Every day	5

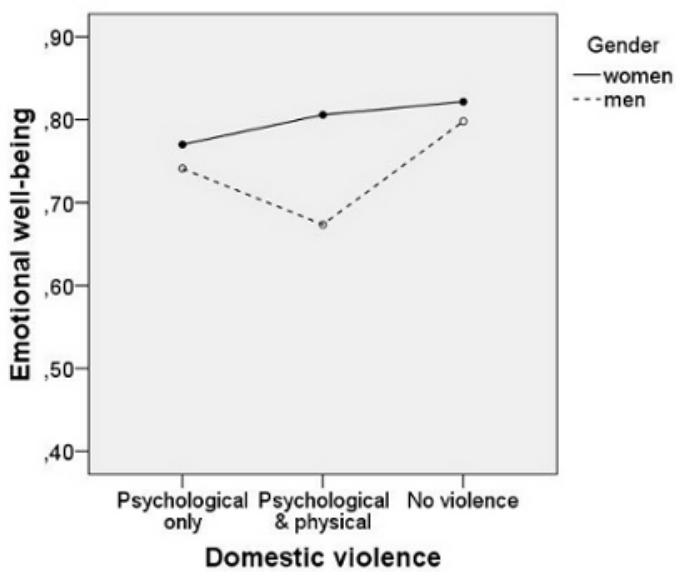


Diagram 1: The effect of gender and domestic violence type on emotional well-being

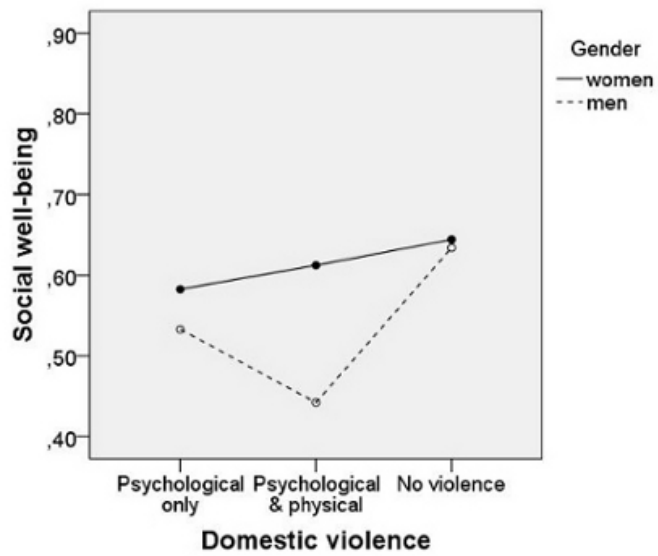


Diagram 2: The effect of gender and domestic violence type on social well-being

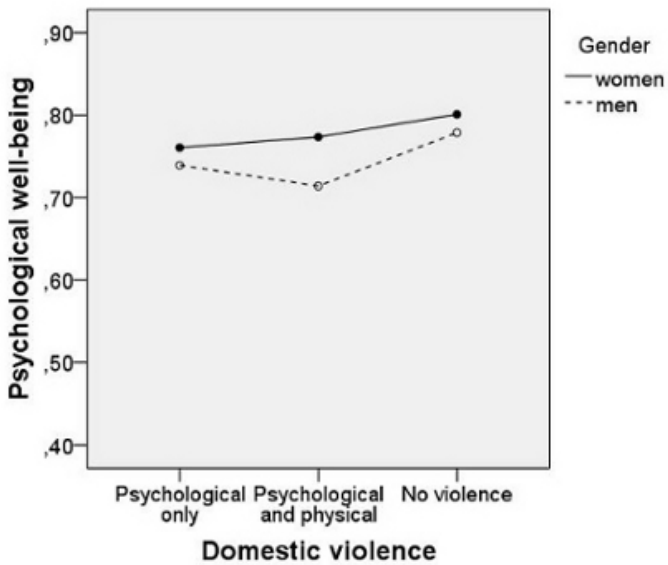


Diagram 3: The effect of gender and domestic violence type on psychological well-being