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Effects of Violence Against Women on Employment and Earnings

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Abstract

This study uses the economic tool of regression analysis in order to assess the impact of violence and abuse on employment and earnings of women on a sample extracted from the general population. It also tries to uncover whether psychological and social support has a positive impact on earnings, a topic which hasn't been researched in the literature.

The present study uses primary data: a questionnaire was designed for this purpose and responses were collected using an online survey platform. The number of hours worked (as a determinant of employment) and the personal earned income for the year 2018 were analysed with the scope to find correlations between the experience of violence or abuse and labour market outcomes. The results do not attempt to imply causality as the probability of reversed causality can be a major limitation of this type of analysis.

The sample size does not allow to draw definitive conclusions. However, there is some indication that experiencing violence or abuse is associated with working fewer hours for current or recent victims, and with lower income, although mental health seems to be a stronger determinant of income than the experience of abuse or violence. Receiving psychological support has a positive and statistically significant effect on earnings for the whole sample (including non-victims), whereas for support following the experience of abuse or violence, the results are not as conclusive.

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1. Introduction

There is a scarcity of literature on how employment and earnings are impacted by the experience of violence and abuse, although these are widespread in the society and one's wealth is at the core of making economic decisions.

According to the Office for National Statistics (2019[b]), 27.1% of women in the UK reported being a victim of domestic abuse since the age of 16, which is equivalent to 4.5 million female victims.[1] The Crime Survey for England and Wales estimates that 3.4% of women have been victims of sexual assault in the last year, which is equivalent to more than 0.5 million female victims (ONS, 2019[c])[2]. The most recent CSEW on childhood abuse dating from 2016 (ONS, 2019[a]), which asks adults 16-59 of their experience before the age of 16, estimates that 9% suffered psychological abuse, 7% physical abuse, 7% sexual assault and 8% witnessed domestic violence at home. Apart from physical abuse, women were significantly more likely than men to have experienced a form of abuse in childhood, four times more likely in the case of sexual assault.

Previous studies in this area have focused on low-income women and their employment status, whether they are more likely to be unemployed, on benefits, or not to be looking for work. Little attention has been given to their future earning potential and to the quality of employment.

The present study collected responses from the general population and finds that abuse and violence are widespread at all levels of educational attainment and income brackets. It attempts to underpin the consequences they have on the income of respondents and on the number of hours they work. Regression analysis is used as a tool in order to hold personal characteristics of individuals constant and find the effects of the relevant variables that are researched: the experience of abuse or violence, psychological and social support.

[1] By domestic abuse, it is meant either non-sexual abuse by a partner, ex-partner or family member, or sexual assault or stalking carried out by a current or former partner or a family member. The most prevalent responses are: non-sexual partner abuse (20.7%), stalking (20.2%) and sexual assault (19.0%). The most recent release from 2016 estimates that 8.2% of women (1.1 million women) experienced domestic abuse in the previous 12 months.

2 Sexual assault measured by CSEW cover rape (including attempts), assault by penetration (including attempts), causing sexual activity without consent, indecent exposure and unwanted touching. CSEW estimates that less than 1 in 5 victims of rape or assault by penetration reported their experience to the police.

Not only the experience of victimisation can prevent a person from achieving their full potential in the labour market, it also results in organisational costs for enterprises and for the government through provision of welfare assistance.

2. Literature review

Most literature on the subject comes from various other disciplines: health, psychology, social work/welfare, public/social policy, sociology, as well as from business and management. Often, papers on this topic are a result of collaboration between specialists from different disciplines, including economists (Currie & Widom, 2010), with few pure economic papers on the subject (Aizer, 2010; Bowlus & Seitz, 2005).

There is a bi-directional relation between the socio-economic status of women and the experience of violence or abuse. In a report published by the Eurpopean Comission, two economists, Bettio and Ticci (2017) analysed data drawn from 28-member states in order to establish how the socio-economic status of women, their partners, and the household, affects their probability of being victimised by current intimate partners or others (ex-partners or non-partners). It found that the relative wage of women compared to that of their partner is correlated with physical and sexual violence by current partner, being employed is correlated to increased risk of sexual harassment, low household income is correlated with increased risk of psychological violence by intimate partner and physical violence by others, while violence experienced in childhood increases the risk of victimisation for all types of violence.

2.1 Intimate Partner Violence (IPV)

Domestic violence accounts for a large proportion of all violence against women, estimated at three quarters in the US in 1998 and poor women are disproportionally affected (Tjaden & Thoennes, 1998). Moreover, women from disadvantaged backgrounds have fewer assets and often a smaller social network to help alleviate the effects of abuse, hence they have been the target demographic for research on how IPV affects employment and earnings.

The evidence for correlations and causaty between IPV and employment is mixed. Looking at data on abused spouses taken from VAWS[3], Bowlus and Seitz (2005) concluded that there is no causal effect of abuse on employment and that the lower employment rates of victims of domestic abuse are due to intrinsic characteristics of this population which differs significantly from their non-abused counterparts. They had lower education levels and were more likely to come from violent homes, to marry young, and to have children. It should be highlighted that their study only takes into account people in marriages and that the data only contains information on current employment status. Similarly, Lloyd and Taluc (1999) did not find differences in employment rates of women who have been abused in the past year compared to non-abused women in a randomly selected sample in a low-income area of Chicago. However, victims were more likely to have been unemployed in the past, to suffer from a physical or mental health problem which affects employability and job performance, and to receive income support.

Browne, Solomon and Bassuk (1999) found very strong effects of IPV on poor women's ability to maintain employment: victims were one third as likely as non-victims to maintain employment for six months or more working at least 30 hours per week. Moe and Bell (2004) decided to look into how work and employability is affected in women from all employment levels and backgrounds. Their qualitative study on a sample of 19 residents of a domestic violence shelter concluded that IPV can negatively affect the employment trajectory of women who had previously been employed fairly consistently, some of whom were highly educated and had built lucrative careers. It also concluded that at least some of the abuse was directly intent at preventing them from obtaining and maintaining employment. Alexander (2011) found a negative correlation between experiencing current work interference and the propensity to be looking for a job but a positive correlation in the case of past victims.

Aizer (2010) observes that previous studies on the relationship between victimisation and wages fail to account for omitted variable bias and reversed causality. For example, using a sample from

[3] Canadian Violence Against Women Survey. It is a survey of the general population as opposed to other more targeted groups, such as women living in a shelter or women on welfare, which are often used for research on this topic.

the general population, from three mid-sized organizations, Reeves (2007) found that victims have lower earnings than non-victims, but admitted he can't imply causality as the relation between income and level of violence is bi-directional.

The household bargaining theory incorporating violence implies that higher wages of women lead to a decrease the level of violence, as they increase their bargaining power by improving their outside option Aizer (2010). It is not the *actual absolute* wage that is important in establishing the bargaining power of women, but the *potential* wage and the *relative* wage of women compared to men. This means that an improvement in the position of women in the labour market can lead to a decrease in violence even for non-working women. By analyzing labour demand curves in female relative to male industries, Aizer's paper concludes that the reduction in gender pay gap between 1990 and 2003 explains nine percent of the reduction in domestic violence. Her regression also shows that increasing female wages while holding male wages constant leads to a decrease in violence, while increasing male wages and holding female wages constant results in an increase in violence.

Since most research on the effects of intimate partner violence (IPV) has focused on women living in poverty, who often have a low level of education attainment (Moe and Bell, 2004), and whose outside option is very limited, often implying severe material deprivation such as homelessness and food scarcity, it is hard to compare or rank the importance of the absolute and the relative wage in the decision to flee an abusive relationship and the present study looks only at the absolute wage. The much higher rate of IPV victimisation among divorced women versus ever-married women in Canada found by Bowlus and Seitz (2005) suggests that victims of domestic abuse do make the decision to end abusive relationships.

2.2 Sexual violence

In a longitudinal study on a large sample drawn from the general population, Byrne et al. (1999) concluded that living in poverty increases the risk of victimisation and that experiencing sexual violence increases the risk of declining into poverty and of being unemployed. Not all women

were shown to be affected; the effects differed in function of their initial economic and employment status, and history of prior victimisation.

Drawing in-depth information from sexual-assault survivors in a qualitative study, Loya (2015), introduced the concepts of major and moderate trajectory shifts in the future career and earning potential of victims of sexual assault. Major trajectory shifts imply women making radical decisions such as changing their career path as a result of having experienced sexual violence, often resulting in lower-status jobs and incomes. Reasons for this might be a change of location or wanting more flexible work to accommodate for their psychological needs. Moderate trajectory shifts refer to changes in employment and economic stability from which they recover over time.

2.3 Childhood maltreatment

Childhood maltreatment is a strong predictor of future victimisation, both by partners and non-partners (Bettio & Ticci, 2019). Although the effects of childhood maltreatment on academic achievement have been well documented, few studies assess its impact on future economic outcomes of individuals (Currie & Widom, 2010).

In a longitudinal study analysing the consequences of childhood physical, sexual abuse and neglect on later economic outcomes, Currie and Widom (2010) concluded that adults abused as children had lower levels of education, employment, earnings and fewer assets compared to a control group comprising of similar individuals. Individual characteristics were included in the regression in order to minimise the effects of omitted variable bias. The effects were larger for women, especially young women who were found to be significantly less likely to be in a skilled job than men. The differences in economic outcomes between males and females abused as children were found to be decreasing into middle age.

Alexander (2011) found that childhood sexual abuse is negatively correlated with the propensity to be looking for a job and the probability of receiving job training and positively correlated with alcohol abuse in the case of white women, although this was not the case for minority ethnic women in his study. He concluded that physical abuse by father and childhood sexual abuse are

strong predictors of future probability of experiencing IPV and work interference by a partner and questions whether a history of childhood abuse is not partially responsible for the employment effects attributed to IPV.

2.4 Mental health

Mental health deserves a particular attention in the analysis of how abuse influences current and future economic wellbeing. There is a strong association between victimisation and mental health problems (Tolman & Rosen, 2001; Adams et al., 2013). In a randomized study conducted on female welfare recipients, Tolman and Rosen (2001) found that 62% of recent victims of severe intimate partner violence had at least one of five mental health disorders[4] compared to 34% of past victims and 23% of those who have never been victimized[5]. With regards to physical health, the study concluded that victims had poorer health than non-victims, but recent victims didn't differ significantly from past victims. Being victimised is associated with a perception of diminished self-agency (Fisher, 1984), which is critical for making informed and efficient life decisions.

Research has found mixed results on how mental health among women experiencing IPV mediates its effect on employment. Lindhorst, Oxford and Gillmore (2007) concluded that concurrent psychological distress doesn't mediate the impact of IPV on unemployment, while Crowne et al. (2011) found depression to be a significant mediator in the relation between IPV and job instability, accounting for 24% of the causal effect. The relation is bi-directional: job instability was shown to be at least partly responsible for the consequences of abuse on mental health (Adams et al., 2013). Shrag (2015) found that survivors of physical or sexual abuse were 66% more likely to experience later financial hardship; this decreased to 55% more likely if depression was included as a mediator. In his study, emotional abuse was associated with a two-time increase in the odds of suffering from depression, but not with later financial hardship. Some research points in the direction that psychological violence might be a stronger predictor of

[4] Depression, generalized anxiety disorder, PTSD, drug dependence, and alcohol dependence.
[5] The prevalence of at least one mental health disorder is taken from the literature review of Tolman and Wang (2005), as the primary source only provided the incidence of each of the five mental health disorders in the sample.

unemployment than physical violence (Kimerling et al., 2009), although Crowne et al. (2011) found no such relation.

Staying in work or returning to work can be problematic for people with poor mental health. A study in Denmark (Hellström et al., 2016) found no significant improvement in the rate of return to work or education for people with mood and anxiety disorders who received individual job support, although it seems to work well for people with more severe mental illnesses. Failure to disclose their condition, which could have resulted in reasonable adjustments being made for the individuals, was identified as one of the possible reasons for this. On the other hand, individual job support integrated with cognitive-behavioural therapy does seem to cause an increase in work participation in people with common mental health disorders (Reme et al., 2015). Research shows that women are reluctant to disclose victimisation in the workplace, mainly because they believe it is not an issue that should be brought to the workplace or that they feel ashamed by it (Swanberg, 2005). Nonetheless, the vast majority of women victims of IPV surveyed by Swanberg (2005) had a positive experience associated with disclosure: they were satisfied with the support received (85%), believed the support helped them keep their job (72%), as well as helped them cope with the violence at home (84%).

Being employed increases women's mental wellbeing, not only by providing them with the material necessities, but also by giving them a sense of purpose and control over one's life, while financial strain and unemployment are strong determinants of poor mental health (Adams et al., 2013). However, the benefits depend on the quality of work: Butterworth and al. (2011), found that although employed people had better overall mental health than those who were unemployed, this mainly benefitted those in jobs of superior psychosocial quality. Over time, those in poor quality jobs showed greater decline in mental health than those out of work and those moving from unemployment into these lower-status jobs also showed greater decline in mental health than those who remained unemployed. These findings argue for the need to support victims of abuse or violence access or remain in jobs which correspond to their level of qualification and experience.

2.5 Impact on work organisations

Domestic violence incurs costs to businesses and organisations. An increasing number of studies from the field of business and management also provide some insight into job performance and into victimised women's decision on how many hours to work. Reeves (2007) found that current victims of IPV were not more likely to miss hours of work than non-victims, while lifetime victims were. Consistent with Swanberg's findings, Reeves explained this by the fact that work can be a coping mechanism and that it provides the financial security needed in order to be able to flee the abusive relationship; hence, these women have a strong incentive to be economically active.

A longitudinal study by Tolman and Wang (2005), which used fixed effects models, observed a 10% decrease in the working hours of IPV survivors over the course of the next three years. Reeves (2007) also looked into distraction at work, which incurs higher organisational costs than missed hours and tardiness: current victims, but not lifetime victims, were more likely to report being distracted at work compared to non-victims.

3. Data and Methodology

3.1 Data collection

Data was gathered by posting the survey on social media platforms and by distributing flyers on the London Underground between mid-December 2018 and mid-February 2019. The questionnaire was posted repeatedly on Facebook, comments were posted on relevant threads on Twitter and Mumsnet, as well as on relevant posts on Facebook which gathered a larger audience. Flyers were distributed in eight sessions on various London Underground lines; adding a QR code slightly increased the response rate. After each session of distributing flyers, a significant number of responses were received and people are less likely to contribute at a later date after receiving a flyer, hence, we estimate the response rate to be around 10 percent.

Participants self-selected to fill in the questionnaire, which means the sample was not as random as in more controlled experiments. This explains to a certain degree the higher prevalence of exposure to violence/abuse than would be expected from the general population, as those who

have experienced it would be assumed to be more sensitive to the subject matter and more likely to contribute to the research by filling in the questionnaire.

A total of 126 responses were received, out of which 8 were disqualified for being male, 11 for residing outside the UK and 23 for not providing enough information to be included the analysis. An additional nine responses came for students and these were not included in the regressions, as working part-time alongside their studies does not provide sufficient indication of their earning potential or how many hours they would prefer or be able to work had it not been for the time commitment required by their course. It should be noted that 8 out of 9 of them did experience some form of violence or abuse, and 6 out of these 9 answers came from mature students, aged between 26 and 41 years old. The large number of mature students in the sample provides some support for the theory of trajectory shifts advanced by Loya (2015), indicating a change in their professional goals or a delay in achieving them.

3.2 The Questionnaire

The questionnaire designed to gather data for this research contains 28 questions and allows the respondent to mention up to three instances of abuse. It aimed to collect responses from women between the ages of 18 and 64 residing in the UK. Out of 28 questions, 14 apply to all respondents, while the target group (those who experienced a form of abuse or violence) answered an additional 3 questions for each instance of abuse mentioned and 5 questions related to psychological support and support from people around and institutions that they received following the abuse.

Data was collected on gender, age, ethnicity, qualifications, employment status and profession, personal earned income for the year 2018 (excluding any income support), average hours worked per week, total period of unemployment, number of children and total period spent on maternity leave. A standard Personal Health Questionnaire (PHQ-9) was included, which contains questions relating to physical and mental health, and a score was calculated for each respondent.

In an attempt to avoid typing errors which might skew results, respondents were asked to select their answer from a drop-down arrow. Increments of £2,000 were used for income, i.e. between

£10,000 and £12,000 or between 36,000 and £38,000. For the period of unemployment, period spent on maternity leave, time elapsed until receipt of support and for duration of support, increments of three months were used, i.e. between 0-3 months, or between 12-15 months. Income was capped at 50,000, hence the last option was an income greater than 50,000, and duration was capped at 36 months, in order to minimise the effect of outliers. The average value of the bracket selected by the respondent was used to be included in the analysis.

All respondents answered a question asking whether they received psychological support and how it was provided (privately vs. free or reduced-price), whereas the target group answered additional questions relating to whether they received psychological support following the abuse or violence, to the time elapsed until seeking help and to the length of therapy.

3.3 Descriptive statistics

From the sample of 75 responses that were included in the regressions, 66% reported some form of violence or abuse.[6] Respondents vary in age between 19 and 64, with a mean of 34.8 and a median of 32.

The ethnic composition of the sample (n=75) is as follows: 36% White British, 41.3% White Irish/Any other white background, and the remaining 22.7% is divided between 3 Asians, 2 Blacks, 3 Mixed/multiple ethnic groups, 1 Arab and 8 Any other ethnic background.

In terms of qualifications, 70.7% of people in the sample hold a degree, 13.3% have A-levels as their highest qualification and 8% have GCSEs as their highest qualification. Three respondents mentioned other types of qualifications as their highest, while two reported not having any qualifications.

Respondents work in a variety of industries and roles, which drives a large part of the differences in earnings. 68% work in a professional or managerial role and 13.3% are skilled workers. The sample also comprises 2 unskilled or semiskilled workers, 2 people in a senior management role, 2 entrepreneurs and 1 person who is unemployed.

[6] This increases to 69% for the sample of 84 in which students are also included.

Possibly due to the relatively young age of the respondents in the sample, only 30.7% of them have children. More than half of them have one child only, while 9 have two children and 2 have three. No one in the sample n=75 reported having more than three children, although two mature students from the sample n=84 reported having four children.

According to the Annual Survey of Hours and Earnings (ONS, 2019[d]), the minimum number of hours a person needs to work per week for it to be considered a full-time job is 30. Consequently, the variable referring to part-time work applies to all respondents who work less than 30 hours per week, which is 17.3% of the sample. And additional 16% of respondents are classified as full-time employees but work less than 37.5 hours per week.

The median hours worked is 40, irrespective of the group. The average number of hours worked is slightly lower for those who mentioned at least one instance of abuse, 35.3 compared to 38 for those who didn't. They were more likely to work part-time as well as more likely to work long hours (over 40 hours a week) than those who didn't, but less likely to work full-time and less than 37.5 hours (Table 1).

Table 1 – Hours worked per week

Abuse - Yes	**N=49**	**%**
PT<30	11	22.40%
LH>40	13	26.50%
FT<37.5	8	16.30%
Abuse - No	**N=26**	**%**
PT<30	2	7.70%
LH>40	5	19.20%
FT<37.5	9	34.60%

The median income in the sample is £27,000. For those who mentioned at least one form of abuse or violence, the median is £25,000 and the mean is £71 below this value, whereas those who didn't earn on average £30,923, with a median of £32,000.

The questionnaire allows to mention up to three instances of abuse or violence: 30.7% of respondents reported one instance, 13.3% two and 21.3% three. The types of violence and abuse present in the sample are summarised in Table 2[7].

Table 2 – Types of Violence/Abuse in the sample

Type of abuse/violence	Physical	Emotional	Verbal	Harassment	Assault/Sexual Assault	Rape
N	22	24	16	8	11	4
%	29.3%	32.0%	21.3%	10.7%	14.7%	5.3%

A respondent can score between 0 and 30 to the PHQ-9 questionnaire. A higher score indicates a poorer mental health and a higher likelihood of suffering from depression. Those who mentioned at least one instance of abuse or violence score an average of 7.9 with a median of 6, while those who have not score on average 4.4 with a median of 4.

3 Regression analysis

Stata software was used to run regressions in order to determine the effect of abuse or violence on employment and earnings. It should be noted that the sample size for regressions that include PHQ-9 as a variable is N=70, as five people from the sample N=75 didn't fill in this questionnaire. Regressions that include variables referring to support following the abuse have smaller sample sizes, reflecting the number of people to whom the questions applied and response rates.

Only one person in the sample was unemployed, hence the number of hours worked was analysed as a determinant of employment.

4.1 Hours

The literature suggests that people who experienced abuse may decrease the number of hours they work (Tolman and Wang, 2005). The present study is a cross-sectional and not a longitudinal one as Tolman and Wang's, hence it cannot uncover labour supply decisions over time;

[7] Intimate partners were found to be the most common type of perpetrators: 17.3% of respondents reported physical violence carried out by an intimate partner and 21.3% suffered emotional abuse from an intimate partner.

nevertheless, some insight into this is provided through the use of a variable which refers to current or recent victims.

The regression:

Hours = 50.2 + 0.8 *Abuse* – 0.3 *Age* – 2.6 *Degree* – 0.05 *Unemployed* + 1.1 *Ethnicity* – 0.8 *Children* – 0.4 *PHQ9* – 2.8 *Current/Recent*

Where: *Hours* - number of hours worked per week, *Abuse* – whether a person mentioned at least one instance of abuse, *Age* – current age of the respondent, *Degree* – whether a person has a degree or above as their highest qualification, *Ethnicity* – whether they belong to an ethnic minority group (White British being the excluded group), *Unemployed* – the length of unemployment during lifetime (in months), *Children* – having at least one child, *PHQ9* – the score to the Personal Health Questionnaire, *Current/Recent* – whether the abuse or violence happened in the last 12 months.

Predictions: having children, having a lower level of mental wellbeing, having experienced unemployment or a longer period of unemployment and being a current or recent victim would have a negative impact on the number of hours worked. Other predictions, although less strong, would be that the number of hours worked decreases with age, women belonging to ethnic minority groups work fewer hours and those with a degree more hours.

The variable "Abuse" has a positive sign, but it is not statistically significant. Being a current or a recent victim and having a lower level of mental wellbeing, which is indicated by the results to the PHQ-9 questionnaire, are the main drivers of the decrease in hours worked. Although the coefficient of the PHQ-9 variable is relatively low (0.4), it refers to the effect of each point scored, hence someone who scores highly for depression is expected to work significantly fewer hours. For example, someone with a score of 20 is expected to work 8 hours less a week than someone with a score of 0. The regression suggests that depression is a significant mediator of abuse.

Women decrease the number of hours worked with age, women with children work fewer hours and each additional month spent unemployed has a negative impact, although probably lower than expected.

Contrary to expectations, holding a degree has a negative impact on hours. This can be explained by the fact that more educated women can expect to earn a higher hourly rate, therefore they earn more although working fewer hours. Disproving the predictions, ethnic minority women in our sample are working more hours than White British women. There are two possible explanations: i) ethnic minority women earn a lower hourly wage, therefore they need to work more hours, and ii) the high proportion of women identifying as "White Irish/Any other white background" in the sample. This group has different characteristics than other minority groups: they have higher employment rates, even higher than white British, tend to be younger and less likely to have children. Hence, it is possible that the positive sign is driven by this minority group, while it would be negative for other minorities, but the small sample size doesn't allow a more detailed research.

The results should be interpreted cautiously due to te lack of statistical significance. Only the variables "Age" and "PHQ-9" are statistically significant at 10% level of significance.

There is an indication that receiving support from people around or institutions (family, friends, from the workplace or school, social media, legal system) has a positive impact on the number of hours worked (see regression in Appendix).

4.2 Income

Most of the literature focuses on women from low socio-economic background and concludes that those who experienced abuse earn less than other women similar to them in all other respects.

It should be highlighted that the questionnaire asked specifically for income earned by the person filling it in, through wages, investments or any other remunerable activities, and that income coming from benefits or financial support from others shouldn't be included.

The regression:

Income = 27,247.2 - 2,172.8 *Abuse* + 123 *Age* + 8,801.9 *Degree* – 3,619.8 *Ethnicity* – 19,122.2 *PT* – 591.3 *London* – 175.2 *Unemployed* – 320.7 *PHQ9*

Where: *Income* – personal earned income for the year 2018, *Abuse* – whether a person mentioned at least one instance of abuse, *Age* – current age of the respondent, *Degree* – whether a person has a degree or above as their highest qualification, *Ethnicity* – whether they belong to an ethnic minority group (White British being the excluded group), *PT* – working part-time (less than 30 hours per week), *London* – with residence in London, *Unemployed* – the length of unemployment during lifetime (in months), *PHQ9* – the score to the Personal Health Questionnaire.

Predictions: abuse has a negative impact on earnings, income increases with age, people with a degree and those living in London would earn more, those working part-time and those belonging to an ethnic minority group would earn less, income decreases with each additional month of unemployment and with each additional point scored in the PHQ-9 questionnaire.

The coefficient of "Abuse" is negative, but not statistically significant. It suggests that women who have experienced abuse earn 8% less than women similar to them in all other respects. Holding a degree and working part-time are significant at 1% level of significance. Having a degree increases earnings by 32% and working less than 30 hours a week decreases them by 70%.

The results confirm our expectations regarding the effect of all variables except the one referring to people living in London. This is attributed to sample characteristics: approximately two thirds of the data were collected by distributing flyers on London Underground, so it can be inferred that people from other regions coming to London for business or pleasure might have higher earnings than the average for their region.

Having experienced unemployment decreases long-term earnings, more precisely, women earn £175 less with each additional month of unemployment. The regression suggests that belonging to an ethnic minority and having a lower level of mental wellbeing have relatively large effects on earnings. Ethnic minority women earn £3,620 less a year. Each additional point scored on a PHQ-9 questionnaire lowers income by £321, which is to say that someone with a high score of 20 (indicating a very high likelihood of suffering from depression) is expected to earn £6,420 less than someone with a score of 0.

4.3 Effects of support on income

It is to be expected that receiving psychological support would have a positive impact on earnings. Two different regressions are used, one that looks into the effect of general psychological support (both for victims and non-victims), and another one that refers to psychological support received following the experience of abuse or violence.

a) General psychological support

The regression:

Income = 28,963.9 – 1,608.3 *Abuse* – 12.5 *Age* – 4,508 *Ethnicity* + 8,120.2 *Degree* – 20,636.5 *PT* + 6,640.5 *Therapy* – 546.3 *PHQ9*

Where: *Income* – personal earned income for the year 2018, *Abuse* – whether a person mentioned at least one instance of abuse, *Age* – current age of the respondent, *Degree* – whether a person has a degree or above as their highest qualification, *Ethnicity* – whether they belong to an ethnic minority group (White British being the excluded group), *PT* – working less than 30 hours per week, *Therapy* – if a person has ever received psychological support, *PHQ9* – the score to the Personal Health Questionnaire.

Predictions: income increases with age and with more education and decreases for those who have experienced abuse, for those who work part-time or belong to an ethnic minority. Psychological support should have a positive impact on earnings.

The regression confirms these predictions. It suggests that people who sought psychological support earn £8,286.5 more a year, whereas those who experienced abuse earn £1,608.3 less a year. However, the effect is bi-directional: those earning more are more likely to afford and hence to undergo therapy. It should also be noted that the variables “Degree” and “PT” are statistically significant at 1% level of significance, whereas “Ethnicity” and “Therapy” are significant at 5% level of significance.

b) *Support following abuse or violence*

The regression:

Income = 37,502.8 – 132 *Age* + 9,779.5 *Degree* – 24,630.3 *PT* – 4,045.2 *Ethnicity* + 9,502.1*Therapy* – 542.2 *PHQ9* – 27.5 *Time* – 103.5 *Duration* – 6,377.1 *Family* – 1,331.5 *Friends* + 1,316.3 *Workplace* – 2,574 *SM*

Where: *Income* – personal earned income for the year 2018, *Age* – current age of the respondent, *Degree* – whether a person has a degree or above as their highest qualification, *Ethnicity* – whether they belong to an ethnic minority group (White British being the excluded group), *PT* – working less than 30 hours per week, *Therapy* – if a person has received psychological support following victimisation, *PHQ9* – the score to the Personal Health Questionnaire, *Time* – time elapsed from abuse until starting therapy (in months), *Duration* – length of therapy (in months), *Family* – support from family, *Friends* – support from friends, *Workplace* – support from the workplace or school, *SM* – support from social media.

Predictions: psychological and social support should increase earnings[8]. The period that a person waits until seeking support and the length of support have two opposite effects. On the one hand, the longer a person waits, the most likely they are to underperform in the workplace or make hasty decisions which negatively influence their long-term prospects; on the other, it contributes to increasing the time elapsed since the event, which should result in a positive sign. Similarly, receiving support for a longer period of time may be expected to positively impact earnings because it is likely to equip the person with better coping skills; however, those who undergo therapy for longer period of times are likely to be those who had more serious and/or long-term experiences, which results in a negative sign. It is hard to predict which one of these opposite effects would prevail.

[8] Although responses were collected for support from the legal system, they were not included in the regression, as not all forms of abuse (i.e. psychological abuse), would warrantee a recourse to the legal system.

This regression shows a positive impact of psychological support on earnings, although not statistically significant. The variable "Age" has a negative sign, which is likely due to an omitted variable bias. The signs of the coefficients for the variables referring to holding a degree, working less than 30 hours a week, belonging to an ethnic minority and the score to the PHQ-9 questionnaire are aligned with expectations.

The variables referring to the elapsed time until starting therapy and to the length of therapy have a negative sign. This suggests that the seriousness of the abuse prevails over improving coping skills. Since the responses are self-reported, a more objective measure of the seriousness of the abuse and a larger sample would be needed in order to assess if there are any benefits to undergoing therapy for a longer period of time.

Receiving support from the workplace or school is the only variable referring to a form of support that has a positive sign. These are the institutions which have the most power to influence a person's level of earnings. This result challenges the widespread fear of disclosure. The negative coefficient that carries the heaviest weight is that for support from family. It can be implied that although support is helpful to a person having been through a difficult experience, too much reliance on others might diminish the need to assert one's independence and therefore negatively impact earnings. Davidson et al. (2012) found that women survivors of IPV who completed the ACCESS programme, which equipped them with skills to pursue paid employment, reported a diminished expectation of future financial support.

4. Conclusions and further directions

The consequences of violence against women on future economic outcomes is an under-researched topic, especially in the field of economics. A report commissioned by the Vodafone Foundation (2017) revealed that most work organisations are not aware, even roughly, of the cost of domestic abuse on their businesses and that the main barriers towards providing more support are lack of awareness, training and guidelines for dealing with the issue. On the other hand, over half HR representatives agreed that domestic abuse impacted the productivity and the quality of work of their employees affected by it and that it caused them to miss work. Initiatives such as Vodafone's commitment to support victims of domestic abuse through

additional paid leave and other measures are a step forward to ensuring that individuals achieve their true potential in the workplace and that costs to work organisations and to the government through provision of social assistance are minimised in the long run.

The regression analysis on a sample extracted from the general population confirms the expectations regarding control variables: a strong positive impact of having a degree on earnings and a strong negative effect of working part-time and of having a poorer mental health. General psychological support has a positive and statistically significant impact on income, whereas psychological support following the abuse does not generate conclusive results, although there is an indication that the sign is positive. Given the lack of statistical significance of the variable referring to victimisation, definitive conclusions cannot be drawn about its effect or the strength of its (negative) effect on earnings and hours worked, and more research is needed to provide more insight into this topic.

The present study has a series of limitations: the small, non-random sample, the questionnaire asks for the period of unemployment during lifetime and it is not known how much of it was in 2018, it does not use an objective measure of what constitutes an instance of abuse or violence, as these were self-reported. Overcoming these limitations would allow drawing more definitive conclusions and inspire solutions for both decreasing the amount of violence in the society and providing support for victimised women to have a more financially secure future, as the relation between the two is bi-directional.

The contribution of this study lies in providing a framework of how this subject can be investigated using economic tools. A longitudinal study would be needed in order to investigate labour supply decisions and income fluctuations among victimised women over time, while panel data could provide insight into whether these decisions differ and how they differ from those of non-victims.

5. References

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6. Apendix – Stata Outputs

7.1 Hours

Source	SS	df	MS	Number of obs	=	75
				F(1, 73)	=	0.76
Model	80.2444898	1	80.2444898	Prob > F	=	0.3862
Residual	7708.27551	73	105.592815	R-squared	=	0.0103
				Adj R-squared	=	-0.0033
Total	7788.52	74	105.25027	Root MSE	=	10.276

Hours	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Abuse	-2.173469	2.493234	-0.87	0.386	-7.142478	2.79554
_cons	37.5	2.015257	18.61	0.000	33.4836	41.5164

Source	SS	df	MS	Number of obs	=	70
				F(8, 61)	=	1.25
Model	985.244947	8	123.155618	Prob > F	=	0.2848
Residual	5995.61577	61	98.2887831	R-squared	=	0.1411
				Adj R-squared	=	0.0285
Total	6980.86071	69	101.171894	Root MSE	=	9.9141

Hours	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Abuse	.7611726	2.720449	0.28	0.781	-4.678701	6.201046
Age	-.286131	.1524252	-1.88	0.065	-.590924	.018662
Degree	-2.64451	2.819968	-0.94	0.352	-8.283386	2.994365
Periodunem~d	-.0488967	.1364014	-0.36	0.721	-.3216482	.2238547
Ethnicity	1.084571	2.644792	0.41	0.683	-4.204018	6.37316
Children	-.8382844	1.806001	-0.46	0.644	-4.449607	2.773039
PHQ9	-.3701693	.2099701	-1.76	0.083	-.7900306	.0496919
Currentorv~t	-2.795114	5.620783	-0.50	0.621	-14.03456	8.444336
_cons	50.17973	6.329825	7.93	0.000	37.52246	62.837

Source	SS	df	MS	Number of obs	=	45
				F(8, 36)	=	1.11
Model	1164.30177	8	145.537722	Prob > F	=	0.3790
Residual	4715.50934	36	130.986371	R-squared	=	0.1980
				Adj R-squared	=	0.0198
Total	5879.81111	44	133.632071	Root MSE	=	11.445

Hours	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Abuse	0	(omitted)				
Age	-.3760448	.2282081	-1.65	0.108	-.8388723	.0867828
Degree	-5.86237	4.199294	-1.40	0.171	-14.37893	2.654194
Periodunem~d	-.0434076	.2048797	-0.21	0.833	-.458923	.3721077
Ethnicity	1.296513	3.929959	0.33	0.743	-6.673813	9.266838
Children	-.4694724	2.637926	-0.18	0.860	-5.819435	4.88049
PHQ9	-.4663272	.2604198	-1.79	0.082	-.994483	.0618285
Currentorv~t	-2.259309	6.713172	-0.34	0.738	-15.87425	11.35563
Supportsys~m	1.375618	1.530896	0.90	0.375	-1.729183	4.48042
_cons	54.55065	10.21313	5.34	0.000	33.83746	75.26384

7.2 Income

Source	SS	df	MS	Number of obs	=	75
				F(1, 73)	=	3.22
Model	610400513	1	610400513	Prob > F	=	0.0769
Residual	1.3839e+10	73	189580084	R-squared	=	0.0422
				Adj R-squared	=	0.0291
Total	1.4450e+10	74	195266847	Root MSE	=	13769

Income	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Abuse	-5994.505	3340.737	-1.79	0.077	-12652.58	663.5735
_cons	30923.08	2700.285	11.45	0.000	25541.42	36304.74

Source	SS	df	MS	Number of obs	=	70
				F(8, 61)	=	6.24
Model	6.3364e+09	8	792046943	Prob > F	=	0.0000
Residual	7.7419e+09	61	126917087	R-squared	=	0.4501
				Adj R-squared	=	0.3780
Total	1.4078e+10	69	204033592	Root MSE	=	11266

Income	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Abuse	-2172.795	3066.209	-0.71	0.481	-8304.06	3958.469
Age	122.9526	162.4162	0.76	0.452	-201.8187	447.7239
Degree	8801.869	3237.811	2.72	0.009	2327.467	15276.27
Ethnicity	-3619.756	2972.973	-1.22	0.228	-9564.582	2325.071
Pt30h	-19122.18	3841.332	-4.98	0.000	-26803.4	-11440.96
London	-591.2533	3196.736	-0.18	0.854	-6983.522	5801.015
Periodunemployed	-175.1665	155.8917	-1.12	0.266	-486.8913	136.5582
PHQ9	-320.739	242.0427	-1.33	0.190	-804.7332	163.2553
_cons	27247.22	7962.589	3.42	0.001	11325.04	43169.4

7.3 Effects of support on income

a) General psychological support

Source	SS	df	MS	Number of obs	=	70
				F(1, 68)	=	0.74
Model	150916956	1	150916956	Prob > F	=	0.3937
Residual	1.3927e+10	68	204814719	R-squared	=	0.0107
				Adj R-squared	=	-0.0038
Total	1.4078e+10	69	204033592	Root MSE	=	14311

Income	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
TherapyYN	2941.441	3426.666	0.86	0.394	-3896.364	9779.247
_cons	25391.89	2352.771	10.79	0.000	20697.01	30086.77

Source	SS	df	MS	Number of obs	=	70
				F(7, 62)	=	9.32
Model	7.2167e+09	7	1.0310e+09	Prob > F	=	0.0000
Residual	6.8616e+09	62	110670990	R-squared	=	0.5126
				Adj R-squared	=	0.4576
Total	1.4078e+10	69	204033592	Root MSE	=	10520

Income	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Abuse	-1608.252	2835.906	-0.57	0.573	-7277.148	4060.643
Age	-12.50487	138.5659	-0.09	0.928	-289.4942	264.4844
Ethnicity	-4507.978	2716.576	-1.66	0.102	-9938.337	922.3808
Degree	8120.164	2972.957	2.73	0.008	2177.307	14063.02
Pt30h	-20636.53	3572.153	-5.78	0.000	-27777.16	-13495.9
TherapyYN	8286.481	2700.585	3.07	0.003	2888.089	13684.87
PHQ9	-546.257	229.8005	-2.38	0.021	-1005.622	-86.89235
_cons	28963.89	6409.418	4.52	0.000	16151.65	41776.14

b) Psychological support following the abuse

Source	SS	df	MS	Number of obs	=	47
				F(1, 45)	=	1.42
Model	280646287	1	280646287	Prob > F	=	0.2390
Residual	8.8677e+09	45	197060579	R-squared	=	0.0307
				Adj R-squared	=	0.0091
Total	9.1484e+09	46	198877660	Root MSE	=	14038

Income	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Psychologi~t	-5026.82	4212.244	-1.19	0.239	-13510.72	3457.076
_cons	26637.93	2606.759	10.22	0.000	21387.65	31888.21

Source	SS	df	MS	Number of obs	=	44
				F(12, 31)	=	4.31
Model	5.3256e+09	12	443796834	Prob > F	=	0.0005
Residual	3.1912e+09	31	102942831	R-squared	=	0.6253
				Adj R-squared	=	0.4803
Total	8.5168e+09	43	198064878	Root MSE	=	10146

Income	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Age	-132.0196	183.8786	-0.72	0.478	-507.0425	243.0033
Degree	9779.472	4223.718	2.32	0.027	1165.142	18393.8
Pt30h	-24630.31	4628.569	-5.32	0.000	-34070.34	-15190.28
Ethnicity	-4045.157	3503.815	-1.15	0.257	-11191.24	3100.921
Psychologi~t	9502.077	5938.996	1.60	0.120	-2610.585	21614.74
PHQ9	-542.229	278.451	-1.95	0.061	-1110.134	25.67564
Elapsedtime	-27.54125	208.8981	-0.13	0.896	-453.5917	398.5092
Durationof~t	-103.5346	198.2602	-0.52	0.605	-507.889	300.8197
Family	-6377.109	4407.513	-1.45	0.158	-15366.29	2612.074
Friends	-1331.544	4297.335	-0.31	0.759	-10096.02	7432.929
Workplaceo~l	1316.259	4816.397	0.27	0.786	-8506.847	11139.36
Socialmedia	-2573.975	3995.468	-0.64	0.524	-10722.79	5574.836
_cons	37502.76	9250.361	4.05	0.000	18636.52	56368.99