Ecological Risk Factors and Cumulative Risk for Intimate Partner Violence; Evidence from CMI Project 'Women in the Developmental State: Female Employment and Empowerment in Ethiopia'

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Abstract

Background: This high prevalence of intimate partner violence (IPV) against Ethiopian women is a concern from a human rights and development perspective. For targeted prevention programmes to be implemented, it is crucial to understand the risk factors for IPV. Previous studies have researched how personal history, micro-, exo-, and macrosystem level factors are associated with IPV. However, few studies have researched all the four ecological levels simultaneously, and how risk factors associate cumulatively with IPV.

Research Objectives: The study objectives were to explore the prevalence of IPV against women in an Ethiopian setting, identify how risk factors at four different ecological levels were associated with IPV, and to assess whether women exposed to a higher number of the risk factors cumulatively had greater odds of being victims of recent IPV.

Data and Methods: A cross-sectional analysis of data from the CMI project 'Women in the Developmental State: Female Employment and Empowerment in Ethiopia' was performed. The sample was comprised of 916 currently partnered women aged 17–55. Descriptive analyses were conducted to provide an overview of the prevalence of IPV, Chi-square test of independence and binary logistic regression to model how different risk factors were associated with recent IPV, and bivariate logistic regression to explore whether women exposed to a higher number of risk factors had greater odds of being victims of recent IPV.

Results: 287 (31.33%) of the 916 women had experienced IPV, of which 148 (16.16%) had experienced IPV during the past three months. The Chi-square tests suggested significant associations between six risk factors and recent IPV (n = 909), whilst direct logistic regression analyses indicated that four factors significantly increased the odds of being a victim of IPV, whilst controlling for the other factors. Logistic regression analyses also indicated that the odds of having experienced recent IPV significantly increased with every additional factor a respondent was exposed to, and the association remained statistically significant after controlling for demographic variables (n = 909).

Conclusion: The results indicated a high prevalence of IPV, and both individual and cumulative associated factors of IPV. This provided support for assessing multiple risk factors across ecological levels in IPV research, as well as for cumulative risk assessment.

Keywords: Intimate Partner Violence, Ecological Model, Cumulative Risk Index

Abbreviations

IPV	Intimate Partner Violence
WHO	World Health Organization
SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa
CR	Cumulative Risk
EDHS	Ethiopia Demographic and Health Survey
CMI	Chr. Michelsen Institute
DHS	The Demographic and Health Surveys
SNNP	Southern Nations, Nationalities, and People's Region
CTS	Conflict Tactics Scale
HFIAP	Household Food Insecurity Access Prevalence
NSD	Norwegian Centre for Research Data

1. Introduction

1.1 Background

Intimate partner violence (IPV) can be understood as behaviours within intimate relationships that causes psychological, physical, and/or sexual harm to those affected (Heise & Garcia-Moreno, 2002, p. 89). Although IPV occurs amongst individuals with different gender identities and sexual orientations, it most commonly finds place in intimate relationships were women bear the burden at the hands of men (Heise & Garcia-Moreno, 2002, p. 89). According to the World Health Organization's (WHO) 2018 global estimates, as many as 27 percent of women have experienced sexual and/or physical IPV perpetrated by a male partner (2021, p. xxi). IPV has been acknowledged as one of today's most pervasive human rights violation on the basis of its high prevalence and its severe consequences for the individuals it affect: It can have short- and long-term effects for women's psychological, physical, and sexual health and well-being, e.g., affect their reproductive health, result in sexually transmitted infections, unwanted pregnancies, have severe consequences for developing fetuses, cause preterm labour, miscarriage, or maternal death (Garcia-Moreno et. al, 2006; Heise & Garcia-Moreno, 2002, pp. 101–102). Most femicides, referring to intentional murders of women because they are women, also happen within intimate partner relationships (World Health Organization & Pan American Health, 2012). In addition to the recognition of IPV as a human right violation, it is viewed as a global public health problem (Heise & Garcia-Moreno, 2002, p. 89; World Health Organization, 2021, p. VIII), and furthermore an infringement to global development, which hinders economic growth, poverty reduction, and improvement of societal subjective wellbeing (Yitbarek et al., 2019).

To address the problem, global consensus documents and conventions have been formed. The initial calls of the United Nations Declaration on the Elimination of Violence Against Women (1993), the Beijing Declaration and Platform for Action (1995), and the more recent 2030 United Nations Agenda for Sustainable Development and its Sustainable Development Goals (SDGs), are amongst the most influential documents. In the SDGs, ending violence against women and girls was made a priority, e.g., through Target 5.2: "Eliminate all forms of violence against all women and girls in public and private spheres, including trafficking and sexual and other types of exploitation" as a part of SDG 5: "Achieving gender equality and empower all women and girls" (United Nations, 2015). To measure progress on Target 5.2, one of the indicators measured is recent physical, sexual, or

psychological IPV victimisation among ever-partnered women and girls above the age of 15, by its form of violence and age (United Nations, 2015).

'Ecological frameworks' are commonly utilised to study the determinants and the correlates that presumably increase the risk for IPV victimisation (Fulu & Miedema, 2015; Heise, 1998; McCloskey et al., 2016). These frameworks capitalise IPV as multifaced and finding place in the interplay between risk factors at different levels, which could be conceptualised as the (a) personal history (e.g., biological and personal characteristics); (b) microsystem (e.g., relational or family level factors); (c) exosystem (e.g., in neighbourhoods or social network); (d) macrosystem (social norms and beliefs) (Belsky, 1980; Heise, 1998). Although widely employed, most studies that have utilised ecological frameworks have been conducted in the United States, whilst fewer in Sub-Saharan Africa (SSA) (Heise, 2012, p. 51; McCloskey et al., 2016; Yakubovich et al., 2018). Moreover, most SSA studies have focused on risk factors at the levels of the personal history, microsystem and/or socioeconomic variables at the exosystem, and fewer studies on other factors at the exosystem or the macrosystem. Particularly few studies have examined risk factors at all four levels of the ecology simultaneously, and the cumulative risk (CR) of exposure to multiple risk factors.[1]

1.2 Research Area: Ethiopia

The context of the present study is Ethiopia, which has approximately 120 million citizens (United Nations Population Fund, 2022). The country is also highly ethnically fragmented, of which the largest ethnic groups are Oromo (35.8%); Amhara (24.1%); Somali (7.2%); Tigray (5.7%); Sidama (4.1%); Guragie (2.6%); Welaita (2.3%) (Central Intelligence Agency, 2022). Previous studies from Ethiopia have found different IPV prevalence rates. The WHO multi-country study, conducted between 2000–2003, found the highest prevalence of physical and sexual IPV (71 precent) in Butajira, in rural Ethiopia, amongst all sites in the study (Garcia-Moreno et al., 2006; Heise, 2012, p. 53). More recent studies that are representative to the national level have in comparison found significantly lower prevalence rates. The 2016 Ethiopia Demographic and Health Survey (EDHS) suggested that 33.8 percent of Ethiopian women had experienced emotional, physical, or sexual IPV, but that there were internal differences amongst the regions; Only 8.9 percent of women in the Somali region had experienced IPV, whilst 39.5 percent had experienced it in Sidama (Central Statistical Agency and ICF, 2017, p. 306).

[1] See Chapter 3 literature review.

1.3 Overarching Objectives

The objectives of the present study are to explore the prevalence of IPV against women in an Ethiopian setting, identify how risk factors at four different ecological levels are associated with IPV, and assess whether women exposed to a higher number of the risk factors cumulatively have greater odds of being victims of recent IPV. The objectives will be explored trough a cross-sectional analysis of secondary data from the CMI Project 'Women in the Developmental State: Female Employment and Empowerment in Ethiopia', collected between 2016–2019. By analysing the CMI data, the study aims at providing recent information concerning IPV prevalence rates and contributing to filling a research gap where (a) few SSA studies have focused on associations between risk factors at all four levels of the ecology and IPV in the same study, and (b) how exposure to multiple risk factors across levels cumulatively increase the risk of being a victim of IPV. By doing so, it contributes to the larger literature on violence against women within the field of Gender in Global Development. In addition to the scholarly interest to conduct the present study, it is of policy interest. In order to prevent IPV and help IPV victims successfully, it is inevitable to understand the factors associated with IPV and how they cumulatively might cause greater risk for IPV in order for effective prevention programmes to be developed (Heise & Garcia-Moreno, 2002, pp. 100–103, 112).

2. Theoretical Framework

Multiple theoretical frameworks and approaches have been used to explain the aetiology of IPV, including gender perspectives, feminist theories, sociological theories amongst others (Muluken Dessalegn et al., 2021). Initially, scholars focused either on individual explanations (e.g., men with poor impulse control) or the social and political explanations (e.g., patriarchal social structures) of IPV (Heise, 1998). However, a gradual shift has found place to an acknowledgment of the need to move beyond single factor explanations. Since the 1990s the common denominator of IPV research has been a recognition of IPV as a multifaced phenomenon (Heise, 2012, p. 50).

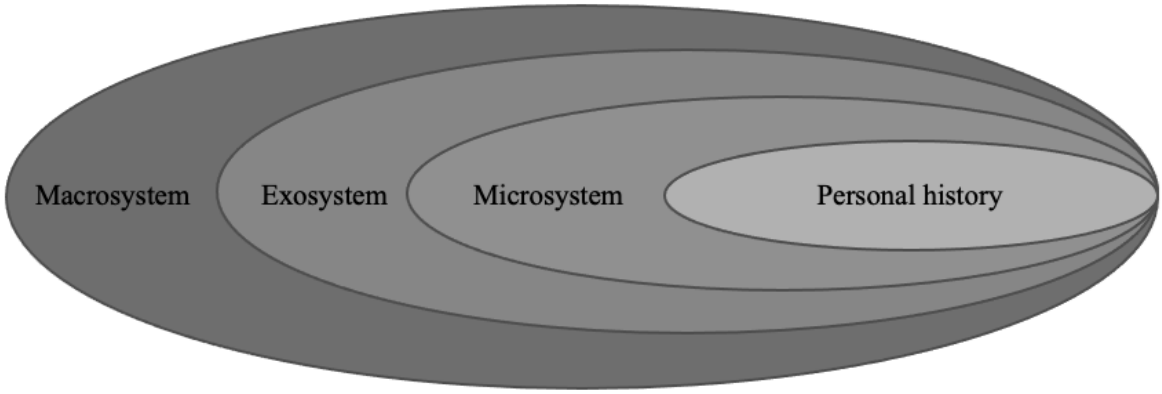
2.1. Ecological Model of IPV

With the aim of avoiding simplistic social analysis and instead providing an enhanced understanding of the associated factors of IPV, an ecological framework will be adapted in the present study. This ecological framework was originally outlined by Bronfenbrenner (1977), who also drew on the works of others, to understand human development. He argued

that in order to understand human development one must consider the entire ecological system, of which he argued is organised into four nested levels, i.e., the micro-, meso-, exo- and macrosystem. Belsky (1980) later drew on Bronfenbrenner´s (1977) work to demonstrate that the origins of child abuse and neglect are forced at work at the interplay between factors at different levels. Henceforth, ecological frameworks have been adapted to conceptualise different types of violence as resulting from the convergence of 'intersectional' influences or identities that individuals bear with them (McCloskey et al., 2016). Ecological frameworks have grown to become the most frequently used frameworks in research on IPV against women today (Heise et al., 2002; Muluken Dessalegn et al., 2021). The WHO have also recognised the frameworks as the basis of their interpersonal violence program (Heise, 2012, p. 50; World Health et al., 2002). Whilst scholars have conceptualised ecological frameworks differently and have included different levels, this thesis draws heavily on the works of Heise (1998; 2002) who popularized the ecological model (Fulu & Miedema, 2015). Heise (1998) argued for applying it as a heuristic tool to organise literature, and in research utilising individual level data, as analysed in the present study. This ecological model employed in the present study can be visualised as four centric circles (see Figure 1). The innermost circle represents the woman's personal history, i.e., biological and personal characteristics which affects her behaviour and relationships (Heise et al., 2002; Heise, 1998). The second circle reflects the microsystem where the IPV happens (Heise, 1998). This could be the interactions and the subjective meaning of those interactions within an intimate or acquaintance relationship or a family (Heise et al., 2002; Heise, 1998). The third circle represents the exosystem, referring to the formal and informal institutions and social structures where the microsystem is embedded (Heise, 1998), e.g., a peer group, neighbourhood, workplace, or social network (Heise et al., 2002). Lastly, the outermost circle represents the macrosystem, which includes norms and beliefs that permeate the society. This layer pervades and informs the three lower levels of the social ecology (Heise, 1998).

Figure 1

A Nested Social Ecological Model of Associated Risk Factors of IPV



Note. The figure is developed according to the ecological model of Heise (1998, p. 265).

2.2 Cumulative Risk

Cumulative risk models fit well within underlying ecological frameworks (Evans et al., 2013). Within the framework outlined above, CR can be understood as models where the core idea is that singular risk factors at different ecological levels explains parts of why some women are at greater risk of being IPV victims than others, but they do not paint the full picture (Ettekal et al., 2019; Nikulina et al., 2021). Instead, CR theory suggests that one should assume multiple causation, account for multiple risk factors, as well as for the interplay and natural covariation amongst these. Henceforth, the risk factors should be combined and their combined, cumulative effect on IPV victimisation assessed. The core idea is that when individuals are exposed to a higher number of risk factors, the individual's cumulative risk of experiencing IPV victimisation also increases (Ettekal et al., 2019; Evans et al., 2013; Nikulina et al., 2021).

3. Literature Review

A literature search was carried out in the databases Oria, Web of Science, and PubMed with combinations of the search terms: intimate partner violence, prevalence, ecological framework, risk factors, cumulative risk, Sub-Saharan Africa, Ethiopia, and meta-analysis. To be included, literature had to be: (a) peer-reviewed; (b) written in English; (c) focused on IPV against women; (d) methodologically sound; (e) conducted in SSA; (f) published in the last ten years. The two latter criteria were included since IPV is time and context specific. Some combinations of the initial search terms resulted in fewer results meeting the eligibility criteria than desired. Hence, extended searches were carried out with related terms, i.e., domestic violence, spousal violence, associated factors, multiple risk, systematic review, and

scoping review. Sources found in articles meeting the inclusion criteria and grey literature on prevalence rates, including global estimates for comparison purposes, were also reviewed.

The literature review firstly presents prevalence rates, before using the ecological framework as a heuristic tool to organise associated factors at different levels (Heise, 1998). Most SSA associated risk factors are placed at the same level as Heise (1998), but in line with Heise's (1998) argument that ecological models provide a room for researchers to interpret where factors fit, and that the model itself implies that factors interact between levels in the aetiology of abuse, some variables are placed at another level if it is commonly placed there in the SSA literature. Lastly, literature on cumulative risk is presented.

3.1 Prevalence of IPV Against Women

Literature have unequivocally suggested that IPV against women is widespread throughout SSA although outlawed by many governments (McCloskey et al., 2016). SSA prevalence rates also exceed world estimates. The WHO 2018 global estimate suggested that 27 percent of all ever-partnered women aged 15–49 had experienced physical and/or sexual IPV by a male partner (lifetime IPV), and that 13 percent had experienced IPV within the past twelve months (recent IPV). On the contrary, the WHO suggested that six percent points more, 33 percent, had experienced lifetime physical and/or sexual IPV within SSA, and seven percent points more, 20 percent, had experienced recent IPV in the region (World Health Organization, 2021, pp. 6, 24).[2] The 2018 estimates from Ethiopia was even higher, with a lifetime IPV estimate of 37 percent and recent IPV estimate of 27 percent (World Health Organization, 2021, p. 70). Although the estimate from Ethiopia was calculated based on data from the EDHS amongst other sources (World Health Organization, 2021, pp. 12–14), data from the most recent EDHS to date suggested a lower lifetime prevalence; In the 2016 EDHS, 34 percent reported IPV victimization by their current/most recent partner, of which emotional was the most common form of IPV experienced (24 percent) (Central Statistical Agency and ICF, 2017, p. 305) Moreover, 27 percent had experienced any form of emotional, physical and/or sexual violence within the past 12 months, and emotional IPV (20 percent) was the most common type of IPV experienced (Central Statistical Agency and ICF, 2017, p. 305).

[2] Data from 37 SSA countries were included to generate the SSA estimate (World Health Organization, 2021, pp. 50, 59).

3.2 Associated Factors of IPV

Most studies on the associated factors of IPV have been conducted in the United States (Yakubovich et al., 2018), but a growing number of population-based surveys and multiple variable analyses have also been conducted in SSA the past 15 years (Heise, 2012, p. 51; McCloskey et al., 2016). Several factors found to be positively associated with IPV in the SSA mirror those found in other world regions. However, there are disparities in the findings, which is also an argument for reviewing SSA literature exclusively (McCloskey et al., 2016).

According to the results of the literature searches conducted in the present study, many SSA studies have focused personal history-, microsystem level-, and/or poverty related factors at the exosystem and their association with IPV, whilst significantly fewer focused on non-socioeconomic variables at the exosystemic and on macrosystem variables. Moreover, particularly few studies examined factors at all four levels of the social ecology. However, the Ethiopian study of Gashaw et al. (2018) explored associations between personal history, micro-, exo-, and macro system factors and IPV amongst pregnant women, but they also argued they were the first one to do so in an Ethiopian, if not African, context. Also, most studies reviewed utilised quantitative methods and cross-sectional data, and their results thus suggest associations, not causal relationships. However, cross-sectional studies, including the present, are important since they establish dimensions of IPV and suggested important hypotheses about potential casual relationships (Heise, 1998; Tjønndal, 2018, p. 103).

In the following sub-sections, "association" will be used with reference to a positive association where exposure to the given risk factor is associated with more IPV, if is not specified that the study suggested a negative association where exposure to the risk factor is associated with less IPV. Moreover, some of the reviewed studies also focused on protective factors for IPV, however, the primary focus of the literature review was to review findings in regard to risk factors for IPV based on the objectives of the present study.

3.2.1 Personal History

On the personal history level, it has been widely suggested across SSA studies that women with experiences of intergenerational violence (exposed to violence as a child or witnessed it as a child) are more prone to IPV victimisation as adults (Maguele et al., 2020; McCloskey et al., 2016). The systematic review of Ethiopian studies by Semahegn and Mengistie (2015) also found family history of abuse to be associated with IPV, and an individual Ethiopian study suggested that women exposed to violence as a child, had significantly greater odds of experiencing it in pregnancy (Gashaw et al., 2018). Lower

educational level is another variable that commonly has been found to be associated with IPV within the region (McCloskey et al., 2016). The findings of Nabaggala et al. (2021), who analysed data from 44 Demographic and Health Survey (DHS) studies across 29 SSA countries, for example indicated that the risk of experiencing IPV was signifcantly higher amongst women who had less than secondary education, as opposed to women with at least secondary education. Also, Andarge and Shiferaw (2018) suggested that the odds of IPV were lower amongst women with higher education levels in Arba Minch in Southern Ethiopia.

3.2.2 Microsystem

One of the most well-documented associated risk factors of IPV at the microsystem is intrahousehold alcohol abuse, and heavy alcohol consumption by the husband/partner in particular (Greene et al., 2017; Maguele et al., 2020; McCloskey et al., 2016). The systematic review of Semahegn and Mengistie (2015) also found husband´s alcohol consumption to be significantly associated with IPV within the Ethiopian context. Another factor which is found to be associated with IPV across several SSA countries, is household food insecurity (Fong et al., 2016; Gibbs et al., 2018), which refers to lack of secure access to enough safe and nutritious food for growth, development, and for living active, and healthy lives within the household (Food and Agriculture Organization of the United Nations, 2001). Andarge and Shiferaw (2018)´s study from southern Ethiopia, in accordance with the overall SSA findings, suggested that women in food insecure households had greater odds of IPV victimisation. According to Andarge and Shiferaw (2018), food insecurity might also create stress and frustration amongst men for failing to live up to the role as “breadwinners” of the family. However, male stress and frustration can have multiple causes, which is why other scholars have viewed it as a separate risk factor. A South African study conducted by Pakhomova et al. (2021) for instance found higher perceived stress amongst young men to be significantly associated with perpetrating violence against an intimate partner.

3.2.3 Exosystem

At the exosystem level, poverty related factors have frequently been studied. Several studies have suggested (positive) associations between unemployment and a difficult economic situation and IPV (Maguele et al., 2020; Purcell et al., 2020). Nevertheless, other studies have suggested associations in the opposite direction; Ahinkorah et al. (2018) analysis of Demographic Health Surveys (DHS) conducted between 2010–2016 in 18 SSA countries

found that employed women had greater odds of IPV compared to unemployed women, and Anik et al. (2021)´s analysis of DHS data from 17 countries (2015–2019) found economic empowerment to significantly increase the odds of any type of IPV amongst rural women in both regions. However, Ethiopian studies have found less clear-cut association in either direction (Chernet & Cherie, 2020; Kotsadam & Villanger, 2020); The longitudinal findings of Kotsadam and Villanger (2020) field experiment, utilising the CMI data used in the present study, found small effects in regard to the effect of employment on IPV. Moreover, women's relative income did not seem to affect IPV. Hence, employment and wealth status should not be considered a risk factor for IPV amongst the women in the present study. Non-poverty related factors have been significantly less frequently studied according to the literature searches of the present study. However, isolation from the community has been found to be associated with IPV in Ethiopia (Gashaw et al., 2018). Moreover, a qualitative Ghanaian study suggested that women without strong ties to their own kinship group, and with stronger ties to their man's kinship group, reported more IPV. In the study, the women with strong ties to their own kinship group stated that elders in the society were quicker to intervene in IPV-related matters on their behalf (Sedziafa et al., 2018, p. 2212).

3.2.4 Macrosystem

Previous SSA studies have indicated that strict traditional gender norms and attitudes favoring male dominance over gender equality are associated factors with IPV (Alangea et al., 2018; Maguele et al., 2020). An Ethiopian study accordingly found strict gender norms (e.g., women should stay at home) to be associated with it (Gashaw et al., 2018). Another suggested associated factor of IPV in the SSA literature, is high acceptance of violence and wife beating (Benebo et al., 2018; McCloskey et al., 2016; Memiah et al., 2021; Wado et al., 2021). It has also been suggested in the literature, that not accepting violence is negatively associated with IPV victimisation in the region (Anik et al., 2021). Furthermore, both the qualitative study by Abeya et al. (2012) and the quantiative study by Gashaw et al. (2018) suggests that supportive attitudes toward wife beating are associated with IPV, also in the Ethiopian context.

3.3 Research on Cumulative Risk

The literature searches resulted in a smattering number of studies that assessed CR for IPV which met the eligibility criteria. This may suggest that despite the evidence that risk factors across the levels of the ecology are positively associated with IPV, the potential

cumulative association between factors across levels and IPV have received little research attention. However, one study conducted by Benebo et al. (2018), analysed data from the 2013 Nigeria DHS and built a multidimensional women's status index which encompassed eleven factors located at four levels, i.e., individual-, family/household-, community- and the larger society level of the ecological model. Their findings indicated that higher women's status decreased the odds of IPV, but that this association was moderated if the women reported that men justified IPV. They proposed the theoretical explanation that women with a higher status may decide whom they will marry and thus choose not to enter a violent intimate relationship in the first place, and moreover that it is likely that they will also not choose a partner with acceptive views towards wife-beating. However, amongst the risk factors which frequently have been found to be positively associated with IPV according to the literature review in the above sections, education was the only factor they included as an indicator. Hence, the Benebo et al. (2018) study provided little information on how the risk factors outlined above associate cumulatively with IPV.

The literature on cumulative risk for IPV seems, however, not only to be scant in the SSA. Nikulina et al. (2021) study from the US argued, in regard to adverse childhood experiences (which could be e.g., witnessing a father who beat the mother and coming from a home with high household alcohol abuse), that despite the evidence that risk factors tend to cluster together and co-occur, and despite it has been recommended that the interface of risk factors in their contribution to IPV should be studied, cumulative association between risk factors and IPV does not receive significant research attention.

4. Problem Statement and Objectives

The literature review revealed that a substantial number of studies on IPV prevalence rates and ecological factors associated with IPV have been conducted in SSA. However, IPV prevalence is relative to time, context, the population studied, and what forms of IPV are examined. It is thus necessary to report the prevalence of IPV and its subtypes in the Ethiopian context with recent data. Also, according to the literature review, few SSA studies have examined factors across all the four levels of the ecological model simultaneously, and the literature on cumulative risk is scant. Hence, this is a research gap in the literature that needs to be filled. Research on the individual and cumulative associated factors of IPV are also important to inform stakeholders in their work to target and help women that presumably are at higher risk of IPV victimisation.

Based on the identified research gaps, the present study will explore the prevalence of IPV against women in an Ethiopian setting, identify how risk factors at four different ecological levels are associated with IPV, and assess whether women exposed to a higher number of the risk factors cumulatively have greater odds of being victims of recent IPV. The following three research questions were explored to reach these objectives:

RQ1: *What are the prevalence rates of IPV amongst currently partnered Ethiopian women in the study?*

RQ2: *How are risk factors at the personal history, microsystem, exosystem, and macrosystem level associated with recent IPV?*

RQ3: *To what extent do women exposed a higher number of the risk factors cumulatively have greater odds of being victims?*

5. Data and Methods

5.1 Philosophical Paradigm

The research questions and the research design of the study built on a post-positivist philosophical paradigm, i.e., ontological, epistemological, and methodological assumptions. More specific this included a critical realist ontology where the reality was perceived as observable, and as being composed of casual laws (Guba, 1990; Neuman, 2013, p. 93; Punch, 2014, p. 66). Furthermore, it built on an epistemology where the ideal was to observe the reality objectively leaving personal values out, whilst acknowledging that some parts of reality are unobservable and human observations have errors (Guba, 1990). Lastly, a view that multiple methodologies and methods should be used in research since human observation never fully can be relied upon and various sources decreases the chance of subjectivity and human mistakes (Denzin, 2010; Guba, 1990; Henderson, 2011).

5.2 Approach and Research Strategy

Whilst acknowledging the importance of utilising various methodologies and methods in research, the present study used a quantitative approach, with the aim of answering the research questions and reach the study objectives concerning a general pattern amongst a quantity of people (Punch, 2014, pp. 3, 163). Within the quantitative approach, an observational survey strategy was used, where information about the respondents were collected after it had occurred. This information was collected through a questionnaire before

the data was quantified so relationships between variables could be analysed in statistical data analyses (Black, 1999, p. 35). Since the present study was a correlational study, it could only suggest associations. However, it could provide a rationale for future experimental and quasi-experimental studies which have the greatest potential for acquiring support for causality (Black, 1999, p. 47).

5.3 CMI Data

Secondary data from the CMI project 'Women in the developmental state: female employment and empowerment in Ethiopia' was analysed. This was a longitudinal field experiment in Ethiopia that tested the effect of employment on other variables amongst women interested in working in the manufacturing industry. However, the present study utilised cross-sectional data from the fourth round of the study collected between September 2017–September 2019, in addition to merging in four demographic variables from the baseline data collection (March 2016–March 2018) (Kotsadam & Villanger, 2020)[3]. The CMI data was considered a suitable data source for the present study since it included newer data on IPV variables and a priori presumed risk factors based on the SSA literature, than the broadly used 2016 EDHS data.

5.4 Sampling Strategy

The sample of the CMI project is comprised of Ethiopian women interested in working in the manufacturing industry. In the mother study, the CMI researchers collaborated with 27 shoe and garment businesses located in five industrial parks in Tigray, Amhara, Oromia, Southern Nations, Nationalities, and People's Region (SNNP), and the Dire Dawa region. The firms were hiring factory employees, and were willing to alter their requirement process according to the CMI study purpose, and inform the applicants about this so they could agree to participate (Aalen et al., 2019). The 27 collaboration firms were then compiling a pool of women applicants regarded as equally qualified and eligible for a factory job, and whom were currently partnered and not from the same household as another applicant (Kotsadam & Villanger, 2020; Aalen et al., 2019). Amongst the women fulfilling these inclusion criteria, approximately half, depending on the number of women meeting the inclusion criteria and the number of available positions, were randomly drawn to be offered a

[3] The demographic variables were merged in from the baseline, since they were wrongly coded in the fourth round data material due to a mistake that found place during the data collection. See the quality assurance chapter and the limitations chapter for more information about this, and the implications it had for the study.

factory job (experiment group in the mother study), whilst the other half did not receive a job offer (control group in the mother study). Both groups were invited to be interviewed before the women in the experiment group accepting their job offers started working, and then in follow-up rounds every six months with the aim of later testing the effect of employment on other factors. In the fourth round of the CMI project a total of 1056 women were successfully interviewed. Amongst these, 916 stated that they were currently married / living with partner. The total *N* of the present study was therefore 916 since the study focused on amongst other variables, recent IPV finding place in intimate relationships.

5.5 Survey Instrument

The survey instrument included an individual level questionnaire where data were collected through face-to-face structured interviews. In the interviews, trained enumerators asked questions from a pre-designed questionnaire and filled out the form with the respondents answers to questions about e.g., their work, education, health, economy, family, and domestic relations (Aalen et al., 2019). The questions were mostly closed-ended. However, a few open-ended questions were included in cases where there could be many possible answers, for the respondents not to be restricted to only a few defined response alternatives (Pallant, 2020, pp. 7–9). The participants received 50 Ethiopian Birr (equivalent of approximately 9.56 NOK) if they answered all the questions from the questionnaire (The Research Council of Norway, n.d.).

5.6 Variables

Study variables were operationalised, including operationalisations of the IPV variables and all the presumed risk factors described in the literature review, except for intrahousehold alcohol abuse which was excluded due to data unavailability. The eight risk factors included were either inherently dichotomous, dichotomised by collapsing categories, or reconstructed as dichotomous combined measures. This was done since standardized variables, where the absence of risk equals 0 (reference category) and presence of risk equals 1 (representative category), were required for computing the CR index.[4] The risk designation was made based on what had a priori been suggested to cause greater risk for IPV in the literature. The decision that all eight risk factors would be included in the cumulative risk

[4] See Limitations for the implications it had that intrahousehold alcohol abuse could not be included in the analysis, and also the implications of dichotomising variables in terms of lost information.

index, was also decided a priori based on literature and not results. The latter was done since factors tend to interplay, and some risk factors might therefore not be associated with IPV by their own, but due to how they interact or moderate another, they are in a composite measure (Evans et al., 2013; Fugleberg et al., 2018, p. 140; Yang & Maguire-Jack, 2018). Lastly, the demographic variables, which were included to describe the sample as well as to control for whether they were influencing or confounding variables providing alterative explanations of the observed associations in analyses, were operationalised (Pallant, 2020, pp. 4–5, 128).

5.6.1 IPV Variables

Standardized IPV measures were used to measure the prevalence of IPV and its sub-types. The questions and the sequencing in the questionnaire were based on the WHO Violence Against Women Instrument and the Conflict Tactics Scale (CTS), also used in the 2016 EDHS (Central Statistical Agency and ICF, 2017, p. 290; Kotsadam & Villanger, 2020). Based on the women's responses to questions on whether their husband/partner had perpetrated specific acts of violence against them, four lifetime IPV variables were constructed. Following the IPV classifications of Kotsadam & Villanger (2020, p. 7), the four lifetime IPV variables were set equal to 1 if a woman answered affirmative to one or more statements considered as being an act of that respective type of IPV and equal to 0 if all responses were rejective: *emotional IPV*: her partner/husband had (a) said something to humiliate her in front of others; (b) threatened to hurt or harm her or someone she cares about; (c) insulted her or made her feel bad about herself; *less severe physical IPV*: her partner/husband had (a) pushed, shaken, or thrown something at her; (b) slapped her; (c) twisted her arm or pulled her hair; (d) punched her with fist or with something that could hurt her; (e) kicked, dragged, or beat her up; *severe physical IPV*: her partner/husband ever (a) tried to choke or burn her on purpose; (b) threatened or attacked her with a knife, gun, or other weapon; *sexual IPV*: her partner/husband had (a) physically forced her to have sexual intercourse when she did not want to; (b) physically forced her to perform any other sexual acts she did not want to; (c) forced her with threats or in any other way to perform sexual acts she did not want to.[5] Four new recent IPV variables were then constructed. These were set equal to 1 if a respondent answered affirmative to one or more follow-up questions on whether the same acts of violence had found place during the three months preceding the interview, and equal to 0 if the respondent answered rejective to all follow-up questions.

[5] Other questions on whether the intimate partner had done other acts of violence and if so, what acts, were excluded, since the few responses to these questions were already covered by the same respondents' answers to other questions.

Since only the respondents with affirmative answers to the lifetime IPV questions received the recent IPV follow-up questions, respondents with the combination of rejective answers (0) to lifetime IPV questions and missing answers (.) to recent IPV questions were recoded from missing to 0 on the recent IPV variables since they were missing because they did not receive the follow-up questions. Thereafter, based on the new lifetime IPV variables and new recent IPV variables, a combined *lifetime IPV* and a combined *recent IPV,* were constructed. Both the *lifetime IPV* and *recent IPV* variable were set equal to 1 if a respondent answered affirmative to one or more questions regarded as lifetime or recent IPV respectively, and equal to 0 if all responses were rejective.

5.6.2 Independent Variables

5.6.2.1 Personal History Factors. *Father beat mother* functioned as a proxy for intergenerational violence. It was assessed with a single question where responses were set equal 1 if the respondent answered affirmative to the question: 'As far as you know, did your father ever beat your mother?' and to 0 if the respondent answered rejective.

Lower educational attainment was set equal to 1 if a respondent had not completed at least ten years of schooling, which is equivalent with not having completed the general secondary education in Ethiopia (Trines, 2018).

5.6.2.2 Microsystem Factors. *Household food insecurity* was assessed through nine questions, and follow-up questions if the respondents answered affirmingly to one of the questions. Each of the main questions covered a dimension of household food insecurity (Coates et al., 2017). The respondents were asked to recall whether they during the last 30 days (a) had worried that their household would not have enough food; they or any other household member were (b) not able to eat the kinds of foods they preferred; (c) had to eat only a few kinds of foods (limited variety) on a daily basis; (d) had to eat food they did not want to eat – due to a lack of resources; (e) ate smaller meals (portion size) than needed; (f) eat fewer meals in a day – because there was not enough food; (g) no food at all in the household due to a lack of resources to get it; (h) had to go to sleep hungry at night; (i) go a whole day without anything to eat – because there was not enough food. If they responded affirmingly to a question, they were asked a follow-up question on whether this happened rarely (once or twice in the past 30 days), sometimes (3–10 times in the past 30 days), often (more than 10 times in the past 30 days). In line with the Household Food Insecurity Access

Prevalence (HFIAP) indicator guide for measuring household insecurity status (Coates et al., 2017, p. 19), a new variable, with the values 1 = food secure, 2 = mild insecure households, 3 = moderately and 4 = severely food insecure households, were constructed based on the respondents answers (see Appendix A). For instance, a respondent answering 'no' to all questions or no to all questions, except for 'yes' to question 1 and 'rarely' to the question 1 follow-up question, were coded as 1 = food secure. Lastly, for the purpose of the present study, the variable was made dichotomous by recoding respondents living in food secure (1) and mild insecure households (2) to 0 and those living in moderately food insecurity (3) and severely food insecure (4) to 1.

Angry, frustrated, or stressed partner was used as a proxy for male stress and frustration. It was assessed with a single question where the respondents were asked whether their husband/partner often is angry, frustrated, or stressed. The response categories were 0 = no and 1 = yes.

5.6.2.3 Exosystem Factors. *Not member of a network* functioned as a proxy for isolation from the community. It set equal to 1 if the respondent stated that she is not a member of the following in her neighbourhood or workplace: (a) mahiber(tswa…etc.); (b) other religious associations; (c) women's associations; (d) microfinance cooperative; (e) one-to-five networks; (f) development teams; (g) idir; (h) equb; (i) trade union; (j) informal workers group; (k) users association; (l) customary institution; (m) other.

Limited contact with family or friends functioned as a proxy for lacking strong kinship ties to once one kinship. The variable was set equal to 1 if the woman stated that her partner previously has limited her contact with her family or permitted her to meet female friends, and equal to 0 if not.

5.6.2.4 Macrosystem Factors. *Strong rigid gender attitude(s)* was used as a proxy for strict traditional gender norms and attitudes that favour male dominance. This was assessed through five questions where the respondents were asked whether they strongly agreed, agreed, disagreed, or strongly disagreed with the following statements: (a) it is better to send a son to school than to send a daughter; (b) it is okay for women to earn more money than men; (c) it is okay for women to travel or to leave the house for several nights to do business; (d) men should be responsible to help with domestic duties when his wife is busy with business or factory job; (e) the important decisions of the family should be made by the men of the

family only. Since the direction of the statements above were different, b–d were turned. A new variable was constructed, where respondents stating that they strongly agreed with one or more gender attitudes statements favouring men were set equal to 1.

Acceptance of wife beating was assessed by asking the respondents whether they 1 = strongly agreed, 2 = agreed, 3 = disagreed, or 4 = strongly disagreed with the statement "A wife should tolerate being beaten by her husband/partner to keep the family together". The two affirming response categories 1 and 2 were collapsed in the category acceptance of wife beating coded 1, whilst the two rejective response categories (3 and 4) were coded as 0 = not acceptance of wife beating.

5.6.3 Cumulative Risk Index

The cumulative risk index was computed based on the respondents' scores (0 = no risk, 1 = risk) to the eight presumed risk factors outlined above. All the dichotomised factors were equally weighted and then summed, as commonly done in CR-studies (Ettekal et al., 2019; Evans et al., 2013; O´Reilly et al., 2020). Hence, for each factor they were exposed to, the respondents received a score of 1 on the index and respondents possible scores thus ranged from 0–8.

5.6.4 Demographic Variables

Demographic variables were included to describe the sample and as control variables. This included the continuous variables *age* and *children*, in which a higher score on these variables indicated a higher age and more a higher number of children respectively, and the categorical variable *ethnicity*. The latter was originally coded
1 = Oromo, 2 = Amhara, 3 = Tigray, 4 = Harari, 5 = Somalia, 6 = Gurage, 7 = Sidama, 8 = Welayta, and 9 = Other. This coding was retained when the sample was described. However, when ethnicity was used as a control variable in analyses it was recoded to a set of dichotomous variables were 1 = having the ethnicity and 0 = not having the ethnicity.

5.7 Data Management and Analysis Plan

5.7.1 Data Management

The dataset was first prepared for further statistical analyses. This included removing cases with missing data on all variables except for the identifier variable, as well as cases who were not currently partnered. This resulted in the *N* of 916. No variables had values out of

their range (Pallant, 2020, p. 44). However, a few variables had not applicable (-77), refusal (-88), and/or do not know (-99) responses, which were coded to missing (.). Furthermore, open-ended follow-up questions were dropped since the few respondents answering to these, had already responded affirmative to another questions equivalent of the statement stated on the open-ended follow-up question (Pallant, 2020, pp. 8, 12–13). Negatively worded items were also reversed (Pallant, 2020, p. 87). Moreover, ordinal, interval, and ratio risk factors were collapsed to become dichotomous with 0 as the reference category and 1 the risk category and dichotomous combined measures were created based on already existing data (Tjønndal, 2018, pp. 73–75). If there were missing values on one of the variables included in a combined measure, the new combined measure was also coded as missing (Pallant, 2020, p. 90).

5.7.2 Data Analyses

All the steps described in the above subsection were made so variables could be used in statistical analyses exploring the research questions and objectives of the study. The univariate analyses aimed at providing an overview of the sample characteristics, the study variables, in addition to reaching RQ1: *What are the prevalence rates of IPV amongst currently partnered Ethiopian women in the study sample?* The bivariate analyses aimed at reaching RQ2: *How are risk factors at the personal history, microsystem, exosystem, and macrosystem level associated with recent IPV?* Crude and adjusted binary regression analyses were also conducted to provide more information on risk factors association with IPV, whilst controlling for effect of the other variables. Lastly, another binary regression analysis was performed with the *cumulative risk index* and *recent IPV*, before controlling for demographic variables to answer RQ3: *To what extent do women exposed a higher number of the risk factors cumulatively have greater odds of being victims?* Missing values were included in the univariate analyses, whilst inspected and excluded with listwise deletion in the further analyses. Statistical significance was declared at a p-value < 0.05 in the analyses, and the degree of association by Odds Ratio (OR) with a 95 percent confidence interval (CI) in the logistic regression analyses.

5.7.2.1 Univariate analyses. Descriptive statistics were obtained for all variables. This included obtaining frequencies, missing values, percentages, and valid percentages with missing values excluded for categorical variables, i.e., the categorical demographic variable, the eight risk factors, and IPV variables, including the dependent variable (DV) *recent IPV*. The same descriptives were obtained for the two continuous demographic variables, (higher)

age, (higher number of) *children*, in addition to their range (minimum and maximum values), mean as a measure of the central tendency, and standard deviation (*SD*) as a measure of the mean spread around the mean. The normality of the distributions was also assessed, the missing values on the variables and their potential pattern were inspected and excluded with listwise deletion, before computing the *cumulative risk index* and obtaining descriptive statistics for the index.

5.7.2.2 Bivariate analyses. Cross-tabulations were obtained, and it was tested whether the results occurred by chance.

There is a dispute on what statistical test should be used to test association between two binary variables (singular risk factors and *recent IPV*). Some scholars have argued for using the Chi-square (X^2) test for independence (Acock, 2012, pp. 123–125; Haviland, 1990), others for alternatives e.g., the Yates' correction for continuity (Pallant, 2020, p. 228), or the Fisher's exact test (Salkind, 2014, p. 228; Wenstøp, 2003, p. 176–178). However, the Chi-squared (X^2) test was considered most suitable, as the Fisher's exact test mainly is used on small sized-samples or when the expected cell frequency is lower than it was in the present study (Pallant, 2020, p. 225; Salkind, 2014, p. 297). Also, both the Fisher's exact test and Yates' correction can be overly conservative, which is why other scholars, e.g., Haviland (1990) have argued these tests should not be used. Haviland (1990) also argued the Chi-squared (X^2) test provides adequate control over type 1 error probabilities for rejecting a true null hypothesis of no association without the conservative bias, and is more appropriate than both Yates' correction and Fisher's exact test when testing associations between two binary variables (Haviland, 1990; Tjønndal, 2018, p. 201).

Hence, a series of Chi-squared (X^2) tests for independence were run to provide approximations of the pairwise associations. In practise, the test compared the observed frequencies with the expected frequencies if there had not been association between the variables and used this information to compute the Chi-squared (X^2) values (Acock, 2012, p. 124; Pallant, 2020, p. 228). In addition to reporting the Chi-square (X^2) value, its degrees of freedom and *p*-values to describe whether the associations were significant. The Phi coefficients (φ) were also reported, as this is considered appropriate for describing effect sizes for 2 x 2 tables (Kim, 2017; Pallant, 2020, p. 228).

5.7.2.3 Logistic regression. Binary logistic regression was used to predict the odds of falling into the risk category on the *dichotomous* dependent variable, *recent IPV* (Crowson,

2018). Four logistic analyses were performed. Firstly, a direct logistic analysis was conducted with all the eight IVs and the DV entered into the equation simultaneously. This provided information on how the overall model performed. In addition, information about whether women exposed to the different presumed risk factors, had greater odds of having experienced recent IPV compared to the women not exposed to the risk factors, whilst taking the effect of other factors into account (Pallant, 2020, pp. 175, 186; Tabachnick & Fidell, 2019, p. 349). The odds here refer to $\frac{P}{1-P}$ were P = the probability of recent IPV occurring, whilst 1 – P is the probability of recent IPV not occurring (Fugleberg et al., 2018, pp. 48–49). Henceforth, the reported odds ratio (OR) refers to the ratio of the odds: $\frac{\text{the odds of recent IPV occuring when exposed to a given risk factor}}{\text{the odds of recent IPV occuring when not exposed to a given risk factor}}$ (Acock, 2012, pp. 302–304). Secondly, an adjusted analysis was conducted where the demographic variables were controlled for. Another binary logistic regression was thereafter performed between the *cumulative risk index* and *recent IPV* to observe whether a higher score on the index increased the odds of recent IPV. Lastly, an adjusted regression analysis was conducted, in which the demographic variables were controlled for (Ettekal et al., 2019).

5.8 Quality Assurance

To ensure high academic quality of the study, the data was examined in relation to its validity, referring to whether we measure what we intended to measure (Pallant, 2020, p. 7; Yilmaz, 2013), and its reliability, referring to the consistency (Punch, 2014, p. 237).

5.8.1 Validity

Different types of validly were assessed. Regarding, *internal validity*, referring to the accuracy of associations, the aim of the study was not to establish causal relationships but to establish associations. To ensure accuracy in these, demographic variables were controlled for in the analyses to eliminate alternative explanations for observed associations (Neuman, 2013, pp. 298–299; Yilmaz, 2013). However, a mistake finding place during the data collection of the fourth round of the CMI project (September 2017–September 2019), resulted in common control variables to be coded wrongly. Hence, the control variables of the present study were merged in from the baseline data collection (March 2016–March 2018). Although this was considered a better alternative than not controlling for alternative explanations of observed associations, it weakened the internal validity of the study since the variables which were controlled for were measured at an earlier point in time than the main study variables.

Consequently, the ages of the respondents on *age* were slightly lower than what they actually were in September 2017–September 2019. Despite this, and the possibility that the number of children increased slightly for some respondents between the baseline and the fourth-round data collection, it is limited how much both variables could have changed during the short time frame. The *ethnicity* of the respondent was also constant.

External validity on the other hand refers to applicability or to what degree findings could be generalised to other settings (Yilmaz, 2013). Here it needs to be noted that the sample was made up of currently partnered women, applying for a factory job, in five regions, and that approximately half of the women were offered a job. This sample, and therefore the results, could not be claimed to reflect the general female population of Ethiopia. Hence, the aim of the study was not to provide generalisable findings to the national level nor to other settings or populations (Neuman, 2013, p. 298; Yilmaz, 2013).

Emphasis was put on ensuring *construct validity,* meaning that the operationalisations of the study reflected theoretical constructs. This was done through using internationally validated measures with questions that could not be easily misinterpreted (Kotsadam & Villanger, 2020; Yilmaz, 2013). For instance, the IPV measures built on behaviour specific questions, e.g., 'did you husband/partner slap you?' rather than subjective questions, e.g., 'have you experienced physical IPV?' (Kotsadam & Villanger, 2020). Heise and Garcia-Moreno (2002, p. 92) argued these questions could lead to less underreporting since respondents were asked about specific acts and their frequency, instead of relying on each respondents subjecting meaning on what was considered IPV. Supporting this argument, no respondents stated they had experienced any other type of violence, which had not already been covered by other questions, when asked about this in open-ended questions. This could indicate that the questions managed to cover what the concept of IPV entails.

Lastly, everything possible was done to obtain c*onclusion validity,* with adequate data analysis finding credible associations that answer the study objectives in the study – although the issue with the demographic variables also had implications for the overall results (Garcia-Perez, 2012; Yilmaz, 2013).

5.8.2 Reliability

Reliability refers to whether the study instruments consistently manage to measure variables every time they are used on the same cases under the same circumstances (stability) and to whether the different items in combined measures hang together or all work in the same direction (internal consistency). In this regard, it needs to be stated that

operationalisations in research always will have some degree of unreliability, e.g., the case of lack of stability in the measurement of the demographic variables in the present study (Punch, 2014, p. 237–239; Yilmaz, 2013). However, to limit other problems of reliability, the study used measures that previous studies have found to be reliable (Gashaw et al., 2018; Kotsadam & Villanger, 2020; Lucente et al., 2001; Wijayatilaka & Fernando, 2014). At the same time, it needs to be acknowledged that the process of collapsing categories on variables, or variables in combined measures, influence reliability in terms of losing information, although this had to be done in order for the cumulative risk index to be computed (Acock, 2012, p. 322; Pallant, 2020, pp. 6–7).

5.9 Ethical Considerations

Throughout the research process emphasis was put on research ethics, i.e., conducting good, right, and virtuous actions (Punch, 2014, p. 36). The secondary data source used was selected, based on its relevance for the present study's objectives, but also due to its high ethical standards, and that provision to use the data for the purpose of the present study was granted by the CMI researchers. A researcher making use of secondary data has the same responsibility of following ethical principles as a researcher using primary data. Hence, it was ensured that the principle of autonomy was followed, and that informed consent had been collected from all study participants. (See the consent form from the fourth follow-up survey in Appendix B). In the consent form, they were informed e.g., that the study aimed at providing information about Ethiopian women, that anonymised information about them would be used in research, and that they could skip questions or stop the interview if they would like. The women had also voluntarily agreed to participate in the study and conduct the interview of the fourth round as well as previous interviews. Since there were power imbalances between the more educated and wealthier researchers and the poorer study participants, an ethical deliberation was made to put extra focus on ensuring the respondents' actual voluntariness by explicitly informing them that they could decline the invitation to participate (Kotsadam & Villanger, 2020; Punch, 2014, pp. 44, 54). An ethical challenge was that the participants were asked questions commonly considered as sensitive. However, to reduce the risk of harming the participants by researching e.g., IPV, the interviews were conducted in a private space on done by a female, qualified, and trained enumerator from another community (Kotsadam & Villanger, 2020). The participants were also informed that they could skip the questions they did not want to answer.

Furthermore, the principle of trust were followed by promising that information which could possibly identify the respondents would be kept private, confidential, and that information available to access for the public would be anonymised (Kotsadam & Villanger, 2020; Punch, 2014, pp. 47, 55).

Ethiopian and Norwegian laws and regulations were followed. The CMI researchers received ethical clearance from the Norwegian Centre for Research Data (NSD), and NSD later confirmed that the study was conducted in accordance with their data protection legislation. In cases were women told about non-reported IPV, they were informed about available support services and redress mechanisms to victims, however, it was up to them whether they wanted to report the IPV or seek help (Kotsadam & Villanger, 2020).

The ethical principle of beneficence was also followed by aiming to minimise the chance of harming the participants, and maximize the chance of benefiting them, as well as Ethiopian women in the long run through providing valuable knowledge. However, some might consider it unfair that only half of the participants (the experiment group in the mother study) received a job offer. However, this could be justified since the control group did not lose something they already had, they only did not receive an additional offer, whilst the experiment group directly benefited from the study by receiving a job offer. Also, all participants consented to participate in the study whilst knowing it would mean only a 50 percent change of being drawn to receive a job offer. Others again, might argue that the experiment group, were put at risk since factory jobs often implies difficult working conditions in Ethiopia. However, this could be justified by the fact that study participants could choose whether they wanted to accept the job offer or not, and could quit the job at a later stage if they wanted to (Kotsadam & Villanger, 2020; Punch, 2014, pp. 49–50).

6. Results

This chapter presents the results of all analyses described in the analysis plan. Firstly, this included univariate analyses of the demographic variables, to provide an overview of sample characteristics, followed by frequencies of the IPV variables, and the eight risk factors. Missing values were inspected and handled before the cumulative risk index was computed based on scores on the risk factors. Thereafter, the results of the bivariate analyses between individual risk factors and recent IPV were discribed before the results the different binary logistic regression analyses were presented.

6.1 Univariate Analyses

6.1.1 Characteristics of the Sample

The full results of the univariate analyses of the demographic variable can be found in Appendix C. The analyses revealed that most of the 916 respondents in the sample were Tigrayan (*n* = 375, 40.94%), whilst the other ethnicities represented were Sidama (*n* = 177, 19.32%), Oromo (*n* = 138, 15.07%), Amhara (*n* = 138, 15.07%), Welayta (*n* = 47, 5.13%), Somali (*n* = 6, 0.66 %), and other (*n* = 21, 2.29%). Moreover, the respondents ages ranged from 17–55 years, with a mean age of 25.23 (*SD* = 5.89). The mean was slightly greater than the median (24), indicating a positively skewed distribution, which was confirmed by inspecting the histogram and boxplot in Appendix D, which also identified a few outliers. This lack of symmetry was in accordance with the skewness of 1.88, also suggesting positive skewness compared to 0 skewness in a normal distribution, and a positive kurtosis of 7.28, suggesting a more peaked distribution than a normal distribution with a kurtosis of 3 in Stata[6] (Acock, 2012, p. 95; Midtbø, 2012, pp. 59–60). Furthermore, the skewness and kurtosis normality test found that the lack of normality was significant (*p*-values < .05). Descriptive analyses of *number of children* revealed that the respondents had 0–8 children (*M* = 1.34, *SD* = 1.27). The mean was greater than the median (1), and the boxplot and the histogram also indicated positive skewness. The skewness and kurtosis values were respectively 1.60 and 7.10, and the *p*-values in the test < .05. Several outliers were identified by inspecting the graphs, also located in Appendix D. Although *age* and *children* deviated from being normally distributed, Acock (2012, p. 108) argue that only a kurtosis above 10 and Tjønndal (2018, p. 66) that a skewness +/-2 is problematic. The outliers were also within the range of possible scores (Pallant, 2020, p. 65), and did not have a strong influence on the mean of the variables. The latter was interpreted since the means of age (25.23) and children (1.34) were similar to their trimmed means, where the 5% upper and lower values were removed (24.60 and 1.21). This suggested that the means were not strongly affected by extreme cases (Pallant, 2020, p. 66). For these reasons, *age* and *children* were retained without adjustments when used in the further analyses.

[6] Some statistical software subtracts 3 from the kurtosis to centre it at 0. Hence, if e.g., SPSS had been utilised in the present study the kurtosis would have been reported as 4.28 instead of 7.28. However, the formula used by Stata is the correct one (Acock, 2012, p. 95).

6.1.2 Prevalence of IPV Amongst Currently Partnered Women

Table 1 displays that approximately one third (*n* = 287, 31.33%) of the 916 respondents reported that they had experienced one or more types of violence by an intimate partner (*lifetime IPV*), whilst slightly more than half of that (*n* = 148, 16.16%) reported that they had experienced one or more types of IPV during the three months prior to being interviewed (*recent IPV*). *Emotional IPV* was most common amongst both the types of lifetime IPV (*n* = 251, 27.40%) and the types of recent IPV (*n* = 107, 11.68%), followed by *less severe physical IPV*, where 14.08% (*n* = 129) had experienced less severe physical IPV any time and 6.11% (*n* = 56) had experienced recent less severe physical IPV. On the contrary, fewer respondents reported to have experienced lifetime (*n* = 56, 6.11%) and recent (*n* = 13, 1.42%) *sexual IPV.* The most unusual type of IPV was *severe physical IPV*, where 6 respondents (0.66%) had experienced it any time prior to the study, and 1 respondent reported recent severe physical IPV (0.11%). Table 2 also displays that the prevalence of total lifetime and recent IPV did not equal the sum of the different types of IPV, indicating that women who are victims of one type of IPV also often experience additional types of IPV. According to the table, there were also only a few missing values (1–3 cases) on the different IPV variables.

Table 1

Prevalence of Lifetime and Recent IPV

Variable Names	Frequency (Missing)	Percent (Valid Percent)
Emotional IPV		
Lifetime	251 (*n* = 1)	27.40 (27.43)
Recent	107 (*n* = 1)	11.68 (11.69)
Less severe physical IPV		
Lifetime	129 (*n* =1)	14.08 (14.10)
Recent	56 (*n* =1)	6.11 (6.12)
Severe physical IPV		
Lifetime	6 (*n* = 1)	0.66 (0.66)
Recent	1 (*n* =1)	0.11 (0.11)
Sexual IPV		
Lifetime	56 (*n* = 3)	6.11 (6.13)
Recent	13 (*n* = 3)	1.42 (1.42)

Altogether IPV		
Lifetime	287 (*n* = 3)	31.33 (31.43)
Recent IPV (dependent variable)	148 (*n* = 3)	16.16 (16.21)

Note. The *n* ranged from 913 to 915 due to occasional missing data.

6.1.3 Frequencies of Risk Factors

Table 2 displays frequencies of all the eight risk factors. The prevalence of the singular factors ranged from the least common risk factor, *limited contact with family or friends* (*n* = 103, 11.24%), to the most frequent risk factor, *lower educational attainment* (*n* = 711, 77.62%). The latter meant that most respondents had not completed ten years of schooling. Also, at the personal history level, around 1 in 5 (*n* = 201, 21.94%) had a father who had beaten their mother. At the microsystem, 250 respondents (27.29%) lived in *household food insecurity,* i.e., moderately food or severely food insecure households. Moreover, *n* = 230 (25.11%) reported to have an *angry, frustrated, or stressed husband.* At the exosystem level (in addition to *limited contact with family* described above) *n* = 263 (28.71%) women were not member of any of the networks specified. Lastly, at the macrolevel, *n* = 132 held one or more strong rigid gender attitudes, and *n* = 251 (27.40%) agreed that a wife should tolerate being beaten by her husband/partner to keep the family together.

Table 2

Frequency Distributions of Risk Factors

Variables	Frequency (Missing)	Percent (Valid Percent)
Personal History		
Lower educational attainment	711 (*n* = 0)	77.62 (77.62)
Father beat mother	201 (*n* = 0)	21.94 (21.94)
Microsystem		
Household food insecurity	250 (*n* = 2)	27.29 (27.35)
Angry, frustrated, or stressed husband	230 (*n* = 3)	25.11 (25.19)
Exosystem		
Not member of a network	263 (*n* =0)	28.71 (28.71)
Limited contact with family/friends	103 (*n* = 1)	11.24 (11.26)
Macrosystem		

Strong rigid gender attitude(s)	132 (*n* = 1)	14.41 (14.43)
Acceptance of wife beating	251 (*n* = 1)	27.40 (27.43)

Note. The *n* ranged from 913 to 916 due to occasional missing data.

6.1.4 Inspecting and handling missing values

The missing values in the dataset and their potential pattern were inspected and handled before computing the *cumulative risk index*, and thereafter conducting further analyses. According to the analyses, 909 cases did not have missing values, whilst 6 cases had 1 missing value and 1 case had 5 missing values on study variables (Acock, 2012, pp. 364–365). According to the Little's Missing Completely at Random (MCAR) test results, it could be inferred that these values were missing completely at random due to a *p*-value of .66, greater than the desired non-significant result of $p > .05$ (Tabachnick & Fidell, 2019, p. 55–57). Less than 5% randomly missing data points in a large data set is a less serious problem and almost any procedure for handling missing values would cause the same results, according to Tabachnick and Fidell (2019, p. 54). However, to compare associations in the analyses, it was desired to have the same exact same number of cases on all study variables, including the *cumulative risk index*. Hence, listwise deletion was used, where the 7 cases with missing values were excluded from the dataset, making the $n = 909$. However, if there had been non-random pattern of missing values, another method providing a replacement for missing data, would have been used instead (Tabachnick & Fidell, 2019, pp. 55, 58–59).

6.1.5 Cumulative Risk Index

The cumulative risk index was computed by summing the dichotomous variables, in which all had been coded 1 = risk, 0 = absence of risk. This resulted in an index where higher scores reflected exposure to more risk factors. None of the 909 respondents were exposed to all 8 factors, and the index therefore ranged from 0–7 ($M = 2.34$, $SD = 1.37$). Table 3 displays that only 1 respondent (0.11%) were exposed to 7 of the risk factors, and 12 respondents (1.32%) to 6 factors. On the contrary, it was most common to be exposed to 2 factors ($n = 267$, 29.37%). Moreover, approximately 1 in 4 ($n = 229$, 25.19%) were subject to 1 factor, and almost 1 in 5 ($n = 167$, 18.37%) to 3 risk factors. The remaining respondents were exposed to 4 ($n = 129$, 14.19%), 5 ($n = 54$, 5.94%), and 0 factors ($n = 50$, 5.50 %).

Table 3

The Cumulative Risk Index

Number of Risk Factors	Frequency	Percent
0	50	5.50
1	229	25.19
2	267	29.37
3	167	18.37
4	129	14.19
5	54	5.94
6	12	1.32
7	1	0.11
Total	909	100.00

Note. The n = 909.

According to Table 4 as well as the histogram and boxplot in Appendix E, the index deviated from being perfectly normally distributed; The mean (2.34) was greater than the median (2) and the skewness (.48) greater than 0, indicating some positive skewness. It was also slightly flatter (2.67 in kurtosis) compared to a normal distribution, which has 3 in kurtosis in Stata. Moreover, the skewness and kurtosis normality test showed individual and jointly skewness and the kurtosis *p*-values < .05, indicating that the lack of normality was statistically significant. However, it did not have a strong influence on the mean of the variables, according to the criteria of Acock (2012, p. 108) who argued that only a kurtosis above 10 and Tjønndal (2018, p. 66) who argued that a skewness +/-2 is problematic. Moreover, the index had one outlier identified in the boxplot (the respondent coded 7 on the index). However, it did not have a too strong influence on the mean, since the mean (2.34) were similar to the trimmed mean (2.31) and it was thus retained (Pallant, 2020, p. 66).

Table 4

Descriptive Statistics of The Cumulative Risk Index

Variable	Min	Max	Mdn	Mean	Std.dev	Skewness	Kurtosis
Cumulative risk index	0	7	2	2.34	1.37	.48, p <.05	2.67, p <.05

Note. The n = 909.

6.2 Bivariate Analyses

Bivariate analyses were conducted to observe how the individual risk factors at the different levels were associated with *recent IPV* amongst the women in the sample. The results in Appendix F, describes crosstabulations classifying cases according to the categories of the variables, and the frequency and percentage of the entire sample belonging to each category in the total rows. The results of eight Chi-square (X^2) tests of independence, which describes approximations of pairwise associations, also found in Appendix F and will be described in detail below.

The assumption of the lowest expected frequencies in the cells to be at least 5, and the recommendation that it should be at least 10 in the 2 x 2 tables, were upheld in all the X^2 tests. Furthermore, six of the tests indicated relationships at a $p < .05$ level between singular risk factors and *recent IPV*. The null hypothesis of no significant association between the two variables was therefore rejected for these pairwise associations. However, most of these six variable´s had Phi coefficients close to .1, which according to Cohen's criteria, is considered small effects (.3 is on the other hand considered a medium effect, and .5 a large effect) (Pallant, 2020, p. 228). This included the bivariate association between *father beat mother* and *recent IPV*, where X^2 (1, n = 909) = 16.46, p = 0.00, Φ = 0.13.[7] A positive X^2 value indicated that the observed value was higher than the expected value, and the p-value < .05 a significant association. Moreover, the Phi coefficient of 0.13 indicated a small effect size according to Cohen's criteria. A significant but small association was also found between *household food insecurity* and recent IPV where X^2 (1, n = 909) = 21.44, p = 0.00, Φ = 0.15. The Chi-squared test with *angry, frustrated, stressed husband* and *recent IPV* indicated X^2 (1, n = 909) = 78.67, p = 0.00, Φ = 0.29, which also was significant, but compared to the previous tests results, the X^2 value was larger. This suggested a greater difference between observed and expected frequencies if the null hypothesis was true (Tjønndal, 2018, p. 108), and a stronger effect (almost a medium effect according to Cohen's criteria). The analysis between *limited contact with family/friends* and recent IPV found X^2 (1, n = 909) = 47.86, p = 0.00, Φ = 0.23. Furthermore, the test with *strong rigid gender attitude(s)* and *recent IPV* indicated X^2 (1, n = 909) = 4.02, p = 0.04, Φ = 0.07. Lastly, the test between a*cceptance of wife beating* and *recent ipv* X^2 (1, n = 909) = 33.22, p = 0.00, Φ = 0.19. Two of the bivariate associations were, i.e., *lower educational attainment* and *recent IPV* with X^2 (1, n = 909) = 1.16, p = 0.28, Φ = 0.04. Also, *not member of a network* and *recent IPV* with X^2 (1, n = 909) =

[7] Explanation of the reporting: X^2 (degrees of freedom, n = sample size) = chi-square value, p = p-value, Φ = phi coefficient.

0.27, $p = 0.60$, $\Phi = 0.02$. The null hypothesis of no association (independence) was thus remained for these two combinations of variables (Kim, 2017).

6.3 Binary Logistic Regression Analyses

Binary logistic regression analyses were performed. Firstly, a crude analysis and adjusted analyses were conducted to see the predicted probabilities of respondents being exposed to *recent IPV* based on the entire models. The odds ratio (OR) and its confidence intervals for the individual risk factors were also reported to assess whether women exposed to a spesific risk factor whilst controlling for the others, had greater odds of being a victim of *recent IPV*, compared to those not exposed to the risk factor. Therafter, binary logistic regression was performed on the *cumulative risk index* and *recent IPV* to examine how well the model performed and whether a one-unit change on the index increased the odds of *recent IPV*, before demographic variables were controlled for it the adjusted model.

6.3.1 Crude and Adjusted Regression Models with Distinct Risk Factors and Recent IPV

6.3.1.1. Assumption. The assumptions of binary logistic regression were not violated in the crude regression model with all risk factors and *recent IPV* [8]. This included the assumption of (a) a binary DV (Fugleberg et al., 2018p. 13–14); (b) independent observations (Field & Miles, 2010, p. 239); (c) not a too small sample in combination with too many IVs, which could be a problem if some variables had categories with few cases, which was not the case according to the univariate analyses (Pallant, 2020, p. 176; Tabachnick & Fidell, 2019, pp. 350–351); (d) adequacy of the models, in which the Hosmer–Lemeshow tests showed a desired non-significant result at a .05 level indicating good model fit to the data (chi2(7) = 12.15, $p = 0.10$) (Crowson, 2018; Tabachnick & Fidell, 2019, p. 351); (e) absence of multicollinearity where the variance inflation factor (VIF) was below 10 for all IVs in the analysis (mean VIF of 1.08), which is not considered a collinearity problem according to Acock (2012, p. 269). Also, the tolerance test showed values above .1 which also meant that the assumption was not violated, according to Robinson (2021).

However, assumptions were violated in the initial adjusted model that was run with all the control variables added to the model; Few respondents had the ethnicities *Gurage* ($n = 14$, 1.53%) *Somali* ($n = 6$, 0.66%), *other* ($n = 21$, 2.29%), and *Welayta* ($n = 47$, 5.13%) resulting in extremely large parameters and standard errors. In addition, Stata reported problems of

[8] Scholars suggest different assumptions that should not be violated. The once checked in the present study are, however, common to check when binary logistic regression is performed.

multicollinearity when these variables were included in the analyses. Following Tabachnick and Fidell (2019, p. 351) advice to either increase the sample size or eliminate variables when problems of large parameters and standard errors occurs, a new adjusted analysis was performed where the four variables with few cases in outcome 1 were not controlled for. None of the other assumptions outlined above were violated in the new adjusted model where *age, children,* and the other ethnicities *Oromo, Amhara, Tigrayan, Sidama,* were controlled for. The Hosmer–Lemeshow test also suggested a good model fit (chi2(7) = 6.63, $p = 0.58$) and absence of multicollinearity, where all singular risk factors and demographic variables had a VIF below 10 (Mean VIF = 1.72) and tolerance above .1.

6.3.1.2. Results. The full direct regression model with all eight risk factors and *recent IPV* was statistically significant X^2 (8, $N = 909$) 123.26, $p = 0.00$. It thereby represented a significant improvement in the model fit compared to the null model without the independent variables and could distinguish between those who were victims of *recent IPV,* and those who were not. Moreover, the model classified 84.71% of the cases correctly. Whilst the full regression results can be found in Appendix G, Table 5 displays that all the eight IVs in the analysis had OR > 1. This suggests that if a respondent was exposed to any of the risk factors, whilst controlling for the other factors, the respondents' odds of having experienced *recent IPV* were higher than if the respondent had not been exposed to the risk factor. However, the OR of *lower educational level, household food insecurity, not member of a network,* and *strong rigid gender attitude(s)* had *p*-values > .05 and confidence intervals (CI) which contained the number 1, indicating that the effect of these variables were non-significant. Hence, there is a possibility that their OR actually = 1, which would mean that the odds of being and not being a victim of *recent IPV* would be the equal when a respondent was exposed to these risk factors. On the other hand, the OR of *father beat mother, angry, frustrated, or stressed husband, limited contact with family/friends,* and *acceptance of wife beating* had *p*-values and confidence intervals that suggested a significant increase in the odds of *recent IPV* when a respondent was exposed to one of these factors, compared with no exposure. The factor that increased the odds of *recent IPV* the most compared with no exposure, was *angry, frustrated, or stressed* (OR = 3.94), followed by *limited contact with family/friends* (OR = 2.87).

The adjusted model, where the demographic variables were controlled for, was also statistically significant X^2 (14, $N = 909$) 159.42, $p = 0.00$. Hence, it could significantly predict whether a respondent belonged or not belonged to the risk category on *recent IPV*.

Comparison of the log-likelihood ratios of the two models indicated an improvement from the crude model X^2 (6, N = 909) 36.16, p = 0.00. The classification table showed that the model still correctly classified 84.71% of the cases, indicating no change in the overall classification accuracy. According to Table 5, the four risk factors that were significant in the crude model, still significantly increased the odds of being a recent IPV victim compared to if there was no exposure to these risk factors, when the demographic variables were controlled for. However, their effect size changed; The adjusted odds ratio (AOR) of *father beat mother, limited contact with family/friends,* and *acceptance of wife beating* increased from the crude model, whilst the AOR of *angry, frustrated, or stressed husband* decreased. The risk factors with a non-significant OR in the crude model, remained non-significant, with minor changes in the effect sizes. Furthermore, all the control variables except being Tigrayan had an unsignificant OR below 1 at a .05 level. For *age* and *children* this indicated that for every additional year older a respondent was and for every additional child the respondent had, the odds that the person was a victim of *recent IPV* decreased with .97 and .99 respectively. Since .97 and .99 were close to 1, the odds of *recent IPV* were similar to the odds of no *recent IPV* when the age or number or children increased. Also, the CI and *p*-value suggested a non-significant OR. Moreover, having an *Oromo, Amhara,* or *Sidama* ethnicity did not contribute significantly to the model according to Table 5. However, if a respondent was Tigrayan it significantly increased her odds of having experienced *recent IPV* compared to if she was not Tigrayan (OR = 2.34).

Table 5

Crude and Adjusted Binary Logistic Models with Risk Factors and Recent IPV

	Recent IPV							
	OR	*p*	CI [95%]		AOR	*p*	CI [95%]	
Personal History								
Lower educational attainment	1.34	0.24	.82	2.19	1.38	0.21	.84	2.29
Father beat mother	1.89	0.00	1.23	2.89	2.45	0.00	1.55	3.87
Microsystem								
Household food insecurity	1.31	0.22	.85	2.01	1.15	0.54	.73	1.82
Angry, frustrated, or stressed husband	3.94	0.00	2.64	5.89	2.30	0.00	1.48	3.58
Exosystem								
Not member of a network	1.37	0.15	.90	2.10	1.36	0.17	.87	2.13
Limited contact with family/friends	2.87	0.00	1.76	4.68	3.98	0.00	2.35	6.74

Macrosystem								
Strong rigid gender attitude(s)	1.54	0.09	.93	2.55	1.18	0.54	.70	1.97
Acceptance of wife beating	1.83	0.00	1.21	2.77	2.01	0.00	1.28	3.16
Continuous Covariates								
Age					.97	0.42	.91	1.04
Children					.99	0.96	.77	1.28
Categorical Covariate								
Ethnicity								
Oromo					.52	0.26	.17	1.62
Amhara					.63	0.39	.22	1.79
Tigrayan					2.34	0.04	1.03	5.29
Sidama					.61	0.28	.25	1.49

Note. The n = 909.

6.3.2 Cumulative Risk Index and Recent IPV

6.3.2.1. Assumption. The binary logistic regression assumptions were not violated in the crude analysis with the *cumulative risk index* and *recent IPV*, nor in the adjusted model where the demographic variables were controlled for. The Hosmer–Lemeshow tests showed a desired non-significant result at a .05 level suggesting good model fit to the data in both models, i.e., chi2(3) = 0.80, p = 0.84 in the crude model and chi2(8) = 6.58, p = 0.58 in the adjusted model. There was also absence of multicollinearity amongst the IVs (the cumulative risk index and the demographic variables) is the adjusted model, with tolerance values above .1 and VIF below 10.

6.3.2.2. Results. The binary logistic regression model with the *cumulative risk index* and *recent IPV* compared to a constant-only model was statistically significant X^2 (1, N = 909) 98.29, p = 0.00. Hence, the model successfully managed to distinguish between victims and non-victims of *recent IPV*. Moreover, it correctly classified 83.94% of the cases. According to Table 6[9], the *cumulative risk index* significantly increased the odds of being a victim of *recent IPV* with 1.94 on the basis of every one-unit increase on the index. Hence, for every additional risk factor a respondent was exposed to, the odds of the respondent having

[9] See the full results of both the crude and adjusted model in the Appendices.

experienced *recent IPV* were 1.94 as great as if the respondent had not been exposed to the additional risk factor. The adjusted model, where the demographic variables were included in the model, was also significant X^2 (7, N = 909) 136.56, p = 0.00. According to the LR-test, the adjusted model had an improved log-likelihood ratio from the crude model X^2 (6, N = 909) 38.28, p = 0.00. The classification table showed that the model correctly classified 83.72%, just below what the classification accuracy of the crude model with *cumulative risk index* and *recent IPV*. In comparison with the adjusted model in the previous section where all the risk factors were entered separately into the model instead of being included in the index, all the demographic variables (including being Tigrayan) had an unsignificant OR in this adjusted model.

As shown in Table 6, the variables *Oromo, Amhara,* and *Sidama* had an OR below 1, which also was the case for *age* and *children,* although the two latter were close to 1 indicating almost the same odds of being a victim of *recent IPV* and not being a victim of *recent IPV* the respondent were older / had more children. Tigrayan was still the only demographic variable with an OR above 1. However, taking into account the non-significant OR of these variables, it was not possible to rule out the probability that their true OR was equal to 1. The most important finding in the model was, however, that the *cumulative risk index* significantly increased the odds of *recent IPV* with a one-unit increase on the index, even after adjusting for the demographic variables. Moreover, the effect size of the *cumulative risk index* was slightly lower, with an AOR = 1.83, compared to the OR = 1.94 in the crude model.

Table 6

Crude Binary Logistic Model with Cumulative Risk Index and Recent IPV, and Adjusted Model Controlling for Demographic Variables

	Recent IPV							
	OR	*p*	CI [95%]		AOR	*p*	CI [95%]	
Cumulative Risk Index	1.94	0.00	1.68	2.23	1.83	0.00	1.58	2.12
Continuous Covariates								
Age					0.99	0.62	0.93	1.05
Children					0.96	0.76	0.76	1.22
Categorical Covariate								
Ethnicity								

Oromo	0.37	0.07	0.13	1.09
Amhara	0.48	0.15	0.17	1.31
Tigrayan	1.73	0.14	0.84	3.57
Sidama	0.68	0.35	0.30	1.54

Note. $N = 909$.

7. Discussion

The chapter discusses the meaning and the importance of the findings. It firstly provides a summary of the main results before the results are discussed in detail in the light of the theoretical framework and relative to the empirical findings of previous studies. Potential theoretical explanations will also be proposed. The chapter concludes with a discussion of the limitations, strengths and contributions of the present study, and suggests a direction for future research.

7.1 Overall Results

To reiterate, the present study aimed to explore the prevalence of IPV amongst women in an Ethiopian setting, identify how risk factors at four different ecological levels were associated with IPV, and assess whether women exposed to a higher number of the risk factors cumulatively had greater odds of being victims of recent IPV. The analyses of secondary data from the CMI Project 'Women in the Developmental State: Female Employment and Empowerment in Ethiopia', revealed a high IPV prevalence amongst the 916 women in the full sample. 287 women (31.33%) had experienced violence by an intimate partner, and 148 (16.16%) of these had also experienced IPV the three months prior to their interview ($n = 148$, 16.16%). The analyses also suggested that amongst both the types of lifetime and recent IPV, the most common type of IPV experienced, was *emotional IPV*, followed by *less severe physical IPV*, and *sexual IPV*. On the contrary, only a few respondents had experienced *severe physical IPV*. The pairwise associations between eight risk factors, which previous studies had suggested were associated with IPV in SSA, and *recent IPV* were thereafter explored. According to the series of Chi-square tests ($n = 909$), six of the individual risk factors, located at four different ecological levels, were significantly associated with the combined recent IPV measure. Moreover, the strongest pairwise association was observed between *angry, frustrated, stressed husband* and *recent IPV*. However, the findings of the crude and adjusted binary logistic regression analyses ($n = 909$), where the individual factors association with *recent IPV* were controlled for the contributions

of the other factors, suggested that only four of the eight risk factors significantly increased the odds of being a victim of *recent IPV* compared to if the respondent were not exposed to these factors. To test whether women exposed to a higher number of the risk factors had greater odds of being victims of recent IPV, two new binary logistic regression analyses were conducted (n = 909). The results of the crude analysis indicated that the odds of being a victim of *recent IPV* increased with 1.94 on the basis of every one-unit increase on the index (being exposed to one more risk factors). This association remained significant after controlling for the alternative explanations of demographic variables, but now with a slighly smaller change in the odds for every incrase in the number of risk factors (AOR = 1.83). Morover, the model fit to the data was slighly better in the adjusted model compared to the crude model.

7.2 Slightly Lower IPV Prevalence in the Present Study, Opposed to in the 2016 EDHS

According to the results, almost one third (31.33%) of the 916 study participants had experienced emotional-, less severe physical-, severe- and/or sexual IPV. At the first glance, one might interpret this result as being above the World Health Organisation 2018 global estimate, which suggested that 27% of women aged 15–49 have experienced IPV perpetrated by a male partner. However, the WHO estimated the prevalence of sexual IPV and the types of physical IPV globally, and did not include emotional IPV. Since emotional IPV were included in the combined IPV measures of the present study, it is natural that the WHO estimate should be lower than the findings of the present study (World Health Organization, 2021, p. xxi). More surprising was hence the finding that the lifetime IPV prevalence (31.33%) of the present study was below both WHO´s SSA estimate (33%) and significantly below their Ethiopia estimate (37%), although emotional violence was included the combined measure of the present study and not by WHO (World Health Organization, 2021, p. 70). The lifetime IPV prevalence of the present study did, however, not deviate as much from the findings of the 2016 Ethiopia Demographic and Health Survey. This 2016 EDHS suggested that 33.8% of Ethiopian women aged 15-49 had experienced either emotional, physical, or sexual IPV, which is approximately 2.5 percent points more than what the present study suggested. A 2.5 percent points difference between the 2016 EDHS and the present study is not major difference, and the present study thus provides support to a high lifetime prevalence within the Ethiopian context. The similar findings could possibly be a result of the utilisation of the same standardized and internationally validated IPV measures in the present study as

used in the 2016 EDHS (Central Statistical Agency and ICF, 2017; Kotsadam & Villanger, 2020).

Amongst the 31.33% study participants that had experienced emotional-, less severe physical-, severe -or sexual lifetime IPV, 16.16% stated that they had experienced recent IPV. This was higher than the global recent IPV estimate (13%), whilst lower than the SSA recent IPV estimate (20%) (World Health Organization, 2021, p. 24). In comparison with the the WHO 2018 Ethiopian estimate and the 2016 EDHS, which both suggested that 27% of Ethiopian women had experienced recent IPV, it was significantly lower. However, the recent IPV numbers are not comparable. The WHO and EDHS researched IPV finding place the past 12 months, whilst the present study research recent IPV finding place the past three months prior to being interviewed. The WHO also did not consider emotional IPV in their estimates, which on the contrary was the most prevalent form of both recent and lifetime IPV in the present study and in the 2016 EDHS (Central Statistical Agency and ICF, 2017, p. 305; World Health Organization, 2021, p. 70). The discrepancies in findings amongst the studies could also have several other possible explanations. The present study did e.g., not have a nationally representative sample and studied women in a slightly different age group (women aged 17–55 according to the univariate analysis) compared to the other studies. It could also be the case that the women's general exposure to singular risk factors and the cumulative risk of IPV had decreased in years between the studies (the 2016 EDHS data was collected between January–June 2016 whilst the CMI data on IPV variables and risk factors between September 2017–September 2019), which may have resulted in an IPV decline (Central Statistical Agency and ICF, 2017; Kotsadam & Villanger, 2020).

7.3 Utilising the Ecological Model of Heise to Understand Risk Factors of IPV

7.3.1 Evaluation of Personal History Factors

According to the Chi-square test results, the pairwise association between *lower educational attainment,* operationalised as not having completed general secondary education in Ethiopia (ten years of schooling) and *recent IPV* was non-significant and weak. The latter was interpreted since the Phi coeficient did not qualify to be a small effect according to Cohen´s criteria. Morover, the direct binary logistic regression analyses, which in comparison with the Chi-square test suggested a relationship where one variable was thought to affect (the risk factor) and the other thought be affected (recent IPV), indicated that *lower educational attainment* increased the odds of being a victim of *recent IPV*, compared to if the educational

attainment had not been low. However, the analyses suggested that also this association was non-significant. The non-significat results were contradictive to previous findings, where the metanalysis of Nabaggala et al. (2021), which analysed data from 44 Demographic and Health Surveys across 29 SSA countries, suggested that the risk of experiencing IPV were signifcantly higher amongst women with less than secondary education, as opposed to women with at least secondary education. Morover, they were different from the findings of Andarge and Shiferaw (2018) which indicated that the odds of IPV were significantly lower amongst women that had finished secondary education or had higher education in Arba Minch, Ethiopia. The findings were also surprising from a theoretical point of view; Education might improve individuals' knowledge and reflections upon human rights issues such as IPV, and education may also generate a greater interest for following the news, where human rights are advocated (Andarge & Shiferaw, 2018). The fact that the two different analyses suggested non-significant results does not exclude the possibility that there could be a significant association between the variables in another Ethiopian sample, although it was not the case in the present study.

On the contrary, a significant association with a small effect size was discovered between *father beat mother* and *recent IPV* in the Chi-square test. Additionally, both the crude and adjusted direct regression analyses, which also controlled for the influence of other variables, suggested that if a respondent had a father who beat her mother it significantly increased her odds of being a *recent IPV* victim, compared to if her father did not beat her mother. These findings provided support for previous SSA studies that had suggested significant positive associations between experiences of intergenerational violence, i.e., to be exposed to violence as a child or witnessing it as a child, and IPV (Maguele et al., 2020; McCloskey et al., 2016), including the findings of two previous Ethiopian studies (Gashaw et al., 2018; Semahegn & Mengistie, 2015). There could be multiple reasons why positive associations were discovered. According to theoretical social learning explanations, children who are exposed to violence in their childhood, tend to model after it and tolerate it as adults (Nikulina et al., 2021; O'Leary, 1988). It could also be the case that exposure to violence in the childhood causes children to not develop proper coping skills, which lead to a higher risk for experiencing IPV in adulthood (Maguele et al., 2020). It needs to be noted, however, that the present study considered the associations between *father beat mother* and *recent IPV*, and not experiencing violence as a child and *recent IPV*. The present study can thus not claim to provide information about the latter.

7.3.2 Evaluation of Microssystem Factors

According to the Chi-square test results, both *household food insecurity* and *angry, frustrated, stressed husband* were significantly associated with *recent IPV*, but with differences in how strong the pairwise associations were. The effect size of the association between *angry, frustrated, stressed husband* and *recent IPV* was almost considered to be of medium strength according to Cohen´s criteria. It was also the strongest association amongst the eight pairwise relationships that were observed by the series of Chi-square test conducted. On the other hand, the association beween *household food insecurity* and *recent IPV* had a small effect size. Both the crude and adjusted direct regression analyses, indicated that having an *angry, frustrated, or stressed husband* significantly increased the odds of being a recent IPV victim, compared to if this was not the case. This could provide support for the findings of Pakhomova et al. (2021) which found higher perceived stress levels amongst young South African men to be significant positively associated with perpetrating violence against an intimate partner. To live in *household food insecurity* was also suggested to increase the odds of being a victim of *recent IPV* in the logistic analyses, but the effect was non-significant. Although one thus could not reject the null hypothesis of no association between *household food insecurity* and *recent IPV*, the study of Andarge and Shiferaw (2018) indicated that there was a significant positive association between *household food insecurity* and *recent IPV* in Arba Minch, Ethopia. Hence, it could be the case that a significant association exist amongst other groups of Ethiopian women although it was not observed amongst the women studied in the present study. This could also theoretically be explained by the fact that when one lack secure access to enough safe and nutritious food, it could cause men to see themself as failing to live up to the role as "breadwinners" of the family and/or cause the woman to blame them for that. Henceforth, this could increase intrahousehold stress levels which generate a momentum for IPV to happen (Andarge & Shiferaw, 2018).

7.3.3 Evaluation of Exosystem Factors

The study of Gashaw et al. (2018) conducted in Jimma, Ethiopia, suggested that isolation from the community was associated with *recent IPV*. On the contrary, the Chi-square test of the present study indicated that a weak and non-significant association between *not member of a network* and *recent IPV* existed, and the crude and adjusted logistic regression analyses suggested a non-significant but positive association between the variables. Nevertheless, it might be the case that there was a significant association between isolation from the community and *recent IPV* exist, although the null hypothesis could not be rejected

for the association between *not member of a network* and *recent IPV*. The reason for this is that *not member of a network (e*.g., a religious association, development team, or trade union) might not be the best proxy for isolation from the community, although it was the best one in the data set.

The Chi-square test found a significant association between *limited contact with family/friends* and *recent IPV,* with a small effect size. Furthermore, *limited contact with family/friends* was the variable in the adjusted logistic regression analysis with the greatest AOR. This findings could potentially be explained by women choosing to stay in violent relationships, if they lack support from their family and friends (Bulte & Lensink, 2019; Kotsadam & Villanger, 2020). However, it might also be the case that if a partner limits a respondent´s contact with her family or has permitted her from meeting her female friends, it is actually a symptom of a violent relationship, and not a risk factor for it. Hence, there is a need of more research on associations between the exosystem factors and *recent IPV* where other proxies are utilised as opposed to those utilised in the current study. This is important since it also from a theoretical viewpoint can be argued that if a woman lacks strong ties to e.g., her kinship group, neighbourhood, or friends, she may lack the support network which potentially could help her out of a violent relationship. Consequently, she stays in the relationship and are more prone to be a victim of recent IPV (Bulte & Lensink, 2019; Kotsadam & Villanger, 2020).

7.3.4 Evaluation of Mactorsystem Factors

This Chi-square test of independence suggested that a significant pairwise association between s*trong rigid gender attitude(s)* and *recent IPV* existed, although it was weak. Moreover, the crude and adjusted direct logistic regression analyses indicated that having s*trong rigid gender attitude(s)* increased the odds of being a victim of recent IPV, compared to if the respondent did not have one or more of these attitudes. However, the association were non-significant in both the regression analyses. These findings did thus not provide support for the findings of previous SSA studies, which had indicated that strict traditional gender norms and attitudes were significantly positively associated with IPV (Alangea et al., 2018; Maguele et al., 2020), including the findings of the Ethiopian study of Gashaw et al. (2018) who found an association between strict gender norms and IPV. On the contrary, the present study provided support for previous SSA findings, which had suggested that high acceptance of violence and wife beating were positively associated with IPV both in the

region as a whole as well as in Ethiopian contexts (Abeya et al., 2012; Benebo et al., 2018; Gashaw et al., 2018; McCloskey et al., 2016; Memiah et al., 2021; Wado et al., 2021).

7.4 The Importance of Acconting for the Interplay Amongst Variables

The results of the Chi-square tests discussed above provided support for the argument to take multiple risk factors across ecological levles into account in IPV reseach, since at least one risk factor at each of the four levels individually were significantly associated with recent IPV. Moreover, the results from the crude and adjusted direct binary logistic regression analyses provided support for utilising a *nested* ecological model since variables´ association with recent IPV does not not exist in a vacuum but instead the associations are influenced by the effect of other variables (Belsky, 1980); According to the regression results, the model fit improved in the adjusted model when the demograpic variables were entered into the equation, from the crude model. Also, although all the four risk factors which had OR < .05 in the crude model, remained significant at the .05 level in the adjusted model, their effects sizes changed. The adjusted odds ratio (AOR) of *father beat mother, limited contact with family/friends,* and *acceptance of wife beating* increased, whilst the AOR of *angry, frustrated, or stressed husband* decreased from crude model. Hence, three first risk factors were actually more important than what they initially appeared to be in the crude model. All of this demonstrate the importance of taking the influence of other variables into account, since factors tend to co-occur and interplay.

7.5 Cumulative Risk as an Explaination to Why Some Women Have Greater Odds of Being Victims of Recent IPV

Cumulative risk indices have commonly been computed in research by adding risk factors with a summation method and therafter test how the factors cumulatively associate with an outcome (Ettekal et al., 2019; Evans et al., 2013; Yang & Maguire-Jack, 2018). In spite of the broad use of CR indices across academic fields, the litterature seaches of the present study suggested that only a smattering amount of SSA studies had researched how risk factors across ecological levels associate cumulatively with IPV. Moreover, no previous study, which included all the risk factor of the present study as indicators in an index, was discovered. Hence, the present study aimed at assessing whether women who were exposed to a higher number of the risk factors, which commonly had been found to be positivly associated with IPV in previous SSA studies, had greater odds of being victims of recent IPV.

The crude analysis results suggested that the odds of being a victim of *recent IPV* significantly increased with 1.94 for every one-unit increase on the cumulative risk index (exposed to an additional factor), compared to if this change had not found place. This association was significant also after controlling for potential alternative explanations of the demographic variables in the adjusted model. However, in the adjusted model, the odds of being a victim of *recent IPV* increased with 1.83 for every additional risk factor a respondent was exposed to. Hence, a one-unit increase on the index caused a slightly smaller increase in the odds of being a victim of *recent IPV* than what was initially observed in the crude model. Moreover, the model fit to the data was better in the adjusted model than in the crude analysis.

The regression models provide support for CR theory, as they suggest that as individuals are exposed to a higher number of risk factors, the individual's cumulative risk of being a victim of *recent IPV* also increases (Yang & Maguire-Jack, 2018). Morover, the OR = 1.94 and the AOR = 1.83 provide information *on to what extent* women exposed to a higher number of the risk factors have greater odds of being victims of recent IPV.

However, it needs to be noted that the index may not be the best measure of multiple risk exposure. Although the numbers are not fully comparable since the first adjusted logistic regression analysis controlled for the influence of all the other variables in the equation (risk factors and demographic variables), whilst the second adjusted analysis included all the risk factors in the index and solely controlled for the demographic variables, the results suggests that the cumulative risk index might have been outperformed by singular risk factors, i.e., *limited contact with family/friends (*AOR = 3.98, p = 00), *father beat mother (*AOR =2.45, p = 00), and *angry, frustrated, or stressed husband (*AOR =2.30, p = 00), and a*cceptance of wife beating (*AOR =2.01, p = 00). This is likely to be a result of the CR index being computed by adding *all* the eigth risk factors that a prior had been suggested to increase the risk of IPV in the SSA literature, independently of how these factros were associated with *recent IPV* in the study. The argument for this was that some variables may not be associated with IPV by their own but due to how they interact or moderate one another they are (Ettekal et al., 2019; Yang & Maguire-Jack, 2018). However, if the CR index on the contrary had been composed of only some of the factors or alternative risk factors, the odds of being a victim of *recent IPV* might have increased with more than 1.83 for every additional risk factor the respondent were exposed to. Hence, there is a need of more CR research to research how other risk factors cumulatively assocaite with recent IPV. This is espessially important from a since research on what combinations of risk factors that cumulatively increase the odds of

being a victim of recent IPV the most, can inform stakeholder in their work to target women at higher risk of being IPV victims particularly.

7.6 Methodological Considerations

The results of the present study should be interpreted in light of the methodological considerations outlined in the following sections. The first section addresses the limitations of the study, i.e., (a) the limitations concerning the data and methods which has been utilised, and (b) that the findings may not be generalisable in space nor in time. The latter is due to the major changes that has found place in Ethiopian after the end line of the study in 2019, which may have worsened the situation for the respondents of the present study as well as the situation for Ethiopian women in general. Thereafter the strengths and contributions of the study will be addressed before the study points out directions that future research may take.

7.6.1 Limitations

7.6.1.1. Limitations Related to The Methods and Data Utilised. A limitation of the current study is that the study variables were selected based on their relevance in SSA and Ethiopian literature, also given that data was available in the CMI dataset. Although the literature review contributed to the inclusion of several risk factors that were significantly associated with *recent IPV* and to the construction of a cumulative risk index, which significantly increased the odds of being a victim of *recent IPV* on the basis of every one-unit increase on the index, this variable selection method has several shortcomings. Important risk factors might be missing due to lack of research investigating them, or less important risk factors included, since studies with null findings less frequently get published compared to studies with significant results (Evans, 2013). Other limitations were the lack of highly suitable proxies for the exosystem level factors in the dataset, and intrahousehold alcohol abuse, which could not be included in the analyses due to data unavailability although this was suggested to be an important risk factor in the literature (Semahegn & Mengistie, 2015). Another variable-related limitation was the problem in regard to merging in the demographic variables from the baseline data collection, which to some extent weakened the validity and reliability of the study. Nonetheless, it was considered as a better alternative to control for these potential influencing or confounding variables, as opposed to not control for alternative explanations for initial findings. With that pointed out, it is a limitation that it is not possible to rule out the possibility that these variables influenced the associations between risk factors and *recent*

IPV, as well as the cumulative risk index and *recent IPV*, more or less at the time of the fourth round of the study than what the results suggested since they were measured at a slightly earlier point in time. Moreover, the methods used in the study required *recent IPV* and the eight risk factors to be dichotomized, but as a consequence of this, variance was lost (Acock, 2012, p. 322). It is possible that less information would have been lost and hence, that the results more accurately would reflect the reality regarding multiple risk exposure if a competing method to dichotomising risk factors in a CR index had been utilised. However, competing methods of measuring multiple risk exposure have their limitations (Ettekal et al., 2019; Evans et al., 2013). A few study variables also had different time intervals (e.g., household food insecurity was measured the last thirty days, and recent IPV the last three months). This was a consequence of the data originally being collected for the purposes of the mother study, and not the present study. Moreover, it is not possible to tease out the time order e.g., in regard to acceptance of wife-beating and IPV. Although this study solely aimed at suggesting associations between risk factors and recent IPV as well as between the cumulative risk index and recent IPV due to the cross-sectional nature of the study, this makes suggestions on causal inference even more problematic, which would require a time order where the risk factors, thought to affect, come before the recent IPV, thought to be affected (Punch, 2014, p 79). Lastly, there a possibility that the actual numbers of respondents falling into the risk category on study variables could have been higher at the time when the study was conducted than the results suggested. *Social desirability bias*, meaning that people tend to present themself in a socially desirable way, could have been introduced during the data collection (Pallant 2020, p. 149). Respondents might e.g., have reported less rigid gender attitude(s) and/or less acceptive opinions towards wife beating than what they actually held, if they thought that these were the opinions of the enumerator and wanted to be perceived as advocates for gender equality. Respondents might also have decided not to report IPV due to its negative connotation, feelings of shame, or fear of stigma or revenge, whilst some respondents would regard other questions as sensitive.

7.6.1.1. Limitations Related to Generalisability and the Changes in Ethiopia after 2019.

Another consequence of utilising data that originally was collected for the purposes of the CMI field experiment, was that woman living with partner and who were interested in working in the manufacturing industry were targeted specially. Consequently, the findings were not representative to the national level and the study findings might also not be generalisable to other groups of Ethiopian women.

Other results may also have been found if the data were collected at a later point in time. The data utilised in the present study was collected before the COVID-19 pandemic broke out, and evidence has suggested that the pandemic had gendered impacts. The emerging studies on its impacts, have suggested that many women faced a dual pandemic in terms of both COVID-19 and an enhanced volume of IPV. This could possibly be explained by the implemented measures to stop the spread of the virus in terms of restrictions on movement, social isolation, and a disruption of existing support systems for victims, amongst other factor (Roy & Nandy, 2022, p. 210). In Ethiopia particularly, some help centres and shelters for women who faced violence were unable to support victims due to lack of isolations spaces (UN Women Ethiopia and EVAW Team, 2020).

In addition, the situation is likely to have worsened significantly for many study participants due to the two year-long war that started in the fall of 2020 in the Northern Ethiopia. The war has resulted in a humanitarian crisis in Tigray, as well as in the neighbouring regions (Sveen, 2022; UNOCHA, 2022). Tigrayans comprised 40.94% of the sample of the present study, and this ethnic group mainly live in Tigray which is the epicentre of the conflict. There has been a *de facto* blockade of the region during most of the war, where the population of Tigray have had restricted access to basic goods such as food and medicine and the humanitarian access to the region has been limited (Sveen, 2022a). This created what the Director General of the WHO, Tedros Adhanom Ghebreyesus, has described as the worst humanitarian, man-made disaster on Earth (Voice of America, 2022). Numbers and figures are disputed, but the UN has previously suggested that humanitarian crisis has affected 9.4 million people (UN News, 2021). According to the Guardian, researchers at the Ghent University have also estimated that 380.000–600.000 civilians have lost their lives, of which most died due to starvation or lack of medical care (2022). Moreover, widespread gender-based violence have been committed against women and girls in the Tigray, as well as in the neighbouring Amhara and Afar regions (OHCHR, 2021). Although, the newly singed peace agreement between the federal government of Ethiopia and the Tigray People's Liberation Front (TPLF) creates hope, 20 million people still require humanitarian assistance, according to UNOCHA (2022). In addition to the war in the Northern Ethiopia, the Southern and Eastern part of the country, where several of the remaining ethnicities in the sample live, is currently facing what is argued to be the worst drought in 40 years (Sveen, 2022b). According to the ecological model and the rationale behind cumulate risk assessment it is likely that the IPV prevalence has increase if women´s exposure to risk factor have increased

due to times of crisis and conflict. Hence, there is a need for post-COVID and post-conflict studies on IPV to be conducted in the Ethiopian context in the time to come.

7.6.2 Strengths and the Contributions of the Study

The findings of the study should be interpreted with consideration based on the number of limitations outlined above. Nevertheless, the present study also has multiple methodological strengths and theoretical and empirical contributions. To begin with, a strength of the present study was that in spite of the risk that social desirability bias could have been introduced during the data collection, several important efforts were made by the CMI researchers that may have reduced the problem. Amongst other efforts, all the interviews were conducted in a private space by a female, qualified, and trained enumerator from another community than the participant who were interviewed. All the participants were also ensured privacy, confidentiality, and that information available to the public would be anonymised. These efforts may have contributed to less underreporting, in addition to be essential from an ethical viewpoint. In addition, behaviour specific questions on IPV were asked to avoid underreporting as well as to ensure construct validity. Moreover, the precent study utilised recent data and contributed to fill a research gap identified in the literature review where few previous SSA studies had assessed associations amongst risk factors at all four levels of the ecological model and IPV in the same study, and where the literature on cumulative risk of exposure to multiple risk factors across the different levels of ecological models were particularly scant. The findings thereby a speak to the larger literature on violence against women within the field of Gender in Global Development by adding to the knowledge on the associated factors of IPV in SSA contexts. The study does not solely contribute to the academic literature, the finding may also have practical implications. In order to prevent IPV against women and help IPV victims successfully, it is inevitable to understand the factors associated with IPV and how these factors interplay and potentially increase the risk of IPV. Hence, reseach on the individual and cumulative associated risk factors for IPV are important for targeted policy interventions and effective prevention programmes to be developed.

7.6.3 Implications of the Study and Recommendations for Further Research

The cross-sectional design of the present study precluded causal inference from the results to be drawn. However, although causality could not be read into the study finding, the significant associations demonstrated in the present study, in combination with previous

findings and theorical explanations suggest that the associations demonstrated in the present study should be tested in future longitudinal studies. Secondly, the non-significant associations found in the present study does not exclude the possibility that there is a significant association between the variables in another sample, e.g., if data had been collected from a representative sample at the national level. Hence, this is something future research should study. Additionally, more qualitative research on IPV should be conducted in the Ethiopian context to better understand the consequences IPV for the lives of individuals. Research should also utilise different methods for computing combined measures in the same study and assess their association with IPV, with the aim of providing more research on whether CR or alternative combined measure are most appropriate for assessing associations between multiple risk exposure and IPV. Lastly, more research on IPV and its associated factors are inevitable for achieving the Sustainable Development Goals (SDGs), including SDG 5, which is concerned with achieving gender equality and empower all women and girls. This will not be achieved before all forms of violence against all women and girls in the public and private spheres are ended (United Nations, 2015).

8. Concluding Remarks

The overarching objective of the study was to explore the prevalence of intimate partner violence (IPV) against women in an Ethiopian setting, identify how risk factors at four ecological levels were associated with IPV, and assess whether women exposed to a higher number of the risk factors cumulatively had greater odds of being victims of recent IPV. A cross-sectional analysis of data from the CMI Project 'Women in the Developmental State: Female Employment and Empowerment in Ethiopia' was conducted. The results revealed that 287 (31.33%) women had experienced IPV, whilst 148 (16.16%) had experienced IPV within the past three months, amongst 916 currently partnered study participants. The ecological model of Heise (1998), which capitalised IPV as multifaced and finding place in the interplay between risk factors located at four levels, i.e., the personal history, micro-, exo-, and macrosystem levels, was utilised as a heuristic tool to organise previous studies from Sub-Saharan Africa. The literature review resulted in the inclusion of eight presumed risk factors of IPV, of which six of the factors individually were significantly associated with recent IPV. This provided support for assessing multiple risk factors across ecological levels in IPV research since at least one factor at each of the four levels were significantly associated with recent IPV. However, according to the *nested* ecological model, bivariate associations do not

not exist in a vacuum but instead they are influenced by the effect of other variables across the different levels of the ecology (Belsky, 1980). According to the logistic regression results (n = 909), four of the risk factors significantly increased the odds of being a victim of recent IPV, whilst controlling for the contributions of the other risk factors. These associations prevailed also after controlling for the alternative explanations of demographic variables. Moreover, cumulative risk theory has suggested that when women are exposed to a higher number of risk factors their cumulative risk of being IPV victims also increases. To test this and reach the last study objective, a new logistic regression analysis was conducted with a composite measure composed of all the eight risk factors, the cumulative risk index, and recent IPV. The results indicated that the odds of being a victim of recent IPV significantly increased with 1.94 for every additional risk factors a woman was exposed. In the adjusted model, the odds of recent IPV were 1.83 indicating a slightly smaller increase in the odds of being a victim of IPV for every additional risk factor a respondent was exposed to.

Although the study results demonstrated multiple associations, one can based on the cross-sectional nature of the present study, not be certain that the risk factors predicted the occurrence of IPV. It might as well be reverse causation, or a bi-directional relationship. This requires investigation in future studies where longitudinal data is collected and analysed. Moreover, studies with nationally representative samples should be conducted to assess both the individual and cumulative associated factors of IPV within the Ethiopian context, and there is a need of studies to be conducted in Ethiopia post-crisis and post-conflict. Despite the limitations of the present study, one central contribution of the study is that it suggests that the accumulation of multiple risk factor exposure generate greater odds of being a victim of recent IPV. Cumulative risk provides important theoretical explanations that previously have been understudied within the IPV literature within Sub Saharan Africa. Hence, the study contributes to the greater literature on violence against women within the field of Gender in Global Development. Moreover, it generated knowledge which may inform policy makers and clinicians to target high risk women in prevention programs.

9. Bibliography

Abeya, S. G., Afework, M. F., & Yalew, A. W. (2012). Intimate partner violence against women in west Ethiopia: A qualitative study on attitudes, woman's response, and suggested measures as perceived by community members. *Reproductive Health, 9*(1), 1–11. https://doi.org/10.1186/1742-4755-9-14

Acock, A. C. (2012). *A Gentle Introduction to Stata* (Revised 3rd ed.). Stata Press.

Ahinkorah, B. O., Dickson, K. S., & Seidu, A. A. (2018). Women decision-making capacity and intimate partner violence among women in sub-Saharan Africa. *Archives of Public Health, 76*(1), 1–10. https://doi.org/10.1186/s13690-018-0253-9

Alangea, D. O., Addo-Lartey, A. A., Sikweyiya, Y., Chirwa, E. D., Coker-Appiah, D., Jewkes, R., Mawuena, R., & Adanu, K. (2018). Prevalence and risk factors of intimate partner violence among women in four districts of the central region of Ghana: Baseline findings from a cluster randomised controlled trial. *PLoS ONE, 13*(7), 1–19. https://doi.org/10.1371/journal.pone.0200874

Andarge, E., & Shiferaw, Y. (2018). Disparities in Intimate Partner Violence among Currently Married Women from Food Secure and Insecure Urban Households in South Ethiopia: A Community Based Comparative Cross-Sectional Study. *BioMed Research International, 2018*, 1–13. https://doi.org/10.1155/2018/4738527

Anik, A. I., Towhid, M. I. I., & Haque, M. A. (2021). Association of spousal violence and women's empowerment status among the rural women of sub-Saharan Africa. *Journal of Biosocial Science*, 1–19. https://doi.org/10.1017/S0021932021000602

Awungafac, G., Mugamba, S., Nalugoda, F., Sjöland, C. F., Kigozi, G., Rautiainen, S., Malyabe, R. B., Ziegel, L., Nakigozi, G., Nalwoga, G. K., Kyasanku, E., Nkale, J., Watya, S., Ekström, A. M., & Kågesten, A. (2021). Household food insecurity and its association with self-reported male perpetration of intimate partner violence: a survey of two districts in central and western Uganda. *BMJ Open, 11*(3), 1–13. https://doi.org/10.1136/bmjopen-2020-045427

Belsky, J. (1980). Child maltreatment: An ecological integration. *American Psychologist, 35*(4), 320–335. https://doi.org/10.1037/0003-066X.35.4.320

Benebo, F. O., Schumann, B., & Vaezghasemi, M. (2018). Intimate partner violence against women in Nigeria: A multilevel study investigating the effect of women's status and community norms. *BMC Womens Health, 18*(1), 136–136. https://doi.org/10.1186/s12905-018-0628-7

Black, T. R. (1999). *Doing Quantitative Research in the Social Sciences: An Integrated Approach to Research Design, Measurement and Statistics*. SAGE Publications Ltd.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*(7), 513–531. https://doi.org/10.1037/0003-066X.32.7.513

Bulte, E., & Lensink, R. (2019). Women's empowerment and domestic abuse: Experimental evidence from Vietnam. *European economic review, 115*, 172–191. https://doi.org/10.1016/j.euroecorev.2019.03.003

Central Intelligence Agency. (2022, July 05). *The World Factbook; Ethiopia*. https://www.cia.gov/the-world-factbook/countries/ethiopia/

Central Statistical Agency and ICF. (2017). *Ethiopia Demographic and Health Survey 2016*. https://dhsprogram.com/publications/publication-fr328-dhs-final-reports.cfm

Chernet, A. G., & Cherie, K. T. (2020). Prevalence of intimate partner violence against women and associated factors in Ethiopia. *BMC Womens Health, 20*(1), 22-22. https://doi.org/10.1186/s12905-020-0892-1

Coates, J., Swindale, A., & Bilinsky, P. (2017). *Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide: Version 3*. https://www.fantaproject.org/sites/default/files/resources/HFIAS_ENG_v3_Aug07.pdf

Crowson, M. (2018). *Binary logistic regression using Stata (2018)*. [Video]. YouTube. https://www.youtube.com/watch?v=Nbffvey80bU

Denzin, N. K. (2010). Moments, Mixed Methods, and Paradigm Dialogs. *Qualitative inquiry, 16*(6), 419–427. https://doi.org/10.1177/1077800410364608

Ettekal, I., Eiden, R. D., Nickerson, A. B., & Schuetze, P. (2019, July 24). Comparing alternative methods of measuring cumulative risk based on multiple risk indicators: Are there differential effects on children's externalizing problems? *PLoS ONE, 14*(7), 1–26. https://doi.org/https://doi.org/10.1371/journal.pone.0219134

Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative Risk and Child Development. *Psychological Bulletin, 139*(6), 1342–1396. https://doi.org/10.1037/a0031808

Field, A., & Miles, J. (2010). *Discovering statistics using SAS (and sex and drugs and rock 'n' roll)* (5th ed.). Sage Publications.

Fong, S., Gupta, J., Kpebo, D., & Falb, K. (2016). Food insecurity associated with intimate partner violence among women in Abidjan, Cote d'Ivoire. *International journal of gynecology and obstetrics, 134*(3), 341–342. https://doi.org/10.1016/j.ijgo.2016.03.012

Food and Agriculture Organization of the United Nations. (2001). *The State Food Insecurity in the World of 2001*. http://www.fao.org/3/y1500e/y1500e00.pdf

Fugleberg, O. A., Småstuen, M. C., & Tufte, P. A. (2018). *Innføring i logistisk regresjon: med eksempler på analyse*. Fagbokforlaget.

Fulu, E., & Miedema, S. (2015). Violence Against Women: Globalizing the Integrated Ecological Model. *Violence Against Women, 21*(12), 1431–1455. https://doi.org/10.1177/1077801215596244

Garcia-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., & Watts, C. H. (2006). Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *Lancet, 368*(9543), 1260-1269. https://doi.org/10.1016/s0140-6736(06)69523-8

Garcia-Perez, M. A. (2012). Statistical Conclusion Validity: Some Common Threats and Simple Remedies. *Frontiers in Psychology, 3*(325), 325–325. https://doi.org/10.3389/fpsyg.2012.00325

Gashaw, B. T., Schei, B., & Magnus, J. H. (2018). Social ecological factors and intimate partner violence in pregnancy. *PLoS ONE*, *13*(3), 1–14. https://doi.org/http://dx.doi.org/10.1371/journal.pone.0194681

Gibbs, A., Jewkes, R., Willan, S., & Washington, L. (2018). Associations between poverty, mental health and substance use, gender power, and intimate partner violence amongst young (18-30) women and men in urban informal settlements in South Africa: A cross-sectional study and structural equation model. *PLoS ONE, 13*(10), 1–19. https://doi.org/10.1371/journal.pone.0204956

Greene, M. C., Kane, J. C., & Tol, W. A. (2017). Alcohol use and intimate partner violence among women and their partners in sub-Saharan Africa. *Global Mental Health 4*. https://doi.org/10.1017/gmh.2017.9

Guba, E. G. (1990). In E. G. Guba (Ed.), *The Paradigm Dialog* (pp. 17–30). SAGE. http://academic.son.wisc.edu/courses/n701/week/Guba_ParadigmDialog.pdf

Haviland, M. G. (1990). Yates's Correction for Continuity and the Analysis of 2 x 2 Contingency Tables. *Statistics in medicine, 9*(4), 363–367. https://onlinelibrary.wiley.com/doi/epdf/10.1002/sim.4780090403

Heise, L., Ellsberg, M., & Gottmoeller, M. (2002). A Global Overview of Gender-Based Violence. *International journal of gynecology and obstetrics, 78*, S5–S14. https://doi.org/10.1016/S0020-7292(02)00038-3

Heise, L., & Garcia-Moreno, C. (2002). Violence by intimate partners. In E. G. Krug, L. L. Dahlberg, J. A. Mercy, A. B. Zwi, & R. Lozano (Eds.), *World report on violence and health* (pp. 87–121). WHO. https://apps.who.int/iris/bitstream/handle/10665/42495/9241545615_eng.pdf

Heise, L. L. (1998). Violence Against Women: An Integrated, Ecological Framework. *Violence Against Women, 4*(3), 262–290. https://doi.org/10.1177/1077801298004003002

Heise, L. L. (2012). *Determinants of partner violence in low and middle-income countries : exploring variation in individual and population-level risk.* [Doctoral dissertation, London School of Hygiene & Tropical Medicine]. LSHTM Research Online. https://doi.org/10.17037/PUBS.00682451

Henderson, K. A. (2011). Post-Positivism and the Pragmatics of Leisure Research. *Leisure Sciences, 33*(4), 341–346. https://doi.org/10.1080/01490400.2011.583166

Kim, H.-Y. (2017). Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restorative Dentistry & Endodontics, 42*(2), 152–155. https://doi.org/10.5395/rde.2017.42.2.152

Kotsadam, A., & Villanger, E. (2020). *Jobs and Intimate Partner Violence - Evidence from a Field Experiment in Ethiopia*. CESifo Working Paper No. 8108. https://ssrn.com/abstract=3541457

Lucente, S. W., Fals-Stewart, W., Richards, H. J., & Goscha, J. (2001). Factor Structure and Reliability of the Revised Conflict Tactics Scales for Incarcerated Female Substance Abusers. *Journal of Family Violence, 16*(4), 437–450. https://doi.org/10.1023/A:1012281027999

Maguele, M. S., Taylor, M., & Khuzwayo, N. (2020). Evidence of sociocultural factors influencing intimate partner violence among young women in sub-Saharan Africa: a scoping review. *BMJ Open, 10*(12), 1–12. https://doi.org/10.1136/bmjopen-2020-040641

McCloskey, L. A. P., Boonzaier, F. P., Steinbrenner, S. Y., & Hunter, T. P. (2016). Determinants of Intimate Partner Violence in Sub-Saharan Africa: A Review of Prevention and Intervention Programs. *Partner Abuse, 7*(3), 277–315. https://doi.org/http://dx.doi.org/10.1891/1946-6560.7.3.277

Memiah, P., Cook, C., Kingori, C., Munala, L., Howard, K., Ayivor, S., & Bond, T. (2021). Correlates of intimate partner violence among adolescents in East Africa: A multi-country analysis. *The Pan African Medical Journal, 40*, 1–14. https://doi.org/10.11604/pamj.2021.40.142.23311

Midtbø, T. (2012). *Stata – en entusiastisk innføring*. Universitetsforlaget.

Muluken Dessalegn, M., Francis, L., Agho, K., & Stulz, V. (2021). A Systematic Review and Meta-Analysis of Associated Factors of Gender-Based Violence against Women in Sub-Saharan Africa. *International Journal of Environmental Research and Public Health, 18*(9), 4407. https://doi.org/http://dx.doi.org/10.3390/ijerph18094407

Nabaggala, M. S., Reddy, T., & Manda, S. (2021). Effects of rural–urban residence and education on intimate partner violence among women in Sub-Saharan Africa: a meta-analysis of health survey data. *BMC Women's Health, 21*(1), 1–23. https://doi.org/http://dx.doi.org/10.1186/s12905-021-01286-5

Neuman, W. L. (2013). *Social research methods : qualitative and quantitative approaches* (7th ed.). Pearson Education Limited.

Nikulina, V., Gelin, M., & Zwilling, A. (2021). Is There a Cumulative Association Between Adverse Childhood Experiences and Intimate Partner Violence in Emerging Adulthood? *Journal of Interpersonal Violence, 36*(3–4), 1205–1232. https://doi.org/10.1177/0886260517741626

O'Leary, K. D. (1988). Physical Aggression between Spouses. In V. B. Van Hasselt, R. L. Morrison, A. S. Bellack, & M. Hersen (Eds.), *Handbook of Family Violence* (pp. 31–55). Springer https://doi.org/10.1007/978-1-4757-5360-8_3

O´Reilly, N. L., Hager, E. R., Harrington, D., & Black, M. M. (2020). Assessment of risk for food insecurity among African American urban households: utilizing cumulative risk

indices and latent class analysis to examine accumulation of risk factors. *Translational Behavioral Medicine, 10*(6), 1322–1329. https://doi.org/10.1093/tbm/ibaa027

OHCHR. (2021, December 3). Tigray conflict: UN experts call for urgent action to stop violence against women. https://www.ohchr.org/en/2021/12/tigray-conflict-un-experts-call-urgent-action-stop-violence-against-women

Pakhomova, T. E., Dietrich, J. J., Closson, K., Smit, J., Hornschuh, S., Smith, P., Beksinska, M., Ndung'u, T., Brockman, M., Gray, G., & Kaida, A. (2021). Intimate Partner Violence, Depression, and Anxiety Are Associated With Higher Perceived Stress Among Both Young Men and Women in Soweto and Durban, South Africa. *Frontiers in Reproductive Health, 3*. https://doi.org/10.3389/frph.2021.638116

Pallant, J. (2020). *SPSS survival manual : a step by step guide to data analysis using IBM SPSS* (7th ed.). Open University Press.

Punch, K. F. (2014). *Introduction to Social Research: Quantitative and Qualitative Approaches* (3rd ed.). Sage Publications Ltd.

Purcell, L. N., Kayange, L., Gallaher, J., Varela, C., & Charles, A. (2020). The Inter-Relationship Between Employment Status and Interpersonal Violence in Malawi: A Trauma Center Experience. *World J Surg, 44*(9), 2927–2934. https://doi.org/10.1007/s00268-020-05592-1

Roy, S., & Nandy, D. (2022). *Understanding Post-COVID-19 Social and Cultural Realities : Global Context*. Springer. https://link.springer.com/book/10.1007/978-981-19-0809-5

Salkind, N. J. (2014). *Statistics for People Who (Think They) Hate Statistics* (5 ed.). SAGE

Sedziafa, A. P., Tenkorang, E. Y., & Owusu, A. Y. (2018). Kinship and Intimate Partner Violence Against Married Women in Ghana: A Qualitative Exploration. *Journal of Interpersonal Violence 33*(14), 2197–2224. https://doi.org/10.1177/0886260515624213

Semahegn, A., & Mengistie, B. (2015). Domestic violence against women and associated factors in Ethiopia; systematic review. *Reproductive Health, 12*(1), 78–78. https://doi.org/10.1186/s12978-015-0072-1

Sveen, S. K. (2022, October 5). – *Den skjulte sultkrisen i Etiopia*. Bistandsaktuelt https://www.bistandsaktuelt.no/afrika-afrikas-horn-etiopia/den-skjulte-sultkrisen-i-etiopia/319920

Sveen, S. K. (2022, August 4). *Journalister smuglet inn i Tigray, dokumenterte ekstreme forhold*. Bistandsaktuelt. https://www.bistandsaktuelt.no/afrika-afrikas-horn-etiopia/journalister-smuglet-inn-i-tigray-dokumenterte-ekstreme-forhold/314759

Tabachnick, B. G., & Fidell, L. S. (2019). *Using Multivariate Statistics* (7th ed.). Pearson Education.

The Guardian. (2022, October 23). *The Guardian view on the world's forgotten conflict: Ethiopia's devastating war*. https://www.theguardian.com/commentisfree/2022/oct/23/the-guardian-view-on-the-worlds-forgotten-conflict-ethiopias-devastating-war

The Research Council of Norway. (n.d.). *Women in the developmental state: female employment and empowerment in Ethiopia*. https://prosjektbanken.forskningsradet.no/en/project/FORISS/240807?Kilde=FORISS&distribution=Ar&chart=bar&calcType=funding&Sprak=no&sortBy=date&sortOrder=desc&resultCount=30&offset=0&Prosjektleder=Lovise+Aalen

Tjønndal, A. (2018). *Statistisk analyse i Stata*. Cappelen Damm akademisk.

UN News. (2021, November 26). *9.4 million people are 'living their worst nightmare' in northern Ethiopia due to ongoing conflict* https://news.un.org/en/story/2021/11/1106652

UN Women Ethiopia and EVAW Team. (2020). *Policy Brief: COVID-19 and Ending Violence Against Women and Girls in Ethiopia*. https://www2.unwomen.org/-/media/field%20office%20africa/attachments/publications/2020/policy-brief_evawg%20covid_ethiopia.pdf?la=en&vs=2540

United Nations. (2015). *Transforming Our World: The 2030 Agenda For Sustainable Development*. https://sdgs.un.org/2030agenda

United Nations General Assembly. (1993). Declaration on the Elimination of Violence against Women (RESOLUTION 48/104). https://www.ohchr.org/Documents/ProfessionalInterest/eliminationvaw.pdf

United Nations General Assembly. (1995). *Beijing Declaration and Platform of Action*. https://www.icsspe.org/system/files/Beijing%20Declaration%20and%20Platform%20for%20Action.pdf

United Nations Population Fund. (2022). World Population Dashboard: Ethiopia. https://www.unfpa.org/data/world-population/ET

UNOCHA. (2022, November 17). ETHIOPIA Situation Report. https://reports.unocha.org/en/country/ethiopia

Voice of America. (2022, August 17). *WHO Chief Calls Tigray Worst Humanitarian, Man-Made Disaster on Earth*. https://www.voanews.com/a/who-chief-calls-tigray-worst-humanitarian-man-made-disaster-on-earth-/6705674.html

Wado, Y. D., Mutua, M. K., Mohiddin, A., Ijadunola, M. Y., Faye, C., Coll, C. V. N., Barros, A. J. D., & Kabiru, C. W. (2021). Intimate partner violence against adolescents and young women in sub-Saharan Africa: who is most vulnerable? *Reproductive Health Journal, 18*(Supplement 1), 1–13. https://doi.org/10.1186/s12978-021-01077-z

Wenstøp, F. (2003). *Statistikk og dataanalyse* (7 ed.). Universitetsforlaget.

Wijayatilaka, H. V. B. S., & Fernando, D. N. (2014). Validation of Household Food Insecurity Access Scale - Sri Lanka Validation of HFIAS-SL. *Journal of the College of Community Physicians of Sri Lanka*, *19*(2), 17–28. https://doi.org/10.4038/jccpsl.v19i2.7580

World Health, O., Dahlberg, L. L., Mercy, J. A., World Health, O., & Krug, E. G. (2002). *World report on violence and health*. World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/42495/9241545615_eng.pdf?sequence=1

World Health Organization. (2021). *Violence Against Women Prevalence Estimates, 2018: Global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women*. https://apps.who.int/iris/handle/10665/341337

World Health Organization, & Pan American Health, O. (2012). *Understanding and addressing violence against women: Intimate partner violence*. https://apps.who.int/iris/bitstream/handle/10665/77432/WHO_RHR_12.36_eng.pdf?sequence=1&isAllowed=y

Yakubovich, A. R. M., Stöckl, H. P., Murray, J. P., Melendez-Torres, G. J. P., Steinert, J. I. M., Glavin, C. E. Y. M., & Humphreys, D. K. P. (2018). Risk and Protective Factors for Intimate Partner Violence Against Women: Systematic Review and Meta-analyses of Prospective–Longitudinal Studies. *American Journal of Public Health*, *108*(7), E1-E11. https://doi.org/http://dx.doi.org/10.2105/AJPH.2018.304428

Yang, M.-Y., & Maguire-Jack, K. (2018). Individual and Cumulative Risks for Child Abuse and Neglect. *Family Relations*, *67*(2), 287–301. https://doi.org/http://dx.doi.org/10.1111/fare.12310

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences. *European Journal of Education*, *48*(2), 311–325. https://doi-org.pva.uib.no/10.1111/ejed.12014

Yitbarek, K., Woldie, M., & Abraham, G. (2019). Time for action: Intimate partner violence troubles one third of Ethiopian women. *PLoS ONE*, *14*(5), 1–13. https://doi.org/10.1371/journal.pone.0216962

Aalen, L., Kotsadam, A., & Villanger, E. (2019). Family Law Reform, Employment, and Women´s Political Participation in Ethiopia. *Social politics*, *26*(2), 299–323. https://doi.org/10.1093/sp/jxz010

10. Appendices

Appendix A

Household Food Insecurity Classification Scheme

Frequency

Question	Rarely = 1	Sometimes = 2	Often = 3
1			
2			
3			
4			
5			
6			
7			
8			
9			

Food secure = 1	Mildly food insecure = 2	Moderately food insecure = 3	Severely food insecure = 4

Note. Developed based on the Household Food Insecurity Access Prevalence (HFIAP) Indicator Guide by Coates et al. (2017, p. 19).

Appendix B

Informed Consent Form

I. Consent

Read: Hello. My name is _____ and I am working with the Ethiopian Development Research Institute (EDRI). As you know, in collaboration with CMI, a research institute from Norway, we are conducting a survey to study the lives of women seeking work in the industrial sector in Ethiopia. We now conduct the fourth follow-up of the study. Accordingly, I would like to ask you some questions about you and your household, in privacy, about your current work and time use, education, health, economic and family status. The purpose is to provide information about women in Ethiopia, and to write a paper about this. We are interviewing many women like yourself in several different areas, and no names or information to identify the persons will be available to anyone else than the research team. We would, therefore, kindly request you to participate in this survey. The survey usually takes between 60 and 90 minutes to complete. The purpose is not to offer you assistance, but we would like to offer you ETB 50 for your time if you complete the questionnaire. All your answers will be kept private and confidential. Only the researchers will have access to your "identifying information", such as your name. The information you

provide will not affect your employment relationship in any way and will not be shared with your employer. Participation in this survey is voluntary, and if we should come to any question you don't want to answer, just let me know and I will go on to the next question; or you can stop the interview at any time. However, we hope you will participate in the survey since your views are important to our research.

At this time, do you want to ask me anything about the survey?

May I begin the interview now?

Signature of interviewer: _____Date: _____

Instruction: If anyone else than the respondent is listening in on the interview, politely ask to be allowed to interview the respondent alone. Explain that the interview is private and confidential. Do not continue the interview if others are present.

Appendix C

Descriptive Statistics of Demographic Variables

Table C1

Frequency Distribution of Ethnicity (*N* = 916)

Variables	Frequency	Percent
Ethnicity		
Oromo	138	15.07
Amhara	138	15.07
Tigrayan	375	40.94
Somali	6	0.66
Gurage	14	1.53
Sidama	177	19.32
Welayta	47	5.13
Other	21	2.29
Total	916	100

Table C2

Descriptive Statistics of Age (*N* = 916)

Variables	Min	Max	Mdn	Mean	Std.dev	Skewness	Kurtosis
Age	17	55	24	25.23	5.89	1.88, $p < .005$	7.28, $p < .005$

Table C3

Descriptive Statistics of Children ($N = 916$)

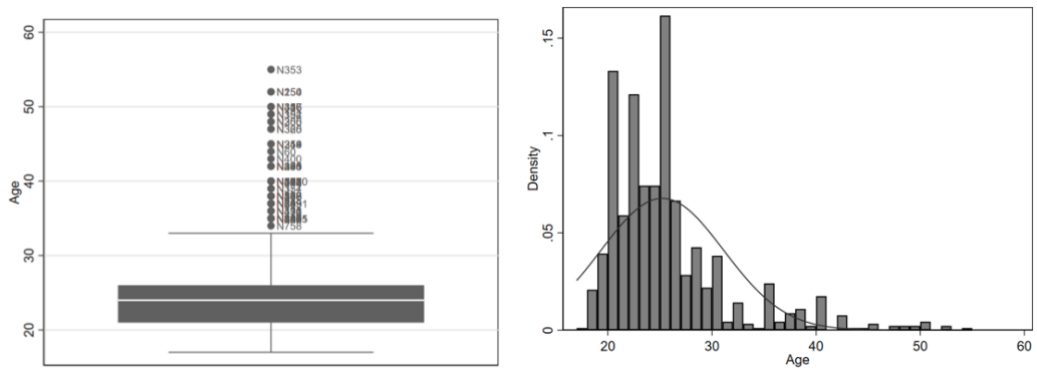
Variables	Min	Max	Mdn	Mean	Std.dev	Skewness	Kurtosis
Children	0	8	1	1.34	1.27	1.60, $p < .005$	7.10, $p < .005$

Appendix D

Graphical Representations of Skewness and Kurtosis: Age and Children

Figures D1

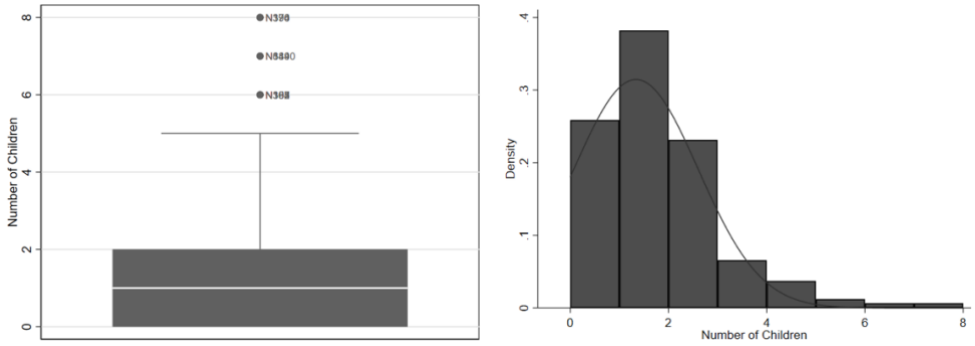
Boxplot and Histogram of Age



Note. A box located at closer to the bottom of the boxplot; a median not precisely in the middle of the box; whiskers, representing the 25th and 75th percentiles, of unequal length; outliers substantially differing from the rest, all indicated lack of normality. In accordance, the histogram displayed a distribution with outliers, values clustered at the left side, and a peaked distribution compared to the overlay black line which displays what the distribution would have looked if it was normal (Acock, 2012, pp. 110–114; Midtbø 2013, pp. 67–68).

Figures D2

Boxplot and histogram of Children



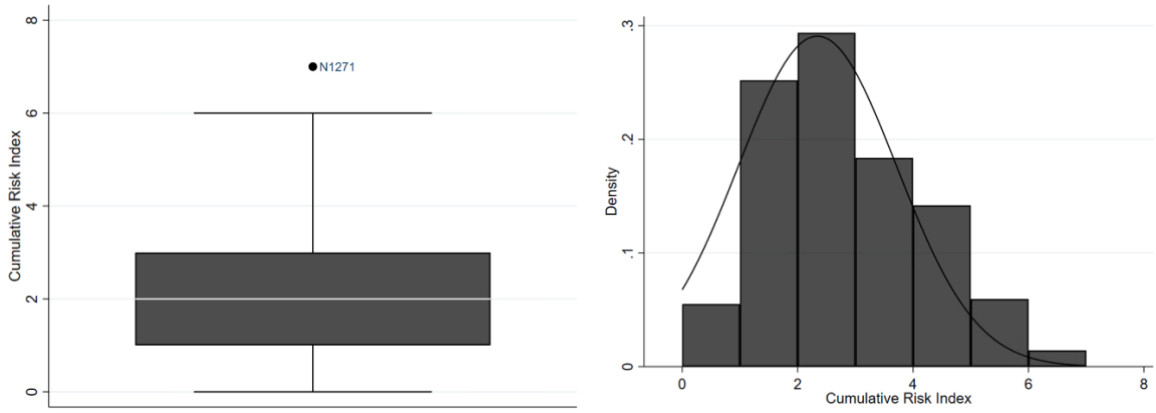
Note. The boxplot displayed a box located at the bottom of the plot as well as only one whisker, whilst the histogram displayed values clustered on the left side. This indicated positive skewness and a peaked distribution. Furthermore, some outliers were identified (Acock 2012, pp. 110–114; Midtbø 2012, p. 68–69).

Appendix E

Graphical Representations of Skewness and Kurtosis: Cumulative Risk Index

Figures E1

Boxplot and Histogram of the Cumulative Risk Index



Note. The box was located closer to the bottom of the plot, the upper whisker was longer, and the histogram displayed slightly more values on right side. Hence, the distribution was positively skewed and flatter than a normal distribution. One outlier was also identified (Acock 2012, pp. 110–114; Midtbø 2012, p. 68–69).

Appendix F

Chi-square Tests for Independence

Table F1

Chi-square Test for Independence and Effect Sizes of Risk Factors and Recent IPV

	Not Recent IPV		Recent IPV		Total		X^2 (df), p-values, Φ
Presumed Risk Factors	*n*	(%)	*n*	(%)	*n*	(%)	
Lower educational attainment							
No	176	86.27	28	13.73	204	100	$X^2(1) = 1.16$
Yes	586	83.12	119	16.88	705	100	*p-value* = 0.28
Total	762	83.83	147	16.17	909	100	Φ = 0.04
Father beat mother							
No	613	86.46	96	13.54	709	100	$X^2(1) = 16.46$
Yes	149	74.50	51	25.50	200	100	*P-value* = 0.00
Total	762	83.83	147	16.17	909	100	Φ = 0.13
Household food insecurity							
No	577	87.29	84	12.71	661	100	$X^2(1) = 21.44$
Yes	185	74.60	63	25.40	248	100	*P-value* = 0.00
Total	762	83.83	147	16.17	909	100	Φ = 0.15
Angry, frustrated, stressed husband							
No	612	90.13	67	9.87	679	100	$X^2(1) = 78.67$
Yes	150	65.22	80	34.78	230	100	*P-value* = 0.00
Total	762	83.83	147	16.17	909	100	Φ = 0.29
Not member of a network							
No	545	84.23	102	15.77	647	100	$X^2(1) = 0.27$
Yes	217	82.82	45	17.18	262	100	*P-value* = 0.60
Total	762	83.83	147	16.17	909	100	Φ = 0.02
Limited contact with family/friends							
No	700	86.85	106	13.15	806	100	$X^2(1) = 47.86$
Yes	62	60.19	41	39.81	103	100	*P-value* = 0.00
Total	762	83.83	147	16.17	909	100	Φ = 0.23
Strong rigid gender attitude(s)							
No	660	84.83	118	15.17	778	100	$X^2(1) = 4.02$
Yes	102	77.86	29	22.14	131	100	*P-value* =0.04
Total	762	83.83	147	16.17	909	100	Φ =0.07
Acceptance of wife beating							
No	581	88.16	78	11.84	659	100	$X^2(1) = 33.22$
Yes	181	72.40	69	27.60	250	100	*P-value* = 0.00
Total	762	83.83	147	16.17	909	100	Φ = 0.19

Note. Two-way table of separate risk factors by IPV (*N* = 909). The relative frequencies were reported within its row of each cell. Also, the Person's chi squared, its degrees of freedom (1 for all in 2 x 2 tables since df = (r-1)(c-1)) and p-values, and phi-coefficients were reported.

Appendix G

Full Binary Logistic Regression Results

Table G1

Crude Logistic Regression Analysis with All Risk Factors and Recent IPV

Logistic regression	Number of obs	=	909
	LR chi2(8)	=	123.26
	Prob > chi2	=	0.00
Log likelihood = - 340.61	Pseudo R2	=	0.15

Recent IPV	OR	Std. err.	z	P>|z|	[95% conf.interval]	
Lower educational attainment	1.34	.33	1.18	0.24	.82	2.19
Father beat mother	1.89	.41	2.92	0.00	1.23	2.89
Household food insecurity	1.31	.29	1.23	0.22	.85	2.01
Angry, frustrated, or stressed partner	3.94	.81	6.69	0.00	2.64	5.89
Not member of a network	1.37	.30	1.45	0.15	.90	2.10
Limited contact with family/friends	2.87	.71	4.24	0.00	1.76	4.68
Strong rigid gender attitude(s)	1.54	.40	1.69	0.09	.93	2.55
Acceptance of wife beating	1.83	.39	2.88	0.00	1.21	2.76
Cons	.04	.01	-11.24	0.00	.02	.07

Table G2

Adjusted Logistic Regression Analysis: All Risk Factors and Recent IPV, Controlling for Age,Children, Oromo, Amhara, Tigrayan, and Sidama

Logistic regression	Number of obs	=	909
	LR chi2(8)	=	159.42
	Prob > chi2	=	0.00
Log likelihood = -322.53	Pseudo R2	=	0.20

Recent IPV	OR	Std. err.	z	P>|z|	[95% conf.interval]	

Lower educational attainment	1.38	0.35	1.27	0.21	0.84	2.29
Father beat mother	2.45	0.57	3.84	0.00	1.55	3.87
Household food insecurity	1.15	0.27	0.61	0.54	0.73	1.82
Angry, frustrated, or stressed partner	2.30	0.52	3.71	0.00	1.48	3.58
Not member of a network	1.36	0.31	1.37	0.17	0.87	2.13
Limited contact with family/friends	3.98	1.07	5.13	0.00	2.35	6.74
Strong rigid gender attitude(s)	1.18	0.31	0.62	0.54	0.70	1.97
Acceptance of wife beating	2.01	0.46	3.04	0.00	1.28	3.16
Age	0.97	0.03	-0.81	0.42	0.91	1.04
Children	0.99	0.13	-0.05	0.96	0.77	1.28
Oromo	0.52	0.30	-1.13	0.26	0.17	1.62
Amhara	0.63	0.34	-0.87	0.39	0.22	1.79
Tigrayan	2.34	0.97	2.04	0.04	1.03	5.29
Sidama	0.61	0.28	-1.09	0.28	0.25	1.49
Cons	0.07	0.06	-3.18	0.00	0.01	0.36

Table G3

Crude Logistic Regression Analysis: Cumulative Risk Index and Recent IPV

Logistic regression	Number of obs	=	909
	LR chi2(1)	=	98.29
	Prob > chi2	=	0.00
Log likelihood = - 353.09	Pseudo R2	=	0.122

Recent IPV	OR	Std. err.	z	P>|z|	[95% conf.interval]	
Cumulative Risk Index	1.94	0.14	9.28	0.00	1.68	2.23
Cons	0.03	0.01	-14.42	0.00	0.02	0.05

Table G4

Adjusted Logistic Regression Analysis: Cumulative Risk Index and Recent IPV, Controlling for Age,Children, Oromo, Amhara, Tigrayan, and Sidama

Logistic regression	Number of obs	=	909
	LR chi2(7)	=	136.56
	Prob > chi2	=	0.00
Log likelihood = -333.96	Pseudo R2	=	0.17

Recent IPV	OR	Std. err.	z	P>|z|	[95% conf.interval]	
Cumulative Risk Index	1.83	0.14	8,09	0.00	1.58	2.12
Age	0.99	0.03	-0.50	0.62	0.93	1.05
Children	0.96	0.12	-0.31	0.76	0.76	1.22
Oromo	0.37	0.20	-1.80	0.07	0.13	1.09
Amhara	0.48	0.25	-1.43	0.15	0.17	1.31
Tigrayan	1.73	0.64	1.49	0.14	0.84	3.57
Sidama	0.68	0.28	-0.93	0.35	0.30	1.54
Cons	0.05	0.04	-3.80	0.00	0.01	0.24