

# Cash Transfers and Psychological Interventions: Impact on Female Empowerment and Intimate Partner Violence

## Pre-Analysis Plan

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## 1 Introduction

This study examines the impact of unconditional cash transfers and a psychological video based intervention on female empowerment and intimate partner violence (IPV) in Siaya county in Western Kenya.<sup>1</sup> We pre-specify the variable definitions and the strategy for estimation and inference. This analysis plan was lodged before any analysis of treatment effects was carried out. We collect data on and analyse additional outcomes to Orkin *et al.* (2016), an ongoing study (hereinafter referred to as the ‘main study’) in Western Kenya that studies the impact of these unconditional cash transfers and psychological intervention.<sup>2</sup>

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<sup>1</sup>See <https://www.socialscisceregistry.org/trials/2923> for the trial registration.

<sup>2</sup>See <https://www.socialscisceregistry.org/trials/996> for trial registration.

## 2 Sample and interventions

### 2.1 Description of the sample

Orkin et al. (2016) randomise villages in the Homa Bay and Siaya counties in Western Kenya into one of 4 groups: control, cash transfer only, psychological intervention only and both cash transfer and psychological intervention. They identify the households eligible for the study as those which satisfy the criteria set by GiveDirectly (the non-profit responsible for the cash transfers) and the research team. This paper is only concerned with a subset of the ‘main study’ sample, namely monogamously married women from eligible households in Siaya county.

### 2.2 Interventions

The trial is set up to evaluate the two interventions individually and in combination. One is an unconditional cash transfer and the other is a psychological intervention. Trial participants who are not assigned to the psychological intervention are instead assigned to a psychologically inactive placebo intervention. The psychologically active and placebo interventions are delivered to randomly selected groups of 2-4 individuals. Those trial participants who are not assigned to the cash receive no component of the cash transfer intervention. Please see <https://www.socialscienceregistry.org/trials/996> for details of the interventions and the sampling and treatment assignment.

## 3 Data

We collected data from around 3000 monogamously married women<sup>3</sup> in face-to-face surveys in phases from February 2018 to February 2019. We refer to this survey as the ‘gender study’ survey. For some outcomes, we rely on the main study baseline and endline surveys. The main study survey and psychological intervention was conducted with the primary female in the household identified during the census and all gender study surveys were conducted

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<sup>3</sup>In collaboration with other study teams, we are also collecting some information on female empowerment and IPV from two other samples - a sample comprised of the people in the network of the main study sample and those in these villages who are ineligible to receive the cash transfer. The spillover analysis strategy will follow that of these studies and so will be detailed in a separate PAP.

with the same female. The main study endline survey in Siaya was conducted between July 2018 and February 2019 and the baseline survey began in October 2016 and ended in March 2017.

The surveys include a broad set of questions to capture female economic activity, decision making about and shares of household consumption and assets and emotional, controlling, physical and sexual IPV. Most questions were asked in a face-to-face interview with enumerators, while physical and sexual IPV were measured using Audio Computer-Assisted Self-Interview Software. We also ask a variety of questions to examine mechanisms including aspects of women’s participation in household and production decision making, spouse’s financial control, spousal discord, negotiation with the spouse, well-being, own and community attitudes towards women’s status and IPV, implicit attitudes (measured by an Implicit Association Test), behaviour in an incentivised cooperation game and reporting of violence. We use standard validated measures from, but not limited to, the Women’s Empowerment in Agriculture Index (WEAI) tool, the Demographic and Health Survey, the WHO Violence Against Women Instrument, the World Values Survey and the Revised Conflict Tactics Scale (Straus et al., 1996).

### 3.1 Outcomes

We specify three families of variables as outcomes measuring female empowerment and experience of IPV.<sup>4</sup>

We will investigate four channels (intermediary outcomes): agency, quality of relationship, well-being and attitudes. We break down agency into two parts, one related to decision making and the other to spousal control. This is because, consistent with findings of Almås et al. (2018), the raw correlation between these measures is negative and hence they appear to capture different concepts. The groupings, guided by Glennerster et al. (2018), are outlined in table 1. Since the best practices in this literature are still evolving, we may have to adapt these later.

All indices will be created using the approach suggested by Anderson (2008). First, we will

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<sup>4</sup>We have information on women’s economic activity (labour earnings, hours of labour supplied inside and outside the household, enterprise ownership). We do not specify an outcome since it is not clear whether more work in itself is welfare enhancing for the woman, or only particular kinds of work. Based on the main study findings, we will draw conclusions about which types of work seem to be more desirable for women. We will then examine entry into these work types and, potentially, the share of the respondent’s time allocated to these activities.

Table 1: Class of variables

<b>Class</b>	<b>Variable</b>
<b>Economic outcomes</b>	Consumption shares Share of assets
<b>Health outcome</b>	Experience of IPV
<b>Channels</b>	
<b>Agency I: Decision making</b>	Household decision making Production decision making Income decision making
<b>Agency II: Spousal control</b>	Spousal financial control No cooperation Controlling IPV
<b>Relationship quality</b>	Spousal harmony Negotiation Emotional IPV
<b>Well-being</b>	Stress Happiness Life-satisfaction
<b>Attitudes</b>	Own attitude Village attitude

re-code all outcomes such that higher values correspond with similar direction of change within an index. Second, we will standardise the outcomes to have mean zero and standard deviation one. Third, we will calculate the average of the standardized constituent outcomes, weighted by the inverse covariance matrix.

\* denotes outcomes measured by the main study survey. Where relevant, questions in the gender study survey were asked for a 12 month recall period.

### 3.1.1 Consumption shares

In the cooperative household model, intra-household resource allocation depends on the bargaining power of the individual actors in the household ([Chiappori, 1988, 1992](#); [Browning et al., 1994](#); [Browning and Chiappori, 1998](#)). Increasing the bargaining power of one of the actors will result in the consumption bundle changing to reflect the preference of that actor. Studies have used exogenous shifts in women’s bargaining power in the form of cash transfers given to the woman to look at changes in consumption shares as an indication of a shift towards the woman’s preferences. These have shown that cash transfers given to a woman don’t decrease the share of food in consumption, in contrast to Engel’s law, explained by

women having more preference for food than men (Attanasio and Lechene, 2014; Bobonis, 2009; Hidrobo et al., 2016). In addition, studies have shown changes in the consumption shares of women’s, men’s and children’s clothing, along with education, healthcare, utilities, prestige goods (jewellery) and adult goods (alcohol and tobacco) as a result of exogenous shocks to women’s income (Duflo and Udry, 2004; Angelucci and Garlick, 2015; Hidrobo et al., 2016).

We therefore follow this literature and look at a range of expenditures shares, understood to be preferred by women, to see whether the treatments induced a change.<sup>5</sup> An increase in these consumption shares indicate an increase in bargaining power of the woman and hence a shifting of the consumption bundle towards her preferences. We will also report the absolute changes in these consumption categories and baseline Engel curve shape to help interpret our results.

We will augment equation (1) with total consumption and demographic controls to analyse the following consumption shares:

1. **Clothing share\***: we will separately look at the spending on women’s, men’s and children’s clothing and footwear as a proportion of non-food spending.
2. **Household goods share\***: spending on household goods, including soaps and detergents, household cleaning equipment, kitchen equipment, as a proportion of total non-food spending.
3. **Health share\***: spending on medicines and health services, as a proportion of total non-food spending.
4. **Education share\***: spending on schooling and school inputs services, as a proportion of total non-food spending.
5. **Food share\***: monthly food consumption (as defined in the main study) as a proportion of total consumption expenditure (as defined in the main study). We will also look at the following food sub-groups:
  - Cereal
  - Tubers
  - Meats and fish
  - Dairy
  - Fruits and vegetables

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<sup>5</sup>Note that in case of the psychological intervention, there is no exogenous change in income, so any change in consumption shares can be cleanly interpreted as a change in bargaining power.

6. **Woman's remittance share:** total remittances reported by the woman that were sent to her family (variable `remittance_sentamontfam`) as a proportion of total remittances sent in the last 12 months (sum of variables `remittance_sentamontfam` and `remittance_sentamont`).

### 3.1.2 Share of assets

**Main variable - indicator for asset ownership:** In line with WEAI guidelines<sup>6</sup>, this indicator variable takes a value of one if at least two of the small assets<sup>7</sup> (chicken, farming equipment non-mechanized, and small consumer durables) or one large asset (all others) is owned by the woman (fully or jointly) (variables `asset_owns_1-14`).

**Secondary analysis:** We will also analyse impact using two alternative measures:

- **Share of assets:** The proportion of household assets<sup>8</sup> which are owned by the woman, jointly by the woman and spouse or jointly by woman and other family members.
- **Value of the share:** We will use data from the detailed main study asset module where respondents report the estimated value of the asset if they were to sell them today in their current condition to value the share of assets owned by the woman.

### 3.1.3 Experience of IPV

**Main variable - IPV index:** An index of the following:

1. **Physical violence:** Sum of the following two scores:
  - (a) **Moderate physical violence:** sum of three categorical variables which equal 2 if often, 1 if sometimes, and 0 if never for the husband doing the following:
    - i. Pushing or throwing: 'Push you, shake you or throw something at you' (variable `acasi_1_physical`).
    - ii. Slapping: 'Slap you' (variable `acasi_2_physical`).

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<sup>6</sup>[https://www.ifpri.org/sites/default/files/Basic%20Page/weai\\_instructionalguide.1.pdf](https://www.ifpri.org/sites/default/files/Basic%20Page/weai_instructionalguide.1.pdf)

<sup>7</sup>We follow the WEAI survey instrument and ask about the following list of assets: agricultural land, large livestock, small livestock, birds (chicken, ducks, turkeys or pigeons), fish pond or fishing equipment, farm equipment (non-mechanised), farm equipment (mechanised), non-farm business equipment, house (and other structures), large consumer durables (e.g. refrigerator), small consumer durables (e.g. radio), other land not used for agriculture, means of transportation (e.g. car, bicycle, motorcycle), gold and silver jewellery.

<sup>8</sup>We give all assets equal weight.

- iii. Twisting or pulling: ‘Twist your arm or pull your hair’ (variable acasi\_3\_physical).
- (b) **Severe physical violence:** sum of the following four categorical variables which equal 2 if often, 1 if sometimes, and 0 if never for the husband doing the following:
- i. Punching: ‘Punch you with his fist or with something that could hurt you’ (variable acasi\_4\_physical).
  - ii. Kicking or dragging: ‘Kick you, drag you or beat you up’ (variable acasi\_5\_physical).
  - iii. Choking or burning: ‘Choke you or burn you on purpose’ (variable acasi\_6\_physical).
  - iv. Threats with weapon: ‘Threaten to attack you with a knife, gun or any other weapon’ (variable acasi\_7\_physical).
2. **Sexual violence:** Sum of the following four categorical variables which equal 2 if often, 1 if sometimes, and 0 if never for the husband doing the following:
- (a) Forced intercourse: ‘Physically force you to have sexual intercourse with him even when you did not want to’ (variable acasi\_8\_physical).
  - (b) Unwanted sexual acts: ‘Force you to perform any sexual acts you did not want to’ (variable acasi\_9\_physical).
  - (c) Degrading sexual acts: ‘Force you to do something sexual that you found degrading or humiliating’ (variable acasi\_10\_physical).
  - (d) Consent from intimidation: ‘You had sexual intercourse you did not want because you were afraid of what your husband might do’ (variable acasi\_11\_physical).

We will check the robustness of the results by analysing the impact on two alternative measures:

1. **Indicator for violence:** An extensive margin capturing the incidence rather than the frequency of violence. This will be an indicator variable taking a value of one if the respondent experienced any physical and/or sexual violence.
2. **Maximum score:** A ‘maximum’ scale as used by [Roy et al. \(2019\)](#) where IPV is measured as the maximum frequency reported over all physical and sexual violence.

We will also analyse the impact on physical (moderate and severe) and sexual violence separately for these alternative measures.

**Secondary analysis:** We use the incidence of psychical and/or sexual violence as the primary measure but will also look at the severity of the violence as a secondary measure. This is the sum of the following three categorical variables which equal 2 if often, 1 if sometimes, and 0 if never:

1. Cuts or bruises: ‘Cuts or bruises or aches’ (variable acasi\_12\_physical).
2. Eye injuries or sprains: ‘Eye injuries, sprains, dislocations or burns’ (variable acasi\_13\_physical).
3. Deep wounds: ‘Deep wounds, broken bones, broken teeth or any other serious injury’ (variable acasi\_14\_physical).

### 3.2 Agency I: Decision making

**Main variable - decision making index:** An index of the following:

1. **Household decision making:** Sum of the following seven dummy variables which equal 1 if the decision is made by the woman herself, almost the woman herself, jointly by woman and spouse, or jointly by woman and other family members; and 0 otherwise:
  - (a) Contraceptives: ‘Whether or not to use a method to avoid having children’ (variable decision\_1).
  - (b) Children schooling: ‘Any decisions about children’s schooling’ (variable decision\_2).
  - (c) Children clothes: ‘Whether or not to buy children’s clothes, shoes?’ (variable decision\_3).
  - (d) Child illness: ‘What to do if a child falls sick’ (variable decision\_4).
  - (e) Children discipline: ‘How should children be disciplined’ (variable decision\_5).
  - (f) Food expenses: ‘How much is spent on food?’ (variable decision\_6).
  - (g) Income share saved: ‘How much of the household’s income to save?’ (variable decision\_7).
2. **Production decision making:** The proportion of activities<sup>9</sup> the woman had input in making at least some of the decisions about the activity (variables production\_input\_1-6).

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<sup>9</sup>We follow the WEAI survey instrument and ask about the following list of activities: i. food crop farming: crops that are grown primarily for household food consumption; ii. cash crop farming: crops that are grown primary for sale in the market; iii. livestock raising; iv. non-farm economic activities: Small business, self-employment, buy-and-sell; v. wage and salary employment: in-kind or monetary work both agriculture and other wage work; vi. fishing or fishpond culture.



3. **Income decision making:** The proportion of activities<sup>9</sup> for which woman had input in making at least some of the decisions about how to spend the income generated from the activity (variables production\_income\_1-6).

### 3.3 Agency II: Spousal control

**Main variable - controlling index:** An index of the following:

1. **Spouse financial control:** Sum of the following categorical variables which equal 3 if often, 2 if sometimes, 1 if once or twice, and 0 if never:
  - (a) Money taken away: ‘Take your earnings or savings from you against your will?’ (variable husband\_ever\_3f).
  - (b) Not enough money: ‘Tell you he does not have enough money to give you for household expenses?’ (variable husband\_ever\_4f).
  - (c) Money denied: ‘Refuse to give you money for household expenses, even when he had money for other things?’ (variable husband\_ever\_5f).
  - (d) Refuse job: ‘Require that you give up or refuse a job for money outside the home because he did not want you to work?’ (variable husband\_ever\_6f).
  - (e) Money threat: ‘Threaten not to give you money or take it away from you?’ (variable husband\_ever\_7f).
2. **No cooperation**<sup>10</sup>: An outcome denoting the degree to which a woman is not willing to cooperate with her spouse in an income hiding game.

The income hiding game has been used as a measure of womens empowerment in the literature (Almås et al., 2018; Fiala, 2017). Here we expand upon the version used in Fiala (2017) by conducting a variant of the Almås et al. (2018) game with multiple choices between whether the woman or her spouse receives set amounts of money the next day. Women had to make a series of 8 choices between receiving a fixed amount of money themselves (\$2) or having their spouse receive varying amount of money between \$1.8 and \$9 as follows:

One in four respondents was randomly chosen to be paid one of her choices from this game to either herself or her spouse tomorrow. Tomorrow was chosen to be the payment date to remove effects of strong present bias and to allow the field team time

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<sup>10</sup>This captures both the quality of the woman’s relationship and agency. Since it captures the degree to which the woman believes she has a say in how resources are allocated in the household, what Almås et al. (2018) refer to as her ‘bargaining power’, we think it is a better fit under agency.

Table 2: Choice options in the spousal cooperation game

Choice	Option 1	Option 2
Choice 1	KSH 200 to yourself tomorrow	KSH 180 to your spouse tomorrow
Choice 2	KSH 200 to yourself tomorrow	KSH 230 to your spouse tomorrow
Choice 3	KSH 200 to yourself tomorrow	KSH 300 to your spouse tomorrow
Choice 4	KSH 200 to yourself tomorrow	KSH 400 to your spouse tomorrow
Choice 5	KSH 200 to yourself tomorrow	KSH 500 to your spouse tomorrow
Choice 6	KSH 200 to yourself tomorrow	KSH 600 to your spouse tomorrow
Choice 7	KSH 200 to yourself tomorrow	KSH 800 to your spouse tomorrow
Choice 8	KSH 200 to yourself tomorrow	KSH 900 to your spouse tomorrow

to contact and find the spouse if necessary.

**Main variable - never cooperates:** A dummy equal to 1 if the respondent never switches to giving money to the spouse, and 0 otherwise. We will analyse the following as a secondary outcome:

- (a) **Switching point:** An outcome equal to a number ranging from 1 to 8, where 1 means that the woman switched to giving the money to her spouse on the first question and 8 means that she never switched to giving the money to her spouse (variables emp1-8).
- 3. **Controlling IPV:** Sum of the following four categorical variables which equals 3 if often, 2 if sometimes, 1 if once or twice, and 0 if never:
  - (a) Jealousy: ‘He was jealous or angry if you talked to other men’ (variable dv\_control\_1f).
  - (b) Unfaithfulness: ‘He accused you of being unfaithful’ (variable dv\_control\_2f).
  - (c) Limited contacts: ‘He tried to limit your contact with your family’ (variable dv\_control\_4f).
  - (d) Location control: ‘He insists/insisted on knowing where you are/were at all times’ (variable dv\_control\_5f).

### 3.4 Relationship quality

**Main variable - relationship quality index:** An index of the following:

- 1. **Spousal harmony:** Sum of six categorical variables which equal 3 if never, 2 if once or twice, 1 if sometimes, and 0 if often for respondent and husband having a major

argument on the following:

- (a) Spending: ‘Spending on major household items or assets’ (variable discord\_1f).
  - (b) Saving: ‘Saving decisions’ (variable discord\_2f).
  - (c) Children discipline: ‘Behaviour and disciplining of children’ (variable discord\_3f).
  - (d) Relatives: ‘Interactions with relatives’ (variable discord\_4f).
  - (e) Alcohol: ‘Alcohol consumption’ (variable discord\_5f).
  - (f) Other: ‘Any other issues’ (variable discord\_6f).
2. **Negotiation**: Sum of six categorical variables which equal 3 if often, 2 if sometimes, 1 if once or twice, and 0 if never for how often the respondent did the following in case of a dispute with the husband:
- (a) Dialogue: ‘Explain your side of the argument’ (variable neg\_1f).
  - (b) Compromise: ‘Suggest compromise to an argument’ (variable neg\_2f).
  - (c) Caring: ‘Show that he cared?’ (variable neg\_3f).
  - (d) Working things out: ‘Said could work out problem?’ (variable neg\_4f).
  - (e) Husband’s solution: ‘Agree to try husband’s solution?’ (variable neg\_5f).
  - (f) Respect feelings: ‘Respect partner’s feelings?’ (variable neg\_6f).
3. **Emotional IPV**: Sum of three categorical variables which equal 3 if never, 2 if once or twice, 1 if sometimes, and 0 if often for husband doing the following:
- (a) Humiliation attempts: ‘Say something to humiliate you in front of others’ (variable dv\_emotional\_1f).
  - (b) Threats: ‘Threaten to hurt or harm you or someone close to you’ (variable dv\_emotional\_2f).
  - (c) Insults: ‘Insult you or make you feel bad about yourself’ (variable dv\_emotional\_3f).

### 3.5 Well-being

**Main variable - respondent well-being index**: An index of the following:

1. **Happiness score**<sup>11</sup>: A score ranging from 1 to 5, with 1 corresponding to unhappy and 5 corresponding very happy (variable happiness).
2. **Life satisfaction score**<sup>14</sup>: A score ranging from 1 to 10, with 1 corresponding to ‘least satisfied’ (variable life\_satisfaction).

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<sup>11</sup>Based on the World Values Survey.

3. **Stress score**<sup>12</sup>: The score ranges from 4 to 16, with a higher value corresponding to lower stress. It is the sum of the following categorical variables which equal 4 if rarely, 3 if sometimes, 2 if often and 1 if very often:
- (a) Control: ‘Unable to control the important things in your life’ (variables stress\_1).
  - (b) Personal problems: ‘Confident about your ability to handle your personal problems’ (variables stress\_2; reverse coded).
  - (c) Going well: ‘Things were going your way’ (variables stress\_3; reverse coded).
  - (d) Difficulties: ‘Difficulties were piling up so high that you could not overcome them’ (variables stress\_4).

### 3.6 Attitudes

**Main variable - attitudes index:** An index of the following:

1. **Exercise of power (own attitude):** Sum of the following dummies, which equal 0 if the woman agrees and 1 if she disagrees:
  - (a) Important decisions: ‘The important decisions in the family should be made only by the men of the family’ (variable norms\_r1).
  - (b) Son to school: ‘It is more important to send a son to school than it is to send a daughter’ (variable norms\_r3).
  - (c) Woman earns more: ‘If a woman earns more money than her husband it is almost certain to cause problems’ (variable norms\_r4).
  - (d) Tolerate beatings: ‘A wife should tolerate being beaten by her husband in order to keep the family together’ (variable norms\_r5).
  - (e) Right to beat wife: ‘A husband has the right to beat his wife’ (variable norms\_r6).
2. **Justifiable violence (own attitude):** Sum of the following dummies, which equal 0 if the woman agrees and 1 if she disagrees:
  - (a) Neglects children: ‘If she neglects the children’ (variable norms\_r7).
  - (b) Argues: ‘If she argues with him’ (variable norms\_r8).
  - (c) Suspect unfaithfulness: ‘If he suspects she is unfaithful’ (variable norms\_r9).
  - (d) Public insults: ‘If she insults him in public’ (variable norms\_r10).
  - (e) Discipline interference: ‘If she interferes when he is disciplining their child(ren)’ (variable norms\_r11).
  - (f) Food not ready: ‘If she does not have food prepared on time’ (variable norms\_r12).

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<sup>12</sup>We use the Perceived Stress Scale 4 (Cohen et al., 1983).

- (g) Taking conflicts out of household: ‘If she discusses conflicts in the household with friends, neighbours, or family’ (variable norms\_r13).
3. **Exercise of power (village attitude)**: Sum of the following dummies, which equal 0 if the respondent thinks the majority of her community agree and 1 if disagree:
- (a) Important decisions: ‘The important decisions in the family should be made only by the men of the family’ (variable norms\_c1).
  - (b) Son to school: ‘It is more important to send a son to school than it is to send a daughter’ (variable norms\_c3).
  - (c) Woman earns more: ‘If a woman earns more money than her husband it is almost certain to cause problems’ (variable norms\_c4).
  - (d) Tolerate beatings: ‘A wife should tolerate being beaten by her husband in order to keep the family together’ (variable norms\_c5).
  - (e) Right to beat wife: ‘A husband has the right to beat his wife’ (variable norms\_c6).
4. **Justifiable violence (village attitude)**: Sum of the following dummies, which equal 0 if the respondent thinks the majority of her community agree and 1 if disagree :
- (a) Neglects children: ‘If she neglects the children’ (variable norms\_c7).
  - (b) Argues: ‘If she argues with him’ (variable norms\_c8).
  - (c) Suspect unfaithfulness: ‘If he suspects she is unfaithful’ (variable norms\_c9).
  - (d) Public insults: ‘If she insults him in public’ (variable norms\_c10).
  - (e) Discipline interference: ‘If she interferes when he is disciplining their child(ren)’ (variable norms\_c11).
  - (f) Food not ready: ‘If she does not have food prepared on time’ (variable norms\_c12).
  - (g) Taking conflicts out of household: ‘If she discusses conflicts in the household with friends, neighbours, or family’ (variable norms\_c13).

In addition to analysing respondent’s own and perception of village attitude, we will look at whether she is more likely to report physical violence to the village elder. Variable of interest is **report to village elder** which is a dummy equal to one if the woman would talk to the village elder in case of any physical violence (slapping, punching, beating) by her husband and 0 if she won’t or it depends on if other options do not work (variable report\_VE).

**Secondary analysis:** We measure implicit attitudes towards IPV using an Implicit Attitude Test designed following the approach of [Efferson et al. \(2015\)](#). This measures the relative reaction time in which individuals associate words describing IPV with something ‘good’ versus ‘bad’, represented on the screen by happy and sad faces respectively. The entire test

includes six rounds (outlined in table 3) - four practice rounds (1.1 - 1.3) and two actual rounds (2.1-2.3). The results from the actual rounds will be used for analysis.

Table 3: Round wise details in the Implicit Association Test

Round	Type	No. of words
Round 1.1	Good, Bad	10
Round 1.2 or 1.3 (randomised)	Good + Reptiles, Bad	15
Round 1.2 or 1.3 (randomised)	Good, Bad + Reptiles	15
Round 2.1	Good, Bad	10
Round 2.2 or 2.3 (randomised)	Good + Domestic Abuse, Bad	15
Round 2.2 or 2.3 (randomised)	Good, Bad + Domestic Abuse	15

Before each round, individuals are instructed to place words into a specific category by clicking the button on the appropriate side of the screen. For instance, if in a round they are instructed to place all words pertaining to domestic abuse into the category ‘bad’, they are supposed to click the button close to the ‘sad’ face whenever they hear such words and click the button close to the happy face otherwise. Individuals are given two chances to correct a mistake and are asked to contact the enumerator for assistance the third time. We also ensure that they practice before Round 2.2 and 2.3 begin by setting practice rounds in which words describing happy feelings, sad feelings and names of reptiles are to be categorised in a similar manner. The order in which individuals are asked to associate domestic abuse-related words with ‘good’ or ‘bad’ categories is randomised to prevent learning effects from affecting the results.

We measure the response time taken for each correct click, compute the average response time for each round and then compare this across the two rounds. The variable of interest is the **implicit attitude score** (d score) which equals the difference between the average response time taken in each of the two rounds divided by the overall standard deviation (Greenwald et al., 1998). The average response time taken in the round where domestic abuse is associated with the bad category is subtracted from the average response time taken in the round where it is associated with the good category. This difference is then divided by the standard deviation of all the response times pertaining to these two rounds. The higher the score, the slower (relatively speaking) is the individual at placing words associated with domestic abuse into the good category, suggesting that they have more negative attitudes towards domestic abuse.

## 4 Analysis

### 4.1 Estimation methodology

We will estimate models of the form:

$$Y_{iv} = \text{Cash}_v \cdot \beta_C + \text{Psych}_v \cdot \beta_P + \text{Cash}_v \cdot \text{Psych}_v \cdot \beta_{CP} + \alpha_v + \epsilon_{iv}, \quad (1)$$

where  $i$  and  $v$  index individuals and villages,  $Y_{iv}$  denotes the outcome of interest,  $\text{Cash}_v$  and  $\text{Psych}_v$  are indicator variables equal to one for villages assigned to receive cash and psychological treatments respectively,  $\alpha_v$  is a stratification block fixed effect (the constant term is subsumed into the vector of fixed effects) and  $\epsilon_{iv}$  is a village “cluster-robust” standard error.

All respondents are at least 18 years of age and for the main analysis we will restrict to those aged 59 and below since IPV decreases with age and becomes rarer in women above this age. If there are baseline measures for the outcome (denoted with \* in the outcome list), we analyse outcomes using Equation 1 augmented with  $Y_{0iv}$ . Where  $Y_{iv}$  is measured in the baseline but is missing for some observations, we replace the missing values with sample means and include a missing data indicator  $\mathbf{1}\{Y_{0iv} \text{ missing}\}$  as an additional regressor.

All outcomes are measured for the respondent or households which received one of the treatment or placebo interventions, so  $i$  indexes individuals or households. The parameters of interest are  $(\beta_C, \beta_P, \beta_{CP})$ , respectively the treatment effects of the cash transfer, the psychological intervention, and both interventions together.

### 4.2 Inference

For each outcome listed, we will test three statistical hypotheses:

1. Assignment to the cash transfer group has no effect on the outcome relative to assignment to the cash control group,  $\beta_C = 0$  (‘cash effect’).
2. Assignment to the psychological intervention group has no effect on the outcome relative to assignment to the placebo intervention group,  $\beta_P = 0$  (‘psych effect’).
3. Assignment to the cash transfer and psychological intervention group has the same effect on the outcome as sum of the cash and psych effects,  $\beta_{CP} = 0$  (‘interaction’).

effect’).

We will also test two additional hypotheses:

4. Assignment to the cash transfer and psychological intervention group has the same effect on the outcome as assignment to the psychological intervention and cash control group,  $\beta_P + \beta_{CP} = 0$  (‘additionality effect’).
5. Assignment to the cash transfer and psychological intervention group has the same effect on the outcome as assignment to the placebo intervention and cash control group,  $\beta_C + \beta_P + \beta_{CP} = 0$  (‘joint effect’)

### 4.3 Multiple hypothesis test correction

We are interested in seven classes of variables (see table 1). We adjust the p-values of the coefficients of interest for multiple statistical inference by calculating sharpened q-values that control for the false discovery rate (FDR) for all variables within a class. Rather than pre-specifying a single q, we report the minimum q-value at which each hypothesis is rejected, following [Anderson \(2008\)](#) and [Benjamini et al. \(2006\)](#). We do not adjust across summary indices or the variables in different classes because these are conceptually different hypotheses. This is consistent with literature ([Hidrobo et al., 2016](#); [Roy et al., 2019](#)) where these are treated as distinct concepts and studies have not corrected across these.

### 4.4 Heterogeneity analysis

We will test whether the impact of the treatments vary by characteristics of the respondents as measured in the main study baseline by augmenting equation (1) with the baseline measure of interest and the interaction between the treatment indicators and the baseline measure of interest. We will examine how effects depend on the following:

*Collected at baseline:*

1. An indicator variable equal to one if aged 49<sup>13</sup> and below.
2. Spouse schooling gap in years. We use two measures of this:
  - (a) Years of education of spouse minus years of education of the woman.

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<sup>13</sup>This is the commonly used age range in studies on IPV. For this analysis, we will use the full sample and not restrict to those aged 59 and below.



- (b) An indicator variable equal to one if the woman has less years of education than her spouse.
3. The age difference of the respondent from her spouse.
4. An indicator variable equal to one if has above median education.
5. An indicator variable equal to one if has a child aged 0 to 5.
6. An indicator variable equal to one if had above median self-efficacy score.<sup>14</sup>

*Collected in gender survey:*

1. An indicator variable equal to one if above median years since married.

## 5 Robustness

### 5.1 Inclusion of controls

We will check balance using main study baseline/census for the following variables:

1. Age
2. Partner's years of schooling
3. Own years of schooling
4. Asset aggregate
5. Number of children aged 0 to 5
6. Total number of children
7. Household size
8. Self-efficacy score<sup>14</sup>

If any of these are not balanced between treatment groups, we will add it as a control and estimate equation (1). We will also check robustness of results to the following and only report results when the point estimates for the three parameters of interest are substantially different to the results from estimating equation (1):

- A vector of gender study survey month fixed effects to account for seasonality.
- Time lag between the psychological or placebo intervention and gender study survey date.

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<sup>14</sup>Defined as in <https://www.socialscisceregistry.org/trials/996>.

- For outcomes using data from the main study, dropping households where main study surveyed a proxy.<sup>15</sup>

## 5.2 Compliance adjusted treatment effects

We will estimate treatment-on-the-treated estimates of the cash transfer and psychological intervention using the model

$$Y_{iv} = \text{CashReceived}_v \cdot \beta_C^{IV} + \text{PsychReceived}_v \cdot \beta_P^{IV} + \text{CashReceived}_v \cdot \text{PsychReceived}_v \cdot \beta_{CP}^{IV} + Y_{0iv} \cdot \gamma^{IV} + \alpha_v^{IV} + \epsilon_{iv}, \quad (2)$$

instrumenting the treatment receipt indicators (CashReceived, PsychReceived, CashReceived · PsychReceived) with the treatment assignment indicators (Cash, Psych, Cash · Psych). This analysis does not distinguish between respondents who receive the placebo intervention and receive neither the placebo nor the psychological intervention. The experimental design cannot identify the treatment effect of the placebo intervention relative to no intervention without additional assumptions.

## 5.3 Households with male cash transfer recipients

This study examines the effects of the household receiving the cash transfer, exposing women to a ‘psychological’ intervention, and conducting both interventions simultaneously. GiveDirectly allowed households to choose in whose name they want to receive the cash transfer. In the majority of the cases, it was in the name of the female but 18% of the monogamously married main study households in Siaya decided that it should be in the name of the man. As long as there are no systematic differences in the likelihood of male members being selected to receive the cash transfer in the non-cash (if they were to be offered cash) villages versus in cash villages, our results are unbiased mean estimates of GiveDirectly business as usual operations.

We will check the robustness of our estimates by excluding households with male cash transfer recipients and estimating equation 1. This is straightforward to do in the case of the cash villages. However, for non-cash villages, in order to exclude such households, we will need to

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<sup>15</sup>The main study survey was conducted with a proxy (another household member) in case the primary female respondent was not available.

identify comparable households to male cash transfer recipient households in cash villages. These households will be identified in two steps: One, we will identify a set of baseline variables that predict who in the household was selected to get the cash transfer in the cash villages; two, use these variables to predict households who would have selected the male to receive the cash transfer in non-cash villages.

## 5.4 Attrition

The results will be presented without adjustment for attrition (i.e. households not surveyed in the gender survey). To characterise attrition in our study sample, we will compare the fraction of missing data by assigned treatment status. We do this by estimating model (1) using an indicator for attrition as an outcome and testing if any of the following linear combinations of parameters equal zero:  $(\beta_C, \beta_P, \beta_{CP}, \beta_P + \beta_{CP}, \beta_P + \beta_P + \beta_{CP})$ .

If we find that attrition between any two treatment groups is significantly different to zero, we will construct bounds on parameters using the trimming procedure described in [Lee \(2009\)](#) to assess if our estimates are sensitive to attrition.

## 5.5 Cessation of marriage

Since our sample is composed of married households only, we will also look at likelihood of being married at endline as an outcome to check if the treatment has changed the probability of widowhood or divorce/separation.

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