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EFFECTIVENESS OF LIFE SKILLS TRAINING INTERVENTIONS FOR THE EMPOWERMENT OF WOMEN IN DEVELOPING COUNTRIES

A systematic review

Sabina Singh, Martin Prowse, Howard White, Asha Warsame, Hugh Sharma Waddington, Ratheebhai Vijayamma, Hikari Umezawa, Lovely Tolin, Andreas Reumann, Jyotsna Puri, Vibhuti Mendiratta, Deborah Sun Kim, Naila Kabeer, Mir Shahriar Islam, Neha Gupta, Sabrina Disse, Romina Cavatassi, Ndaya Beltchika, Aslihan Arslan



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The GCF's approach to mainstreaming gender requires a strong understanding of gender issues and gender capacity, and the Fund's gender policy sets out a commitment to measure the outcomes and impacts of its activities on women and men's resilience to climate change. Based on the companion evidence gap map, this systematic review evaluates the ability of life skills interventions to promote the empowerment of women of all ages.

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TABLE OF CONTENTS

Acknowledgements.....	iv
List of authors	v
Abbreviations	x
I. BACKGROUND	1
A. The problem, condition, or issue.....	1
B. Intervention and how the intervention might work.....	1
1. Life skills and self-empowerment.....	1
2. Life skills and social empowerment.....	2
C. Why it is important to do the review.....	3
II. OBJECTIVES	5
III. METHODS	6
A. Criteria for considering studies for this review.....	6
1. Types of studies.....	6
2. Types of participants	6
3. Types of interventions.....	6
4. Types of outcome measures	7
5. Duration of follow-up.....	7
6. Types of settings.....	7
B. Search methods for identification of studies.....	7
1. Electronic searches.....	7
2. Searching other resources.....	8
C. Data collection and analysis.....	9
1. Selection of studies.....	9
2. Data extraction and management	9
3. Assessment of risk of bias in included studies.....	9
4. Measures of treatment effect	9
5. Unit of analysis issues	10
6. Dealing with missing data.....	10
7. Assessment of heterogeneity.....	10
8. Assessment of reporting biases	11
9. Data synthesis.....	11
10. Subgroup analysis and investigation of heterogeneity.....	11
11. Sensitivity analysis.....	11
IV. RESULTS	12
A. Description of studies.....	12
1. Results of the search.....	12
2. Included studies.....	14
3. Characteristics of included studies.....	19

4. Risk of bias in included studies.....	19
B. Synthesis of results.....	20
V. RESULTS OF THE META-ANALYSIS	22
A. Outcome categories.....	22
1. Self-empowerment	22
2. Social empowerment	25
3. Economic empowerment.....	29
4. Political empowerment.....	31
5. Life skills.....	32
B. Moderator analysis	32
C. Publication bias	39
VI. SUMMARY OF MAIN RESULTS	42
A. Overall completeness and applicability of evidence	42
B. Quality of the evidence	42
C. Limitations and potential biases in the review process.....	43
D. Agreements and disagreements with other studies or reviews.....	43
VII. AUTHORS' CONCLUSIONS	44
A. Implications for practice and policy.....	44
B. Implications for research.....	44
REFERENCES	45
APPENDICES.....	55
APPENDIX 1. DESCRIPTION OF INTERVENTION AND OUTCOME CATEGORIES	56
APPENDIX 2. SCREENING TOOL	59
APPENDIX 3. CODING/DATA EXTRACTION FORM	60
APPENDIX 4. CRITICAL APPRAISAL TOOL TO ASSESS CONFIDENCE IN THE FINDINGS OF INCLUDED STUDIES	66
APPENDIX 5. SEARCH TERMS	68
APPENDIX 6. FOREST PLOTS	70
APPENDIX 7. CHARACTERISTICS OF INCLUDED STUDIES	78
APPENDIX 8. CHARACTERISTICS OF INCLUDED STUDIES ACROSS VARIOUS DOMAINS TO ASSESS CONFIDENCE IN FINDINGS.....	87

TABLES

Table 1. SRHR meta-regression results.....	33
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Table 2.	Psycho-social well-being and self-worth meta-regression results.....	34
Table 3.	Income, consumption and assets meta-regression results	34
Table 4.	Employment meta-regression results.....	35
Table 5.	Finance meta-regression results.....	35
Table 6.	Social mobility and network meta-regression results.....	36
Table 7.	Egger’s test of funnel plot asymmetry.....	41

FIGURES

Figure 1.	Life skills theory of change for self-empowerment outcomes	1
Figure 2.	Life skills theory of change for social empowerment outcomes	2
Figure 3.	Preferred reporting items for systematic reviews and meta-analyses flow chart of the studies searched, screened and found eligible for EGM and systematic review at various stages	13
Figure 4.	Distribution of studies by region (geographic).....	14
Figure 5.	Distribution of studies by region (income).....	15
Figure 6.	Country-wise distribution of included studies.....	15
Figure 7.	Distribution of included studies by intervention categories	16
Figure 8.	Number of studies by intervention setting.....	17
Figure 9.	Number of studies by intervention location	17
Figure 10.	Number of studies by scale of intervention.....	18
Figure 11.	Frequency of outcome categories in the included studies	19
Figure 12.	Critical appraisal of included studies.....	20
Figure 13.	Effects on psycho-social well-being and self-worth.....	23
Figure 14.	Attitudes to gender issues.....	24
Figure 15.	Effects on self-leadership	24
Figure 16.	Effects on education and literacy.....	25
Figure 17.	Effects on sexual and reproductive health and rights	26
Figure 18.	Effects on social services.....	27
Figure 19.	Effects on social safety	27
Figure 20.	Effects on social mobility & network.....	28
Figure 21.	Effects on social norms.....	28
Figure 22.	Effects on income, consumption and assets	29
Figure 23.	Effects on finance	30
Figure 24.	Effects on employment.....	31
Figure 25.	Effects on life skills	32
Figure 26.	Drivers of high and low effect sizes for psycho-social well-being and self-worth.....	36
Figure 27.	Drivers of high and low effect sizes for SRHR.....	37
Figure 28.	Drivers of high and low effect sizes for income, consumption and assets.....	37
Figure 29.	Drivers of high and low effect sizes for employment outcomes	38

Figure 30. Drivers of high and low effect sizes for finance outcomes	38
Figure 31. Drivers of high and low effect sizes for social mobility and network.....	38
Figure 32. Funnel plot analysis to check for sound methodological design and publication bias.....	40
Figure A - 1. Effects on psycho-social well-being and self-worth	70
Figure A - 2. Effects on social safety.....	71
Figure A - 3. Effects on psycho-social well-being and self-worth	72
Figure A - 4. Effects on attitudes to gender issues.....	72
Figure A - 5. Effects on self-leadership	73
Figure A - 6. Effect on education and literacy.....	73
Figure A - 7. Effects on sexual and reproductive health and rights.....	74
Figure A - 8. Effects on social services	74
Figure A - 9. Effect on social safety	75
Figure A - 10. Effect on social mobility and network	75
Figure A - 11. Effect on income, consumption, and assets.....	76
Figure A - 12. Effect on finance	76
Figure A - 13. Effect on employment	77
Figure A - 14. Effect on life skills	77

ABBREVIATIONS

AGEP	Adolescent Girls Empowerment Program
CI	Confidence interval
DiD	Difference-in-differences
EGM	Evidence and gap map
N/A	Not applicable
PSM	Propensity score matching
RCT	Randomized controlled trial
RePEc	Research Papers in Economics
SMD	Standardized mean difference
SRHR	Sexual and reproductive health and rights
UNFCCC	United National Framework Convention on Climate Change
WWC	What Works Clearinghouse

EXECUTIVE SUMMARY

Many practitioners within international development consider women's empowerment as a panacea for gender inequality and other development challenges. In addition to the intrinsic moral value of gender equality, empowering girls and women may result in better development and climate outcomes. From the perspective of climate change, a society where men and women are equal can better adapt to climate change's adversities and shocks and better manage natural resources.

Life skills training has emerged as a popular approach to empowerment, often as a part of a multi-component intervention. Life skills are defined as the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life.

Acquiring such skills may enable women to better engage socially, directly increasing self- and social empowerment and possibly contributing to economic and political empowerment.

OBJECTIVES

The review aims to evaluate the effectiveness of life skills training intervention programmes in empowering women in developing countries.

SEARCH METHODS

The authors' search for this systematic review is from the companion evidence gap map on the effectiveness of interventions for women's empowerment in developing countries. The search included academic and other databases and websites alongside hand searches of selected journals and citation tracking.

Academic databases included CAB Abstracts, EconLit with full-text, Political science complete, Soc-Index complete, Social science full text, Education source APA PSYC Articles (EBSCOhost platform), JSTOR, ProQuest, PubMed, Sage journals database, Scopus and Web of Science. The authors also systematically searched other repositories and websites, such as Engender Impact, International Centre for Research on Women, IDEAS/RePEc, UN Women and USAID DCE. Furthermore, they hand searched selected journals for the past five years and conducted citation tracking of included studies.

SELECTION CRITERIA

The eligible interventions for this review include any programmes that provide training to enhance life skills. Studies of programmes or interventions targeted at women and men of any age in developing countries for empowerment outcomes are eligible for inclusion. The review only includes effectiveness studies, namely experimental and non-experimental studies with a comparison group.

DATA COLLECTION AND ANALYSIS

Two reviewers worked independently of each other to produce an independent assessment of studies for inclusion. Using critical appraisal checklists, they extracted data and assessed confidence in the findings of included studies.

MAIN RESULTS

Life skills interventions have a small yet significant and positive effect on most self-empowerment indicators assessed in this review. For instance, excluding outliers, the overall pooled effect size

estimate for studies with psycho-social well-being and self-worth outcomes was significant and positive.¹ Life skills interventions also tend to have a clear positive and somewhat larger significant effect on attitudes towards gender issues (SMD² = 0.26; 95% CI³ = 0.02, 0.5). For self-leadership, the overall pooled effect size estimate is positive and significant (SMD = 0.20; 95% CI = 0.04, 0.37) but insignificant for multi-component interventions. Both the overall (SMD = 0.05; 95% CI = -0.02, 0.13) and multi-component pooled effect sizes (SMD = 0.05; 95% CI = -0.03, 0.14) are insignificant for education and literacy outcomes.

The effect of life skills interventions on various indicators of social empowerment was mixed. The sexual and reproductive health and rights' (SRHR) outcome area showed a significant overall pooled effect size estimate of 0.33 SMD (95% CI = 0.10, 0.57), and a small significant pooled effect size estimate was found for social services (SMD = 0.05; 95% CI = 0.01, 0.08). Insignificant effects were observed for other social empowerment indicators such as social mobility, networks and social norms.

The meta-analysis for economic empowerment outcomes was conducted for income, consumption and assets, finance and employment. For the outcome subcategory of income, consumption and assets, the overall estimated pooled effect size was positive but small and insignificant (SMD = 0.05; 95% CI = -0.01, 0.11). The overall pooled effect size is positive and significant for finance (SMD = 0.22; 95% CI = 0.04, 0.40), with high heterogeneity (I-squared = 96.00%). Pooled overall effect size for employment is also significant (SMD = 0.08; 95% CI = 0.04, 0.12), with a relatively low level of heterogeneity (I-squared = 19.02%).

The meta-analysis of political empowerment outcomes could not be conducted as one of the two studies with political empowerment indicators did not report sufficient information for us to compute effect sizes.

For many outcomes, multi-component interventions with a life skills component have a larger effect than life skills training alone, but this difference is never statistically significant.

AUTHORS' CONCLUSIONS

Overall, life skills positively affect a range of self, social and economic empowerment outcomes. Small but significant positive changes were detected for a range of outcome areas including leadership, attitudes to gender issues, sexual and reproductive health and rights, employment and life skills themselves. There is some indication that multi-component approaches may be more effective. Life skills training can be called a mildly promising approach with potential for supporting women's empowerment in climate and agricultural projects.

Including life skills interventions within components of Green Climate Fund and International Fund for Agricultural Development project interventions can contribute to transforming women's lives, livelihoods and societal roles.

¹ For psycho-social well-being and self-worth, the overall pooled effect size estimate for all the studies (SMD = 0.08; 95% CI = 0.03, 0.12), multi-component interventions (SMD = 0.10; 95% CI = 0.03, 0.18) and single component interventions (SMD = 0.05; 95% CI = 0.01, 0.09) reflect this finding.

² SMD stands for standardized mean difference.

³ CI stands for confidence interval.

SUMMARY OF FINDINGS TABLE

OUTCOME DOMAIN	OUTCOME INDICATORS	OVERALL POOLED EFFECT SIZE ESTIMATE	CRITICAL APPRAISAL, HETEROGENEITY AND PUBLICATION BIAS	SUMMARY
Self-empowerment	Psycho-social well-being and self-worth	<i>Overall</i> (SMD = 0.08; 95% CI = 0.03, 0.12) <i>Multi-component interventions</i> (SMD = 0.10; 95% CI = 0.03, 0.18) <i>Single component interventions</i> (SMD = 0.05; 95% CI = 0.01, 0.09)	n=8; 7 low, 1 high $I^2 = 51\%$ Egger's test: $p = 0.07$	A small positive effect based on a small number of studies, with mostly low confidence in study findings, with moderate heterogeneity and possible publication bias.
	Leadership	<i>Overall</i> (SMD = 0.20; 95% CI = 0.04, 0.37) <i>Multi-component interventions</i> (SMD = 0.21; 95% CI = 0.02, 0.44) <i>Single component interventions</i> (SMD=0.16; 95% CI = 0.02, 0.30)	n= 3; 2 low, 1 High $I^2 = 81\%$ Egger's test: N/A.	A moderate positive effect based on a very small number of studies, with low confidence in study findings and high heterogeneity.
	Education and literacy	<i>Overall</i> (SMD = 0.05; 95% CI = -0.02, 0.13) <i>Multi-component interventions</i> (SMD = 0.05; 95% CI = -0.03, 0.14) <i>Single component interventions</i> (SMD=0.06; 95% CI = -0.09, 0.20)	n=3; 1 low, 2 high $I^2 = 0\%$ Egger's test: N/A.	A small positive but insignificant effect based on a very small number of studies, with mostly high confidence in study findings, with no heterogeneity.
	Attitudes to gender issues	<i>Overall</i> (SMD = 0.26; 95% CI = 0.02, 0.5) <i>Multi-component interventions</i> (SMD=0.41; 95% CI=0.01, 0.81) <i>Single component interventions</i> (SMD=0.10; 95% CI = -0.00, 0.21)	n=3; 2 low, 1 high $I^2 = 93\%$ Egger's test: N/A.	A moderate positive effect based on a very small number of studies, with mostly low confidence in study findings, with high heterogeneity. There is a larger effect for multi-component interventions than single component interventions, though the difference is not significant.
Social empowerment	Social mobility & network	<i>Overall</i> (SMD=0.12; 95% CI = -0.09, 0.33) <i>Multi-component interventions</i> (SMD=0.08; 95% CI = -0.25, 0.40)	n=2; 1 low, 1 high $I^2 = 95\%$ Egger's test: $p = 0.08$	A small positive but insignificant effect based on only two studies: one with low confidence in study findings and one with high confidence, and

OUTCOME DOMAIN	OUTCOME INDICATORS	OVERALL POOLED EFFECT SIZE ESTIMATE	CRITICAL APPRAISAL, HETEROGENEITY AND PUBLICATION BIAS	SUMMARY
		<i>Single component interventions</i> (SMD=0.21; 95% CI = 0.13, 0.29)		both with high heterogeneity. There is a larger effect for multi-component interventions than single component interventions, though the difference is not significant.
	Social norms	<i>Overall</i> (SMD=0.16; 95% CI = -0.13, 0.44) <i>Multi-component interventions</i> (SMD=0.16; 95% CI = -0.13, 0.44)	n=2; Both low I ² = 93% Egger's test: N/A.	A small positive but insignificant effect based on just two studies, both with low confidence in study findings and high heterogeneity.
	Social services	<i>Overall</i> (SMD=0.05; 95% CI = 0.01, 0.08) <i>Multi-component interventions</i> (SMD=0.04; 95% CI = -0.03, 0.11) <i>Single component interventions</i> (SMD=0.05; 95% CI = 0.01, 0.09)	n=2; Both low I ² = 0% Egger's test: N/A.	A small positive effect based on just two studies, both with low confidence and low heterogeneity. There is no difference in effect for multi-component interventions than single component interventions.
	SRHR	<i>Overall</i> (SMD=0.33; 95% CI = 0.10, 0.57) <i>Multi-component interventions</i> (SMD=0.40; 95% CI = 0.05, 0.75) <i>Single component interventions</i> (SMD=0.21; 95% CI = 0.16, 0.26)	n=5; 4 low, 1 high I ² = 96% Egger's test: p = 0.41	A moderate positive effect based on a small number of studies, with mostly low confidence in study findings and high heterogeneity. There is a larger effect for multi-component interventions than single component, though the difference is not significant.
Economic empowerment	Income, consumption and assets	<i>Overall</i> (SMD=0.05; 95% CI = -0.01, 0.11) <i>Multi-component interventions</i> (SMD=0.05; 95% CI = -0.09, 0.18) <i>Single component interventions</i> (SMD=0.06; 95% CI = 0.02, 0.10)	n=8; All low I ² = 77% Egger's test: p = 0.27	A small positive but insignificant effect based on a small number of studies, all with low confidence in study findings and moderate heterogeneity. There is no difference in effect size for multi-component interventions than single component interventions.
	Finance	<i>Overall</i> (SMD=0.22; 95% CI = 0.04, 0.40) <i>Multi-component interventions</i>	n=5; All low I ² = 96% Egger's test: p = 0.08	A moderate positive effect based on a small number of studies, all with low confidence in study findings and high

OUTCOME DOMAIN	OUTCOME INDICATORS	OVERALL POOLED EFFECT SIZE ESTIMATE	CRITICAL APPRAISAL, HETEROGENEITY AND PUBLICATION BIAS	SUMMARY
		(SMD=0.32; 95% CI = -0.06, 0.69) <i>Single component interventions</i> (SMD=0.13; 95% CI = 0.08, 0.18)		heterogeneity. There is a larger effect for multi-component interventions than single component interventions, though the difference is not significant.
	Employment	<i>Overall</i> (SMD=0.08; 95% CI = 0.04, 0.12) <i>Multi-component interventions</i> (SMD=0.08; 95% CI = 0.03, 0.14) <i>Single component interventions</i> (SMD=0.06; 95% CI = -0.03, 0.14)	n= 4; All low I ² = 19% Egger's test: p = 0.61	A small positive effect based on a small number of studies, all with low confidence in study findings and low heterogeneity. There is no difference in effect for multi-component interventions than single component.
Life skills		<i>Overall</i> (SMD=0.11; 95% CI = 0.03, 0.19) <i>Multi-component interventions</i> (SMD=0.15 95% CI = 0.00, 0.29) <i>Single component interventions</i> (SMD=0.09; 95% CI = -0.01, 0.19)	n=3; low 2, high 1 I ² = 48% Egger's test: N/A.	A small positive effect based on a very small number of studies, mostly with low confidence in study findings and moderate heterogeneity. There is a larger effect for multi-component interventions than single component interventions, though the difference is not significant.

Notes: Cohen's thresholds adopted for effect sizes, i.e. $d < 0.2$ is a small effect and less than 0.6 is moderate. If there are fewer than 10 studies, this is considered a small amount. Fewer than five is considered very small. $I^2 < 40\%$ is mild or no heterogeneity; I^2 between 40-80% is moderate heterogeneity and above 80% is high heterogeneity. Publication bias flagged if $p < 0.10$. Note that many outcomes have too few studies to assess publication bias.

I. BACKGROUND

A. THE PROBLEM, CONDITION, OR ISSUE

Many practitioners within international development consider women's empowerment as a panacea for gender inequality and other development challenges. In addition to the intrinsic moral value of gender equality, empowering girls and women may result in better development and climate outcomes. From the perspective of climate change, a society where men and women are equal can better adapt to climate change's adversities and shocks and better manage natural resources.

Life skills training has emerged as a popular approach to empowerment, often as part of a multi-component intervention. Life skills are defined as the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life.

Acquiring such skills may enable women to better engage socially, directly increasing self- and social empowerment and possibly contributing to economic and political empowerment.

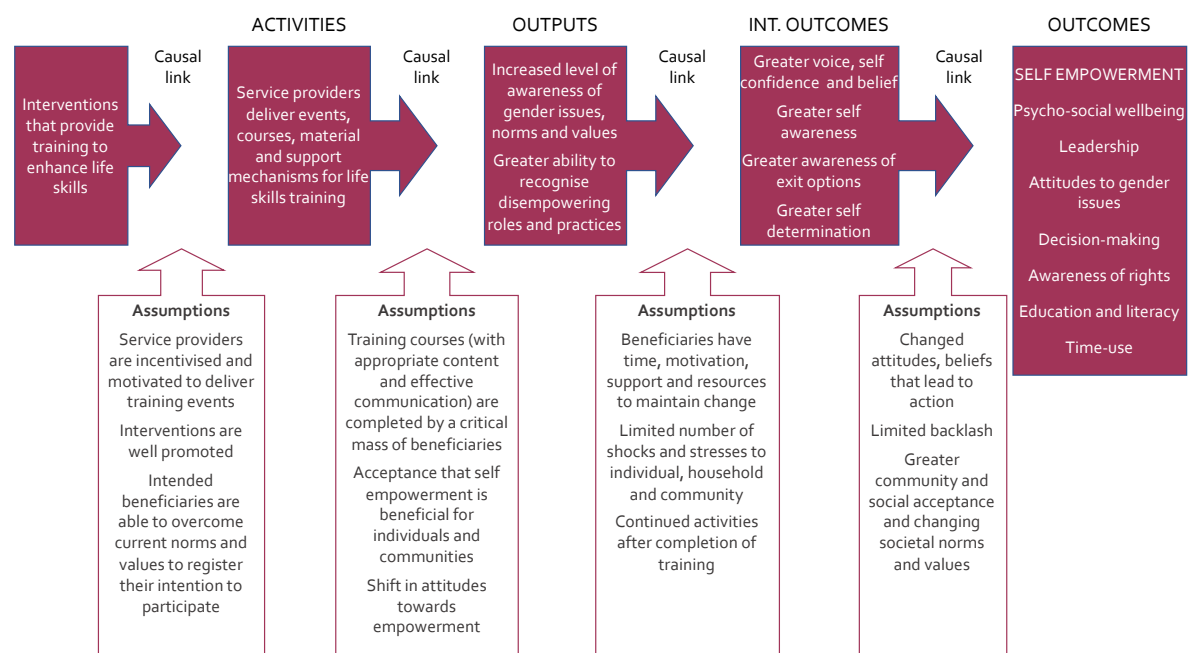
B. INTERVENTION AND HOW THE INTERVENTION MIGHT WORK

In this section, we present one theory of change for how life skills interventions can enhance self-empowerment and one theory of change for social empowerment. Figure 1 and Figure 2 summarize the life skills theory of change for self-empowerment and social empowerment outcomes.

1. LIFE SKILLS AND SELF-EMPOWERMENT

Life skills interventions affecting self-empowerment include activities such as service providers delivering events, courses, materials and support mechanisms for life skills training. Successfully implementing the activities is based on certain assumptions: (i) service providers are incentivized and motivated to deliver training events, (ii) interventions are well promoted and (iii) intended beneficiaries can overcome current norms and values/culture to register their intention to participate.

Figure 1. Life skills theory of change for self-empowerment outcomes



Source: Authors

Note: intl. outcomes stands for intermediate outcomes.

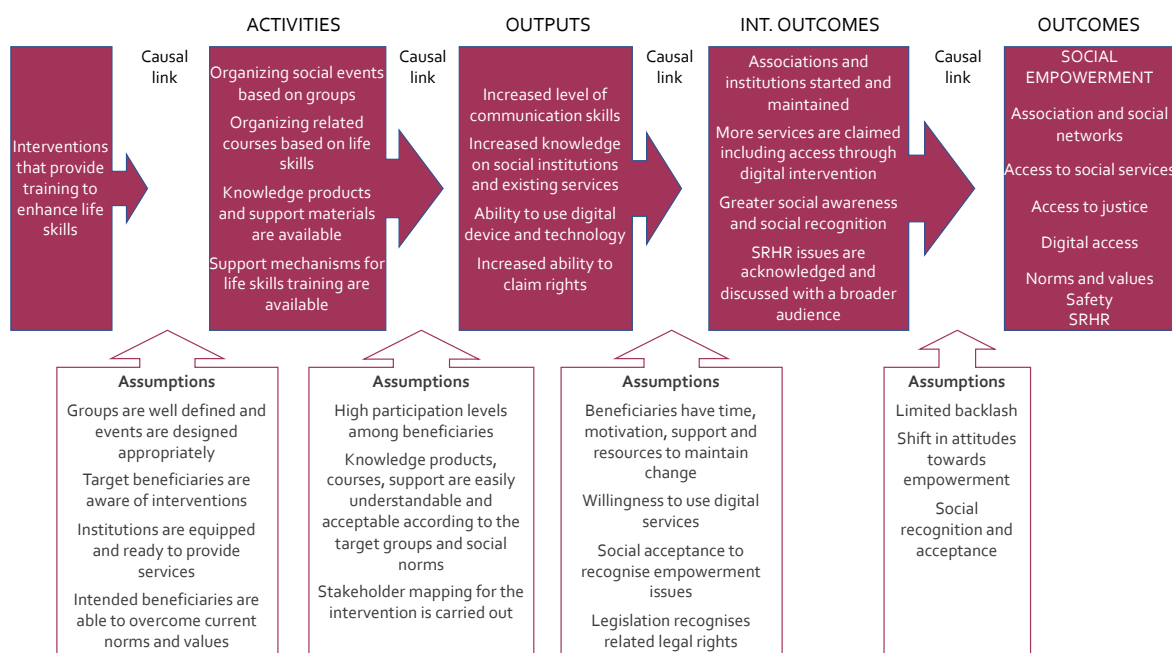
These self-empowering interventions are expected to increase a person’s ability to deal with everyday life, and thus their ability to learn, communicate and engage with others, and do the day-to-day tasks expected of young people and adults. The intervention may also raise awareness of gender issues, norms and values and increase the ability to recognize disempowering roles and practices. For these activities to lead to their expected outputs, certain key assumptions need to hold true: (i) the training courses (with appropriate content and effective communication) are completed by a critical mass of beneficiaries (ii) there is an acceptance that self-empowerment is beneficial for individuals and communities and (iii) there is a shift in attitudes towards empowerment.

The outputs highlighted above are expected to lead to intermediate outcomes. These outcomes include greater voice, self-confidence, self-worth, self-awareness, knowledge of the options to exit from an abusive situation and self-determination. All of these qualities are self-empowering. Achieving these intermediate outcomes depends on several assumptions: (i) beneficiaries have the time, motivation, support and resources to maintain change, (ii) there are a limited number of shocks and stresses to the individual, household and community and (iii) activities continue after completing the training.

The life skills interventions are expected to affect outcomes related to psycho-social well-being, leadership, attitudes to gender issues, decision-making, awareness of rights, education and literacy and time-use. Again, certain assumptions need to hold true: (i) changed attitudes and beliefs can lead to action, (ii) there is limited backlash and greater community and social acceptance and (iii) changing societal norms and values.

2. LIFE SKILLS AND SOCIAL EMPOWERMENT

Figure 2. *Life skills theory of change for social empowerment outcomes*



Source: Authors

Life skills interventions affecting social empowerment may entail organizing social activities for participating groups, organizing courses, preparing knowledge products and support materials and ensuring the availability of support mechanisms for life skills training. But, as with self-empowering interventions, effective implementation of the activities relies on certain assumptions holding true: (i) groups should be well defined and events designed accordingly, (ii) target beneficiaries have to

be aware of the intervention, (iii) institutions need to be equipped and ready to extend the services and (iv) intended beneficiaries must be able to overcome current norms and values.

These interventions are expected to improve communication skills, increase awareness of social institutions and existing services, enhance the use of digital technologies devices, upgrade technology and increase beneficiaries' ability to assert rights. Achieving these outcomes is based on several key assumptions: (i) groups are well defined and events are designed accordingly (ii) target beneficiaries are aware of the intervention (iii) institutions are equipped and ready to extend the services and (iv) intended beneficiaries can overcome current norms and values.

The outputs highlighted above are expected to lead to a number of intermediate outcomes. These include greater interaction and association with the social institution providing the training, a greater number of services being claimed and improved access to digital technologies. Intermediate outcomes will also include greater social awareness and recognition, while SRHR issues will be acknowledged and discussed with broader audiences and across wider platforms.

Achieving these intermediate outcomes is based on several assumptions: (i) beneficiaries have the time, motivation, support and resources to maintain change, (ii) there is a willingness to use digital services, (iii) there is social acceptance of empowerment issues and (iv) legislation recognizes the related legal rights.

The life skills interventions are expected to affect outcomes related to association and social networks, access to social services, access to justice, digital access, norms and values, safety and SRHR. Once again, certain assumptions apply, such as (i) limited backlash, (ii) a shift in attitudes towards empowerment occurs and (iii) social recognition and acceptance are important for realizing these outcomes.

C. WHY IT IS IMPORTANT TO DO THE REVIEW

There are currently no existing systematic reviews on life skills education interventions to empower women in developing countries. Existing reviews are different in scope or geographical coverage. The studies in our review will be impact evaluations of life skills interventions aimed at empowering women of all ages. The target population may also include men of any age in developing countries. For this systematic review, developing countries are defined as non-Annex I countries under the Kyoto Protocol of the United National Framework Convention on Climate Change (UNFCCC).

Existing systematic reviews on life skills programmes mostly focus on young and adolescent populations. These programmes often emphasize tackling mental health outcomes and risk factors in the immediate environment, such as in schools and the community. These programmes may also include an element of preparing young people for adulthood.

A systematic review by Kingsnorth, Healy and Macarthur (2007) focuses on life skill programmes, emphasizing independent functioning in preparation for adulthood for youth with physical disabilities. Another existing review on life skills programmes in low- and middle-income countries is again confined to adolescents (age 10-19 years) and focuses on mental health outcomes (Singla and others, 2020). A review by Sancassiani and others (2015) focuses on school-based programmes that enhance the youth's emotional and social skills to promote psychological well-being and academic performance.

The proposed review's study population will include women and men of all ages, people with disabilities and other vulnerable groups. The empowerment outcomes for this review will be measured as indicators of self-empowerment and social empowerment as primary outcome areas. Economic and political empowerment will be considered secondary outcome areas (as discussed in detail below). As we were unable to find any evidence to suggest a systematic review exists on this

topic, our systematic review is arguably an important contribution to the literature on life skills interventions and empowerment.

II. OBJECTIVES

This review will address the following primary research questions:

- 1) What is the effect of the life skills interventions on the self-empowerment and social empowerment of women of any age in developing countries?
- 2) What is the effect of life skills training programmes on economic or political empowerment and intermediate outcomes (such as skills measures) on women of any age in developing countries?
- 3) How much confidence can be placed in the findings of included studies?
- 4) Which factors, such as intervention setting, location and level of intervention, explain the variation of effects in improving the empowerment outcomes of recipients?

III. METHODS

A. CRITERIA FOR CONSIDERING STUDIES FOR THIS REVIEW

1. TYPES OF STUDIES

This systematic review includes studies with experimental or quasi-experimental designs. Eligible designs include those where a control or comparison group is present and one of the following is true:

- Participants are randomly assigned (using a process of random allocation, such as a random number generation).
- A quasi-random method of assignment has been used and pre-treatment equivalence information is available regarding the nature of the group differences (and groups generated are essentially equivalent).
- Participants are non-randomly assigned but confounding factors are controlled through relevant demographic and socio-economic characteristics (using observables or propensity scores) and/or according to a cut-off on an ordinal or continuous variable (regression discontinuity design).
- Participants are non-randomly assigned, but statistical methods have been used to control for differences between groups (e.g. using multiple regression analysis, including difference-in-difference, cross-sectional using single differences or instrumental variable regression).

Mixed method studies with any of the above methods of allocating participants to the intervention are also eligible. Studies with any follow-up duration will be included. Qualitative studies or process evaluations will not be included.

2. TYPES OF PARTICIPANTS

The target populations may include women and men of any age from developing countries as defined as non-Annex I countries of the UNFCCC's Kyoto Protocol. The population could include poor, disadvantaged people and people with disabilities.

3. TYPES OF INTERVENTIONS

The eligible interventions may include any programmes that provide training to enhance life skills, which are defined as the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life. This definition of life skills comes from the World Health Organization. We are aware that for empowerment purposes, a life skills training programme can be one component in a multi-component intervention. Any study that includes a life skills component with other intervention components (such as technical and vocational training or business training and mentoring) will be included in this review. We know from our existing evidence gap map (EGM) that some interventions to improve sexual and reproductive health or prevent interpersonal violence involve a life skills component. We will not include these specific interventions, just the life skills element.

4. TYPES OF OUTCOME MEASURES

The eligible outcome categories have been classified as primary and secondary as follows:

- Primary outcomes:
 - Self-empowerment outcomes such as psycho-social well-being, self-confidence, self-esteem, leadership, self-efficacy, ability to make decisions, awareness about rights, attitudes to gender issues, time-use, education and literacy
 - Social empowerment outcomes such as norms and values, access to justice and social services, association, and social networks
 - See Appendix 1 for the definitions of outcome areas under these two primary areas.
- Secondary outcomes:
 - Economic empowerment outcomes such as employment status, income and expenditure, assets including land, finance and business)
 - Political empowerment outcomes such as participation, including voting, political representation and legal and institutional frameworks and rights)
 - Intermediate outcomes such as skill measures

5. DURATION OF FOLLOW-UP

There is no restriction on the duration of the follow-up.

6. TYPES OF SETTINGS

All settings will be eligible, with studies conducted in developing countries as defined by the UNFCCC's Kyoto Protocol. The target group of the eligible interventions will be women and girls of any age and may also include men and boys of any age.

B. SEARCH METHODS FOR IDENTIFICATION OF STUDIES

1. ELECTRONIC SEARCHES

The authors' search for this systematic review is from the companion evidence gap map on the effectiveness of interventions for women's empowerment in developing countries. The search included academic and other databases and websites alongside hand searches of selected journals and citation tracking. Specifically, the systematic search of the following electronic databases was conducted:

- CAB abstracts
- EconLit with full text, Political science complete, Soc-Index complete, Social science full text, Education source APA PSYC Articles (EBSCOhost platform)
- JSTOR
- ProQuest
- PubMed
- Sage journals database
- Scopus
- Web of Science

Search strategies were customized as per each of the databases mentioned above. Search terms are listed in Appendix 5.

2. SEARCHING OTHER RESOURCES

Systematic searches of the following databases and websites were also conducted:

- Engender Impact
- EPPI systematic reviews, EPPI knowledge library
- International Centre for Research on Women
- IDEAS/RePEc
- National Bureau of Economic Research
- Social Science Research Network
- UN Women
- United States Agency for International Development
- 3ie (International Initiative for Impact Evaluation)
- Campbell Systematic Reviews Library

The search terms included Boolean operator AND with women's empowerment and various study designs eligible for the EGM. Country filters were used where available. Boolean operator AND was also used for women's empowerment with countries. Manual searches of the following academic journals were also completed:

- Asian Journal of Women's Studies
- Development and Change
- Development in Practice
- Economic Development and Cultural Change
- European Journal of Development Research
- Feminist Economics
- Gender and Development
- Gender, Place and Culture
- Gender, Technology and Development
- International Journal of Educational Development
- Journal of International Development
- Journal of Development Economics
- Journal of Development Effectiveness
- Journal of Development Studies
- Journal of Human Development and Capabilities
- Oxford Development Studies
- Social Indicators Research
- World Bank Economic Review
- World Development
- Women's Studies International Forum

C. DATA COLLECTION AND ANALYSIS

1. SELECTION OF STUDIES

Systematic screening and data extraction were carried out for included studies per the screening and data extraction tools described in Appendix 2. The details of the procedure were as follows.

EPPI Reviewer 4 and EPPI Reviewer Web were used for data management and analysis. All the identified studies were imported to EPPI Reviewer and were screened by two researchers. The identified records were first screened at the title and abstract level. Full text screening of the studies included at the title and abstract stage was independently completed by two researchers.

Disagreements at both stages of screening were resolved by discussion. If disagreements persist, an arbiter was approached and the arbiter's decision regarding the inclusion/exclusion of studies was final.

2. DATA EXTRACTION AND MANAGEMENT

The data extraction form has regional and geographical codes, population, setting, study design, codes for interventions/outcomes and their subcategories. Additional codes related to the characteristics of interventions were also coded.

Quantitative data for outcome measures will be extracted for all the eligible studies included in the systematic review. This data will include descriptive information, outcome means and standard deviations, test statistics (e.g. t-test, F-test, p-values, 95% confidence intervals), and each intervention group's sample size.

Two researchers independently extracted data and the data extraction reports were matched for agreements. Disagreements encountered at the screening stage were resolved by discussion and comparison of notes. An arbiter resolved any disagreements and the arbiter's decision was final.

3. ASSESSMENT OF RISK OF BIAS IN INCLUDED STUDIES

Two researchers independently assessed the confidence in the findings of the included studies and compared the assessment with inputs from the arbiter, if needed, as at the screening and data extraction stages.

The confidence in the findings of all studies included in the review was assessed using a critical appraisal tool for primary studies developed by Saran, White and Kuper (2020).⁴

4. MEASURES OF TREATMENT EFFECT

Empowerment outcomes were reported as either dichotomous variables or on an ordinal scale. Ordinal outcomes were treated as continuous variables per the Cochrane Handbook for Systematic Reviews of Interventions (Deeks, Higgins and Altman, 2022), ordinal outcomes were treated as dichotomous if the scale was short and could be rendered dichotomous in a transparent manner (based on the categories' distribution or names) or as a continuous variable for a longer scale.

Outcomes reported as dichotomous variables were converted to odds ratios via derivation of a 2x2 table from the reported results (e.g. percentages were converted to absolute numbers by multiplying by the sample size).

For continuous outcome variables, we calculated Hedge's *g* (as Hedge's *g* is preferred over Cohen's *d* for small samples, which is expected to be the case for this many studies included in this review).

⁴ This critical appraisal tool is used for assessing the confidence in findings of impact evaluations in many maps and reviews.

Each study was checked to ensure outcomes were coded in a consistent direction so that higher values correspond to greater levels of empowerment. For meta-analysis, the g-statistics for continuous outcomes were converted to an odds ratio using $OR = e(g/\sqrt{3\pi})$. A random effects model was used given the variations in intervention and population, which were to be expected.

5. UNIT OF ANALYSIS ISSUES

The unit of analysis for this review, and most of the included studies, is the individual woman or man participating in the programme. Studies usually report data as averages at the programme level, for all people in the programme and, possibly, for subgroups by age, sex, location or other characteristics.

Studies of the same study population were treated as findings from the same study. However, if the same programme was studied at different points in time (more than two years between data collection), it was treated as two separate studies unless the more recent study focused on the long-run effects of participants treated at an earlier point in time. If there are multiple versions of the same paper, the most recent version was used unless an older version provided estimates not available in the more recent version.

All relevant effect sizes were coded, so there are multiple effect sizes for an outcome from a single study (or studies from the same study population). Multiple reports of the same outcome may occur for several reasons, each requiring a different treatment. The following four cases were found:

- Multiple measures of the same empowerment outcome or sub-outcome level. In such cases, we used a three-level meta-analytical model to estimate weighted mean effect sizes for all outcomes to account for the dependency between effect sizes (Viechtbauer, 2010). This approach can include multiple effect sizes from the same evaluations for different outcomes (Hedges, Tipton and Johnson, 2010).
- Sub-group analysis: We coded each sub-group effect size as a unique effect along with details of the sub-group for moderator analysis. A code (full sample or sub-sample) captured these details so that only the full sample estimate was used in the overall meta-analysis, but the appropriate sub-sample estimates were used for the sub-group analysis.
- Follow-up analysis: Where a study has outcome data on follow-up, we have coded all effects along with the time of the measure. These effect sizes are useful for an analysis of the durability of effects.
- Model specification: Non-experimental studies may report effect sizes with and without confounders. We have picked the effect size from the preferred model of the study (ideally the most parsimonious mode that allows for confounders). If no preferred model was stated, we used the effect size from the most comprehensive model specification.

6. DEALING WITH MISSING DATA

When the study does not have enough data to calculate the effect sizes, imputation methods were carried out, when possible, to compute for it. Meanwhile, for the moderator analysis, the average value of the moderators with missing data was applied when substantial information was available. When data is scarce, as with the cost per beneficiary, the indicator is excluded from the moderator analysis.

7. ASSESSMENT OF HETEROGENEITY

Heterogeneity between effect sizes reported in the studies was assessed by reporting the Q-value, degrees of freedom and the value of I^2 . Forest plots were generated to visually represent the pooled

effect size on all key outcome indicators falling under the self and social empowerment areas. The causes of heterogeneity, if any, were identified by visual inspection and moderator analysis.

8. ASSESSMENT OF REPORTING BIASES

Publication bias was examined using funnel plots and Egger's test (Egger and others, 1997). The funnel is a scatter plot where the x-axis represents the effect estimates and the y-axis represents study precision through standard errors. An uneven scattering of studies (asymmetric) would indicate publication bias. We further compared the results from the visual assessment from the funnel plots with a formal test (the Egger's test of asymmetry). This is a regression-based test of the effect sizes on their standard errors weighted by their inverse variance. When the regression intercept derived from the test is statistically significant from zero, we diagnose funnel plot asymmetry.

9. DATA SYNTHESIS

The meta-analysis was conducted for each outcome category identified where at least two effect sizes are available. The statistical package used for the analysis is Stata 17. A random effects model was applied in all cases.

10. SUBGROUP ANALYSIS AND INVESTIGATION OF HETEROGENEITY

Where there was significant statistical heterogeneity, we conducted subgroup analysis to consider the effects of variables, such as participant's age, duration of the intervention and type of study design.

11. SENSITIVITY ANALYSIS

We checked the distribution of effect sizes across the outcome categories to identify the outliers. When we found outliers, we checked if the analysis's overall result was sensitive to removing these outliers. Where this was the case, we reported the main result excluding the outlier.

IV. RESULTS

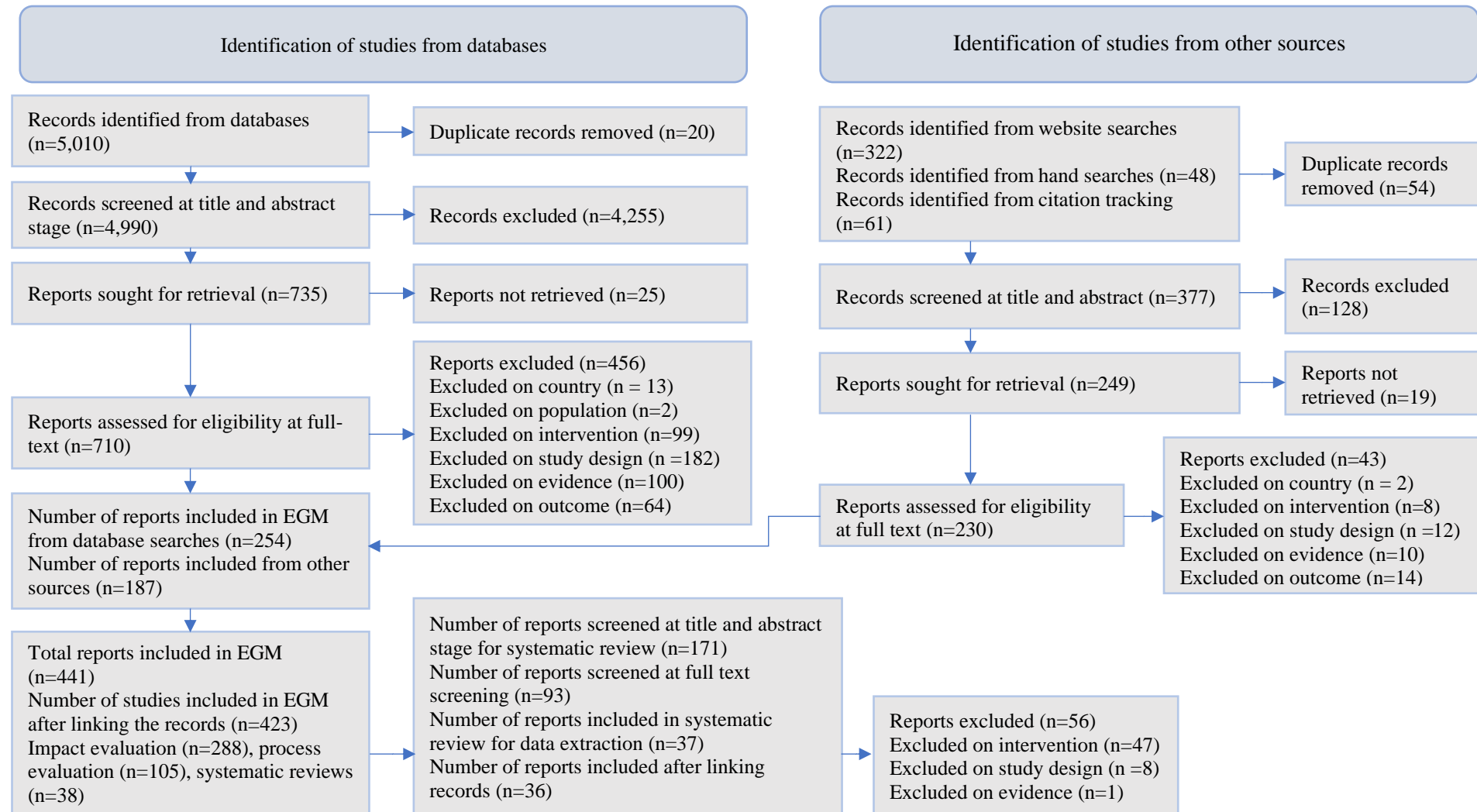
A. DESCRIPTION OF STUDIES

1. RESULTS OF THE SEARCH

As mentioned earlier, this systematic review is based on a companion EGM with 423 included studies on women empowerment in developing countries. Two researchers screened the included studies from life skills, technical and vocational training, and business training and mentoring interventions (n=171) at the title and abstract stage to determine their eligibility for this systematic review. As many as 78 reports were excluded at this stage.

Two researchers carried out full text screening of the remaining 93 reports. A total of 56 reports were excluded at this point. Most of the reports were excluded on intervention (n=47). One of the reports was a study protocol, while eight reports were excluded on design. The number of included reports for data extraction was 37. Two reports were linked, leaving 36 studies for data extraction (Figure 3).

Figure 3. Preferred reporting items for systematic reviews and meta-analyses flow chart of the studies searched, screened and found eligible for EGM and systematic review at various stages



This systematic review is based on 36 studies with life skills interventions as at least one of the components of the intervention.

2. INCLUDED STUDIES

This section discusses the characteristics of included studies.

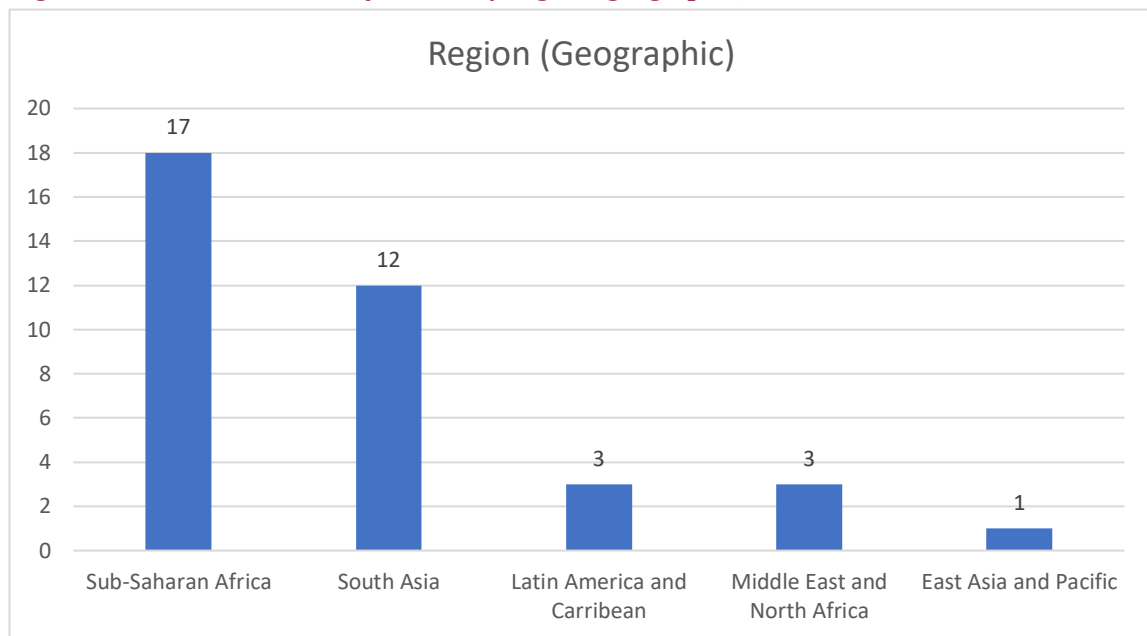
Study design

More than two-thirds of the included studies (approx. 70%) are randomized controlled trials (RCTs), while the remaining are non-experimental designs with comparison groups (30%).

Geographic distribution

Of all the included studies, about 50% are from Sub-Saharan Africa. About one-third of the studies are from South Asia. There are three studies, each from Latin America, the Caribbean, the Middle East and North Africa, while only one study is from East Asia and the Pacific region (Figure 4).

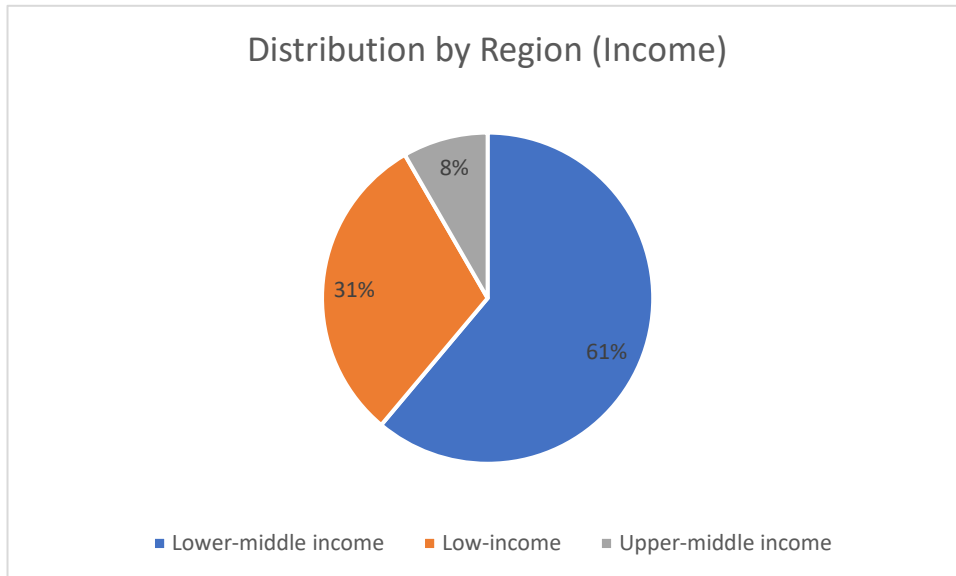
Figure 4. *Distribution of studies by region (geographic)*



Source: Authors

Most studies are from lower-middle income countries (61%), followed by about 30% from low-income countries. Only 8% of studies are from high-income countries (Figure 5).

Figure 5. *Distribution of studies by region (income)*

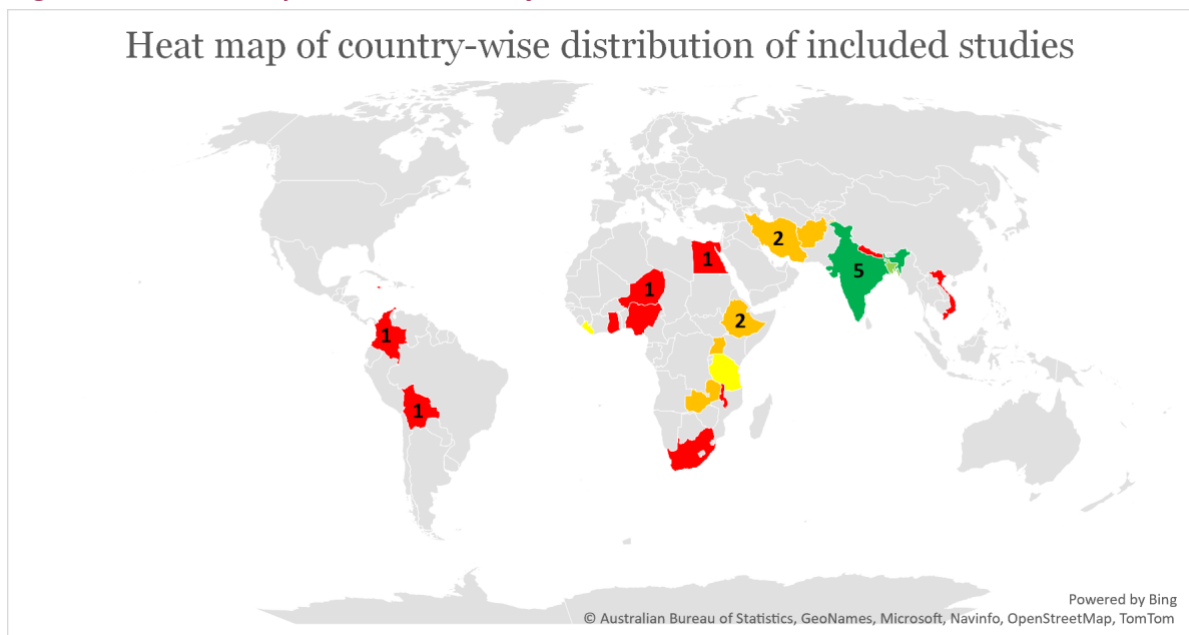


Source: Authors

Countries

India and Bangladesh have the highest number of studies in this review, with five and four studies respectively (shown in green in Figure 6). There are three studies from Liberia and three studies from the United Republic of Tanzania. There are five countries with two studies each in this systematic review (Afghanistan, Ethiopia, Iran, Uganda and Zambia). The systematic review also includes one study from each of Bolivia, Colombia, Egypt, Ghana, Jamaica, Malawi, Nepal, Niger, Nigeria, South Africa and Vietnam (Figure 6).

Figure 6. *Country-wise distribution of included studies*



Source: Authors

Study population

Gender

The intervention target group in 27 studies (75%) consisted of women and girls. For example, one intervention targeted at girls in the age group 12-18 years aimed to raise awareness about SRHR and gender norms, increase their self-confidence and skills and provide them with approaches to delay marriage (Amin and others, 2016). Another intervention aimed to enhance self-efficacy of menopausal women aged 45-60 (Kafaei-Atrian and others, 2022). Only nine studies targeted both men and women. One such study that targeted both men and women involved soft skills training for entrepreneurs (Ubfal and others, 2022).

Age

There were no restrictions on the age range. The eligible age for participants in the included studies varied from seven to 60 years old. However, about 50% of studies targeted adolescents. There was quite a variation in the age ranges that targeted adolescents. For instance, the Adolescent Girls Empowerment Program (AGEP) targeted 10-19 years old girls (Austrian, 2020). In another intervention, 14-18 years old boys and girls from disadvantaged backgrounds were eligible for soft skills and on-the-job training. In the same study, the eligible age range for women with disabilities was 15-21 years (Das, 2021).

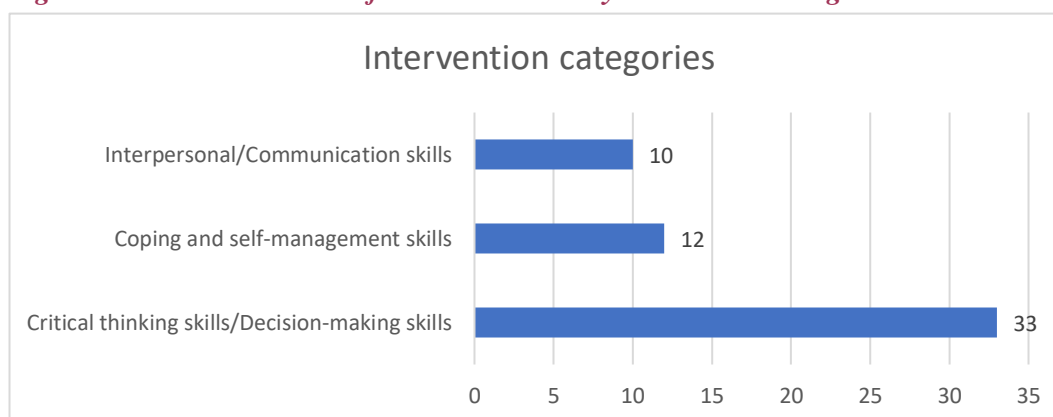
Intervention characteristics

Drawing from the World Health Organization (1997) classification of life skills, the interventions with life skills training were broadly classified into three categories:

- Critical thinking skills/decision-making skills
- Interpersonal/communication skills
- Coping and self-management skills

Training on critical thinking/decision-making skills was delivered most frequently - this category of life skills appeared in 33 (92%) studies. Training in coping and self-management skills was observed in 12 studies. Ten studies reported delivering training on interpersonal/communication skills (Figure 7).

Figure 7. *Distribution of included studies by intervention categories*



Source: Authors

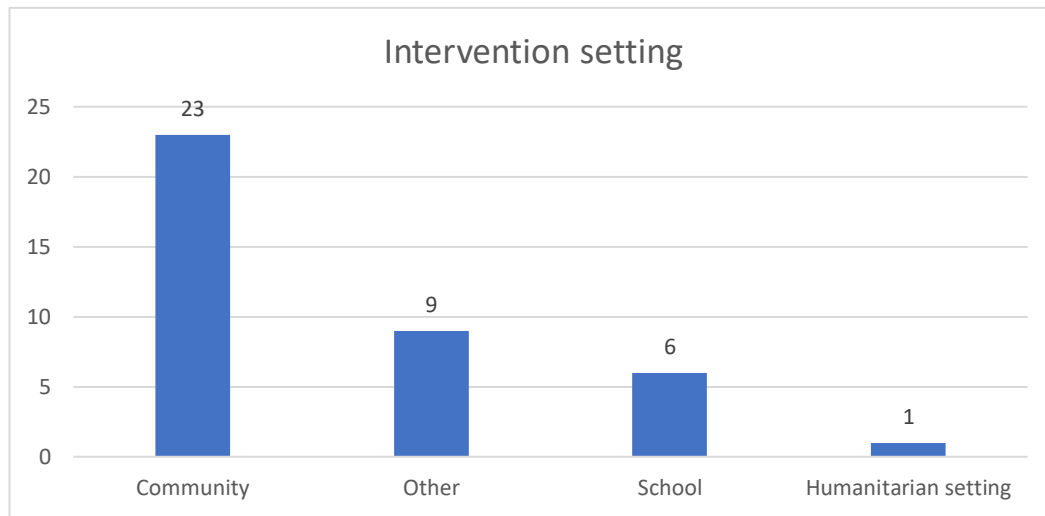
Life skills training was conducted in conjunction with other interventions in 22 (about 61%) studies. Some of the other interventions that accompanied life skills were microfinance (Alhassan and Goedegebuure, 2015; Buehren and others, 2017; Kim and others, 2007), cash transfers (e.g. Attanasio and others, 2019; Bossuroy and others, 2012; Karasz and others, 2021; Özler and others,

2020), and business and vocational training (e.g. Alibhai and others, 2019; Bulte and Lensink, 2019; Dunkle and others, 2020; Ubfal and others, 2022).

Intervention setting

Figure 8 shows that twenty-three studies (about 64%) included in this systematic review were conducted in community settings. Only one study had a humanitarian setting (Gibbs and others, 2020). Some studies were conducted in educational institutions like schools and colleges (17%). It may be worth noting that some of the interventions were delivered in more than one setting. About 25% of studies were conducted in other settings such as health centres, clinics, bank customer service points and virtually.

Figure 8. *Number of studies by intervention setting*

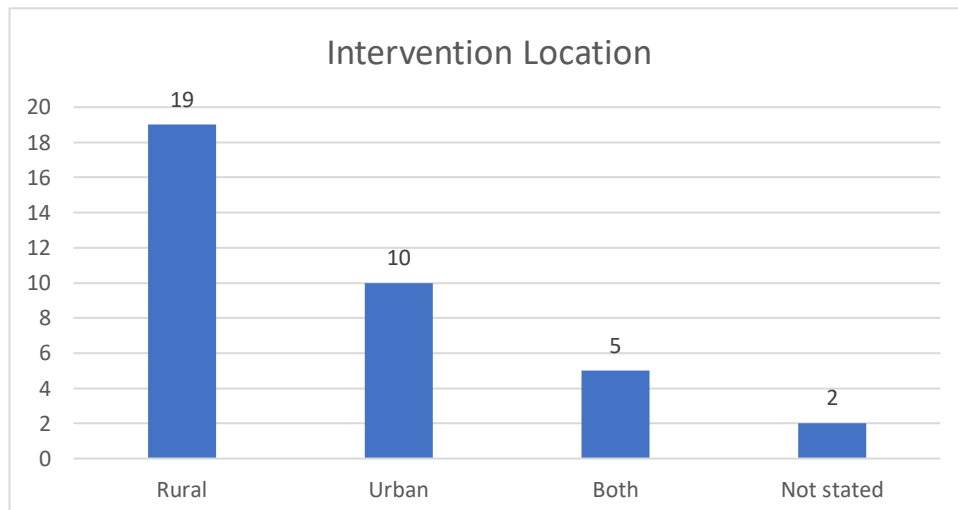


Source: Authors

Intervention location

Nineteen studies (about 53%) were conducted in rural areas. Ten studies were conducted in urban areas, while five had both rural and urban locations. It was not stated in two studies whether the location of the intervention was rural or urban (Figure 9).

Figure 9. *Number of studies by intervention location*

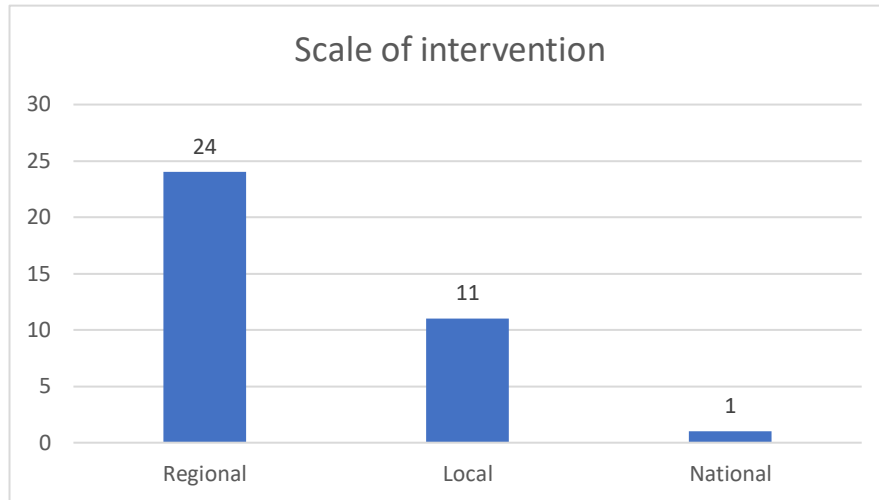


Source: Authors

Scale of interventions

About two-thirds of interventions were implemented at a regional level, while a little less than one-third (about 31%) were delivered at a local level. Only one intervention was delivered at the national level (Figure 10).

Figure 10. *Number of studies by scale of intervention*



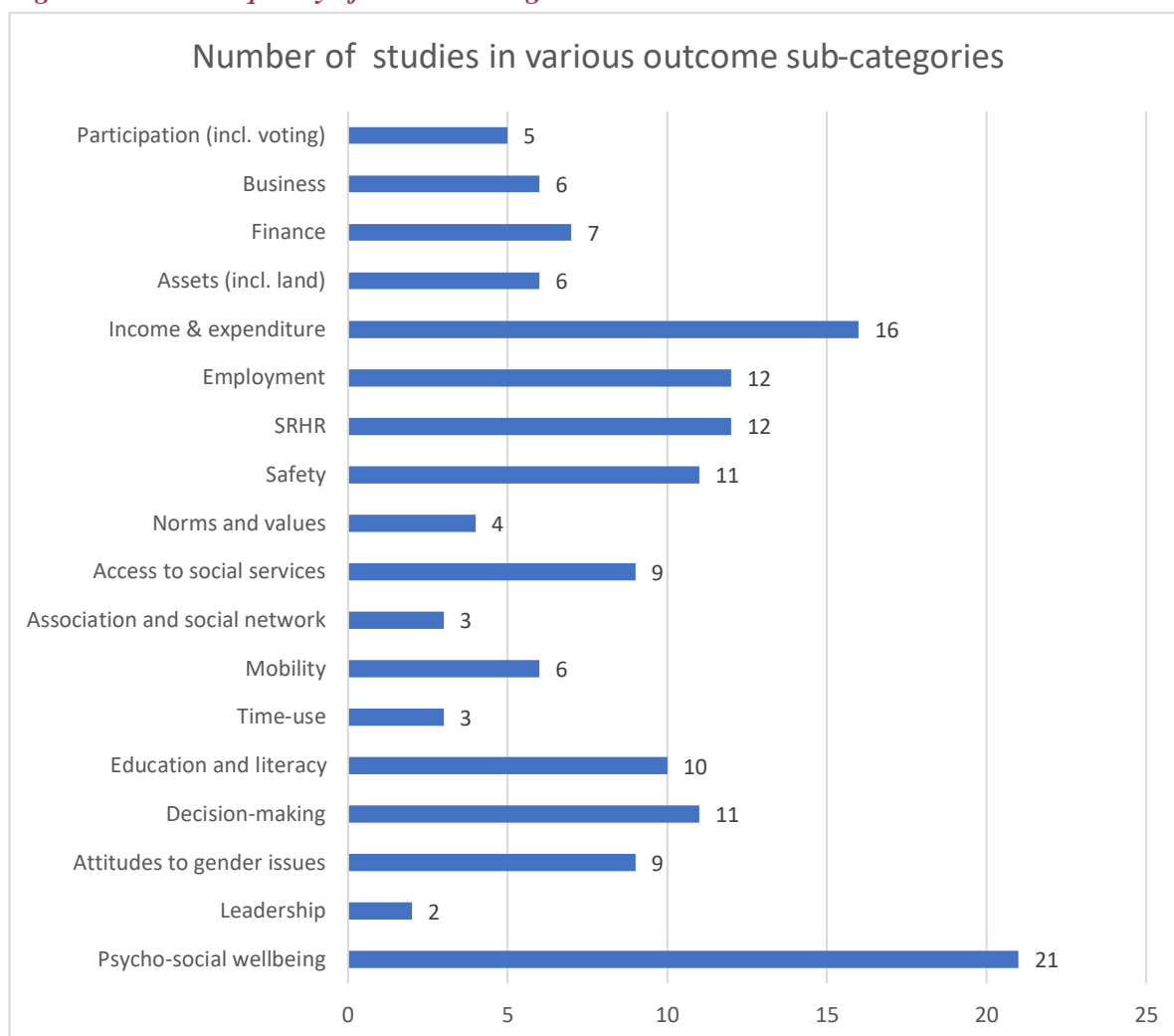
Source: Authors

Outcome categories

The review included studies that evaluated the effects of life skills training intervention on self-empowerment, social empowerment, economic and political empowerment, where self and social empowerment were primary outcomes.

The review identified 32 studies about self-empowerment such as psycho-social well-being, leadership, attitudes to gender issues, decision-making, education and literacy. The review included twenty-four studies with social empowerment outcomes such as mobility, association and social network, access to social services, norms and values, safety and SRHR. Economic empowerment was observed as an outcome in twenty-three studies, while political empowerment outcomes, such as participation (including voting), were measured in five studies. Figure 11 shows the frequency of outcome categories in the included studies.

Figure 11. *Frequency of outcome categories in the included studies*



Source: Authors

3. CHARACTERISTICS OF INCLUDED STUDIES

The characteristics of all the included studies are given in Appendix 7. The table in the appendix provides details of the study population, including gender and age, characteristics of the intervention such as its broad type, scale, location, setting, intensity and duration and delivery method. It also includes the broad outcome category in each of the included studies. The level of confidence in the reporting of each of the studies' findings is described as low, medium and high.

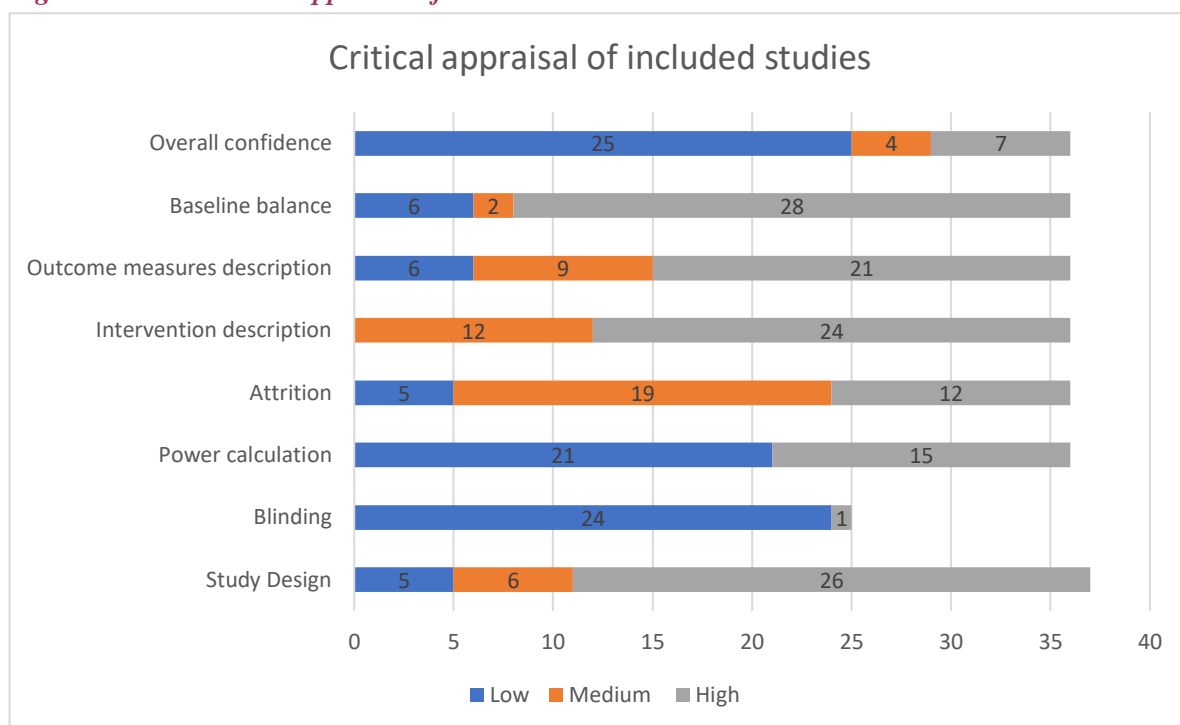
4. RISK OF BIAS IN INCLUDED STUDIES

The critical appraisal tool scores studies according to several criteria (e.g. study design, masking or blinding in RCTs, reporting of baseline balancing on various measures, power calculations, attrition and description of intervention and outcomes). The overall score uses the weakest link in the chain principle (i.e. the lowest score on any item is coded as the overall score). In summary, one low ranking on any criteria leads to an overall low confidence score in the reported findings.

The critical appraisal of effectiveness studies based on the above-stated rule suggests that there are only 22% of studies of high confidence in the findings. As many as two-thirds of the included

studies in this review are rated with low confidence in study findings (Figure 12). This is mostly due to attrition or scant description of outcome measures.

Figure 12. Critical appraisal of included studies



Source: Authors

Appendix 7 shows the characteristics of each of the included studies across various domains such as study design, reporting of masking or blinding for RCTs, discussion of power calculations, reporting of baseline balance, attrition and description of the intervention and outcome categories.

As many as 70% (n=25) of the included studies are RCTs. The remaining 11 studies have a non-experimental design with comparison groups. There were very few instances where RCTs mentioned masking or blinding. The masking criterion is not included in the overall assessment of confidence in findings. Discussion of power calculations was observed in 15 studies (about 42 per cent). Overall and differential attrition was within What Works Clearinghouse (WWC) combined levels for only 12 studies (about 33 per cent). Baseline imbalance on two or fewer measures was given in 28 (about 78 per cent) studies. Twelve studies (about 33 per cent) briefly described the intervention, while further studies had relatively clear and detailed descriptions. The description of the outcome measure was less detailed than the interventions, as 15 studies (about 42 per cent) had either a brief description of outcomes or merely named the outcomes.

Thus, where RCTs were assessed to be of low confidence, the decision was based on a lack of sufficient description of attrition or outcomes (see Appendix 7 for more details).

B. SYNTHESIS OF RESULTS

This section describes the procedure for conducting a meta-analysis of life skills interventions for empowering women in developing countries. Multiple meta-analyses were conducted for self, social and economic empowerment outcomes reported in the included studies where life skills appeared as one of the multi-component interventions or as the main intervention. Two studies reported outcomes related to political empowerment, particularly regarding political participation. We were

unable to run a meta-analysis on these two studies since one of the studies did not have enough information to compute the effect sizes.

Two researchers extracted raw data from included studies using Microsoft Excel spreadsheets. All relevant information was extracted for all outcomes reported in the included studies for this review. Where studies reported descriptive information about continuous outcomes, the means, standard deviations and sample sizes were recorded for both experimental and control groups. Outcomes reported as dichotomous variables were converted to odds ratios via derivation of a 2x2 table from the reported results (e.g. percentages were converted to absolute numbers by multiplying by the sample size). In addition, the spreadsheet had columns for (i) control type (active/passive), (ii) whether the direction/sign for empowerment outcomes was positive or negative and (iii) computation of effect sizes.

The next section discusses the details of the meta-analysis pertaining to various outcome categories and their indicators.

V. RESULTS OF THE META-ANALYSIS

For the meta-analysis, we collected outcomes on the following outcome categories: (i) self-empowerment, (ii) social empowerment, (iii) economic empowerment, and (iv) life skills. In some cases, outcome subcategories were combined (e.g. social mobility and social network). We initially added a separate subcategory for self-worth but eventually combined it with the psycho-social well-being outcome. The forest plots presented below mainly disaggregate the results by multi-component (life skills plus other interventions) and single component (life skills only) interventions for RCTs with a passive control group.

A. OUTCOME CATEGORIES

1. SELF-EMPOWERMENT

Under self-empowerment, the final set of outcome subcategories include: (i) psycho-social well-being and self-worth, (ii) leadership, (iii) education and literacy, (iv) decision-making, and (v) attitudes to gender issues.

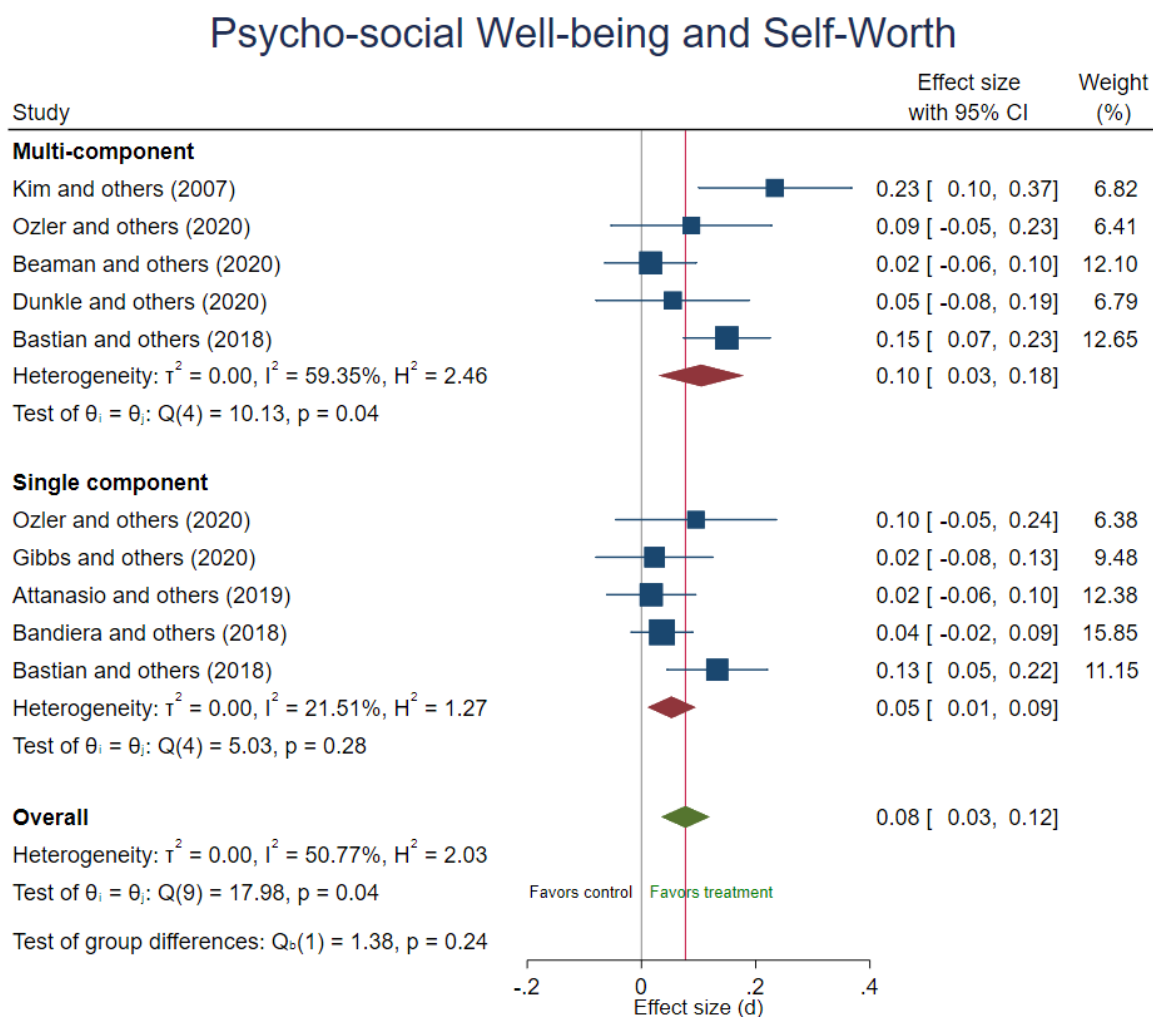
Twenty-two studies measured the effects of life skills interventions on self-empowerment. Sixteen of these studies are RCTs and six studies had quasi-experimental designs. As many as 13 studies for this outcome domain are from Sub-Saharan Africa.

Numerous studies covered outcomes that fall under psycho-social well-being and self-worth. When excluding the outliers, we find that life skills interventions have a significant and positive but small effect on this outcome.⁵ The overall pooled effect size estimate for all the studies (SMD = 0.08; 95% CI = 0.03, 0.12), multi-component interventions (SMD = 0.10; 95% CI = 0.03, 0.18) and single component interventions (SMD = 0.05; 95% CI = 0.01, 0.09) reflect this finding (Figure 13).

Meanwhile, overall heterogeneity across the studies in this category is moderate (I-squared = 50.77%). There is a larger effect from multi-component interventions than from single component, though the difference is not significant. For example, Bastian and others (2018) show that the M-Pawa intervention, a programme that involved a training session on how to use a mobile savings account, raised life satisfaction among its women beneficiaries. Small and moderate heterogeneity is found in single component (I-squared = 21.51%) and multi-component interventions (I-squared = 59.35%), respectively.

⁵ When including the outliers, the pooled effect size estimates for multi-component and single component interventions show a positive yet insignificant effect of life skills interventions, measured at 0.32 SMD (95% CI = -0.16, 0.79) and 0.37 SMD (95% CI = -0.28, 1.03), respectively (Figure A - 1) in Appendix 6. The outliers pertain to the studies by Karasz and others (2021) and Gadari, Farokhzadian and Shahrabaki (2022). Both studies indicate significant effects of life skills interventions on psycho-social outcomes, particularly on increasing self-efficacy scores among elementary school girls and reducing depression among low-income rural women, respectively. Significant heterogeneity is found in both multi-component (I-squared = 98.95%) and single component interventions (99.65%), yet we find no significant difference in the effects in either group ($p = 0.89$).

Figure 13. Effects on psycho-social well-being and self-worth



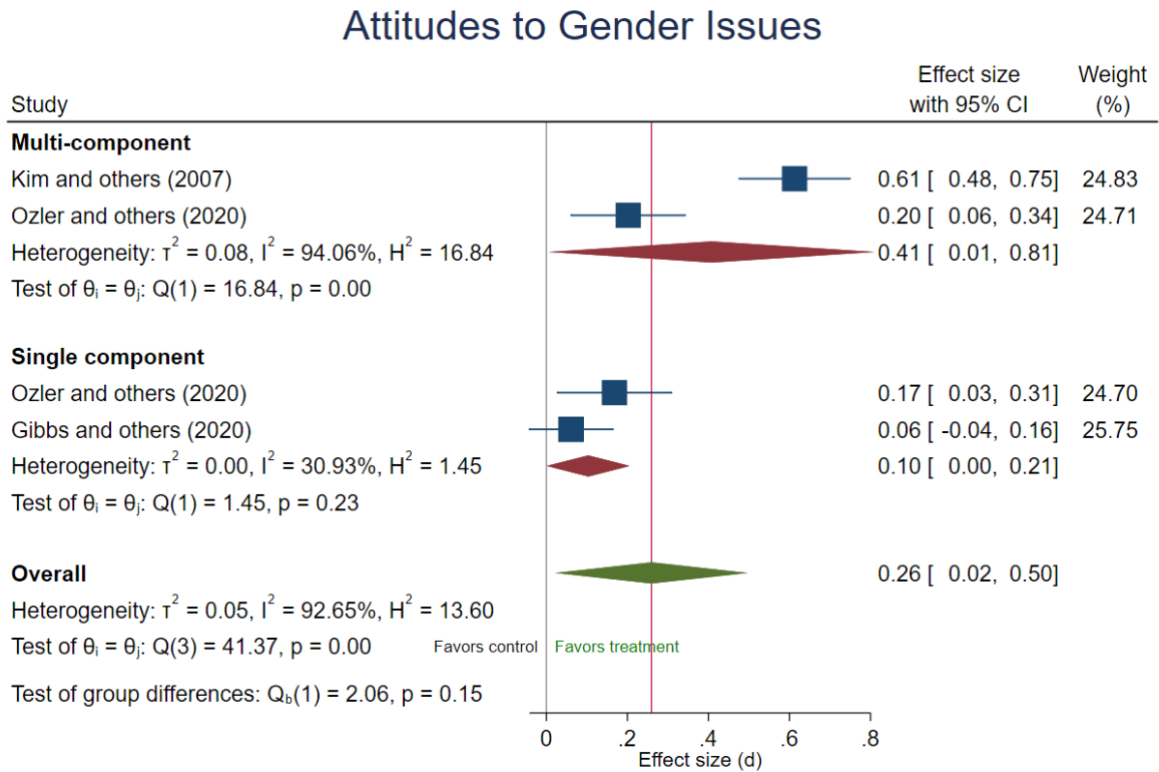
Source: Authors

Note: Only RCTs with passive controls included

Life skills interventions also tend to have a clear moderate, positive and significant effect on attitudes towards gender issues (SMD = 0.26; 95% CI = 0.02, 0.5) (Figure 14). Specifically for multi-component interventions, the measured effect size is higher, at 0.41 SMD (0.01, 0.81). For example, one study included showed that a life skills programme alone or a life skills programme combined with a cash incentive significantly and positively affects gender attitudes (Özler and others, 2020). However, it is important to note that heterogeneity among included studies with multi-component interventions is high under this domain ($I^2 = 94.06$).

For self-leadership, the overall pooled effect size estimate is moderate, positive and significant (SMD = 0.20; 95% CI = 0.04, 0.37). However, when only looking at the subgroup for multi-component interventions, the effect is insignificant (SMD = 0.21; 95% CI = -0.02, 0.44) (Figure 15). On the other hand, both the overall (SMD = 0.05; 95% CI = -0.02, 0.13) and multi-component pooled effect sizes (SMD = 0.05; 95% CI = -0.03, 0.14) are insignificant for education and literacy (Figure 16).

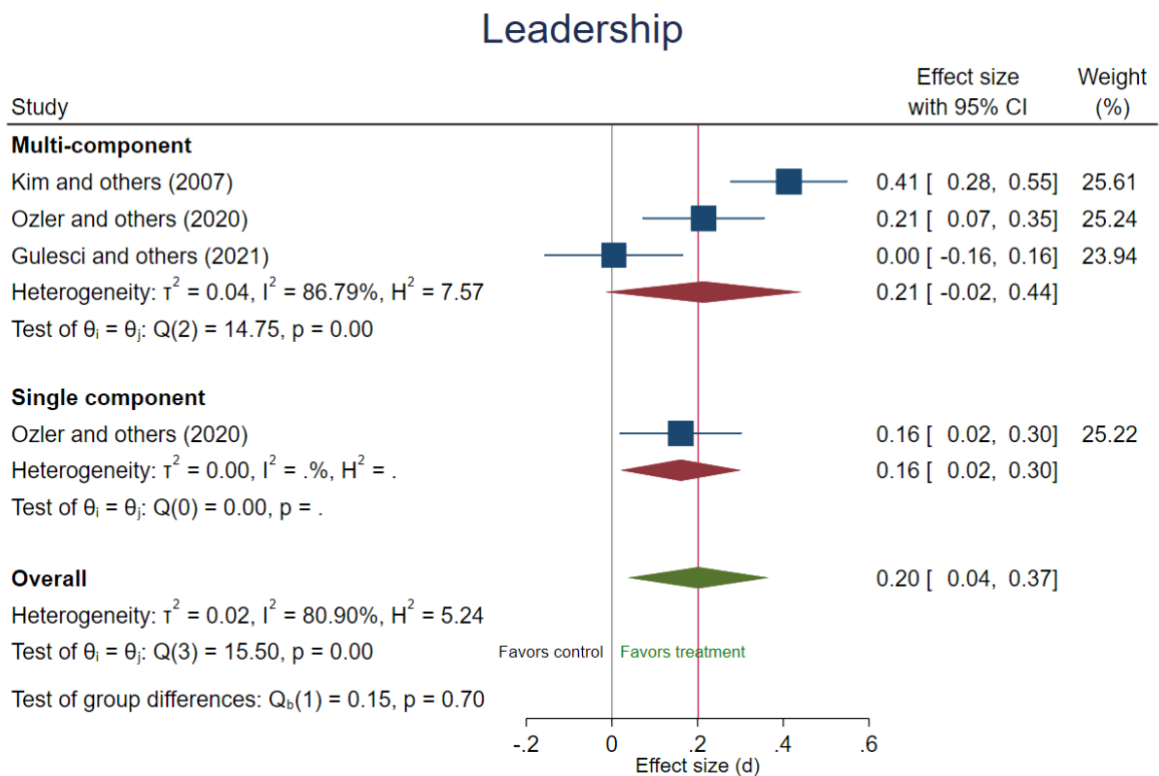
Figure 14. Attitudes to gender issues



Source: Authors

Note: Only RCTs with passive controls included

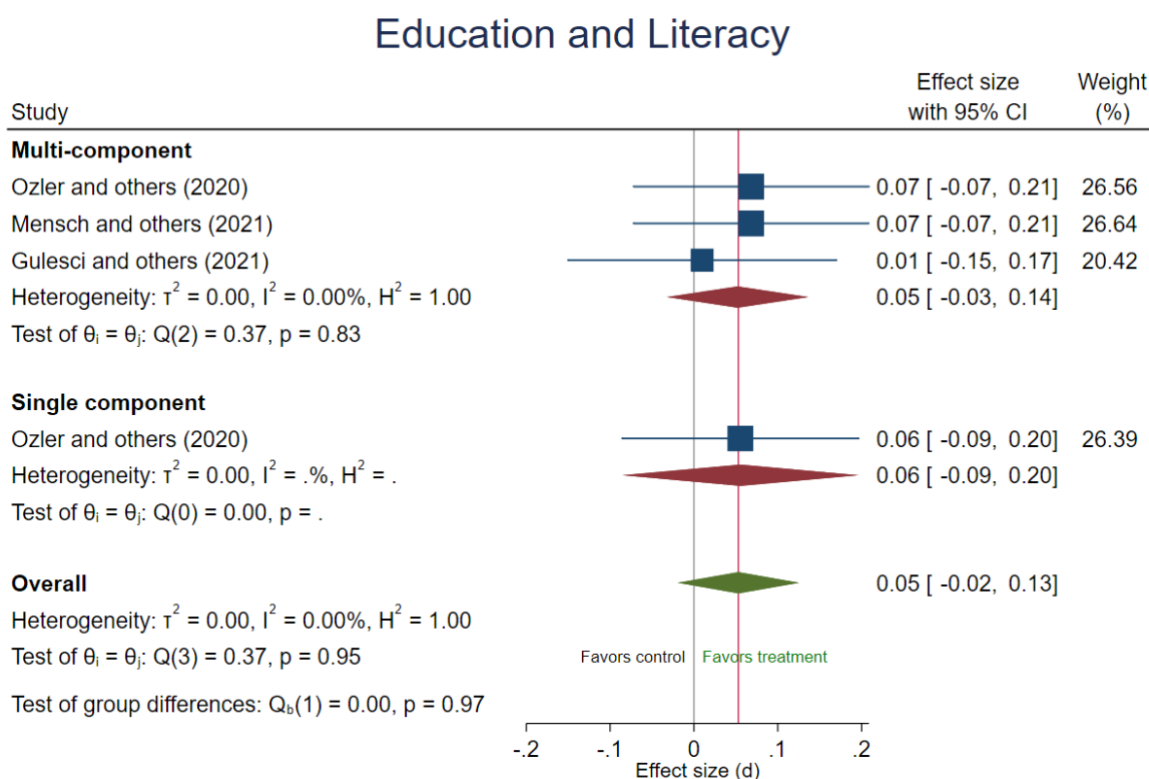
Figure 15. Effects on self-leadership



Source: Authors

Note: Only RCTs with passive controls included

Figure 16. Effects on education and literacy



Source: Authors

Note: Only RCTs with passive controls included

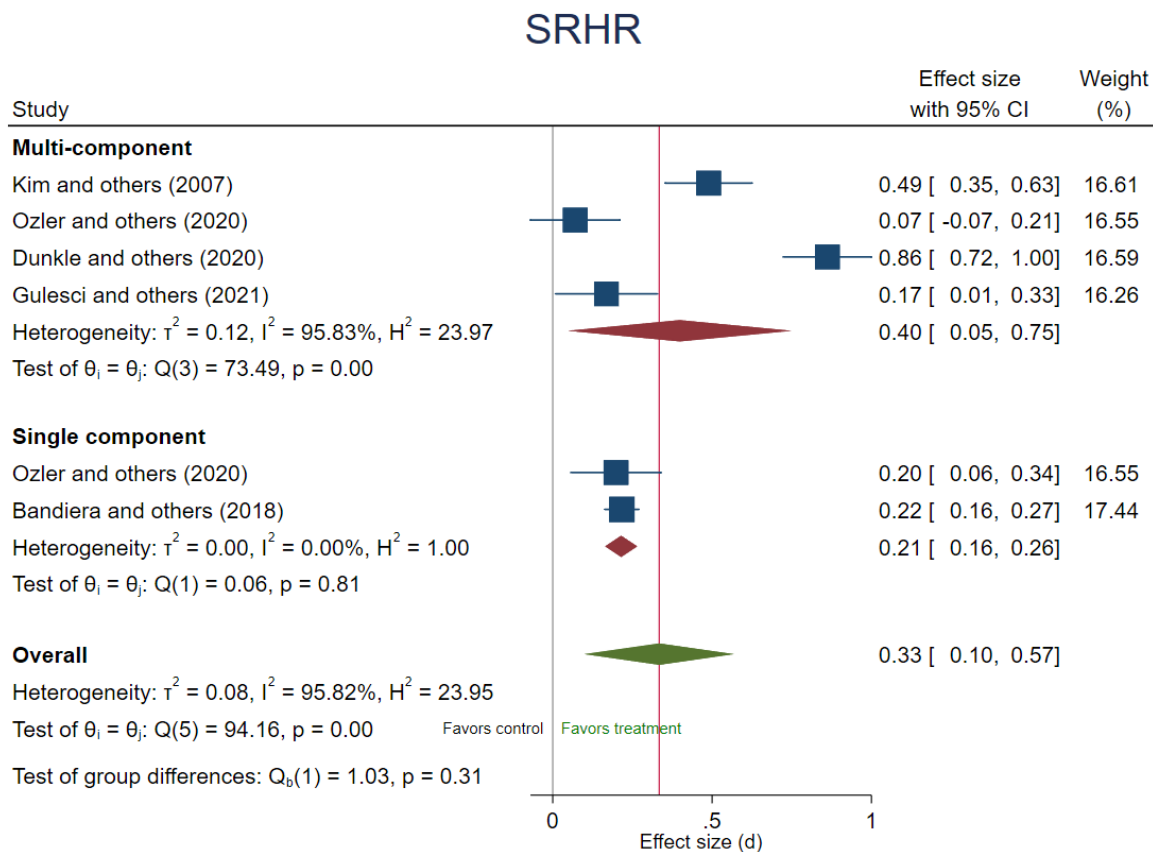
2. SOCIAL EMPOWERMENT

Under the social empowerment domain, the final outcome subcategories include (i) social mobility and networks, (ii) social norms, (iii) social services, and (iv) SRHR.

Like self-empowerment, most studies which cover social empowerment outcomes follow an RCT design (13), while three are quasi-experimental. Most of the studies were conducted in countries in Sub-Saharan Africa (e.g. South Africa, Liberia, Nigeria), and some were conducted in Asia (e.g. Viet Nam, Bangladesh, India).

Outcomes representing SRHR tend to be more common in studies relative to other subcategories. In this regard, we find a moderate, positive significant overall pooled effect size estimate of 0.33 SMD (95% CI = 0.10, 0.57). This means that life skills interventions have a positive effect on promoting SRHR (Figure 17). This finding is also consistent when looking individually at multi-component and single component interventions, where the corresponding effect sizes were measured at 0.40 SMD (95% CI = 0.05, 0.75) and 0.21 SMD (95% CI = 0.16, 0.26), respectively. However, high heterogeneity is observed among multi-component interventions ($I^2 = 95.83\%$), while the opposite is true for single component interventions ($I^2 = 0.00\%$). An example of a study which records a positive effect on SRHR outcomes is Bandiera and others (2018). The study notes a stark decrease in the number of adolescent girls who report having sex against their will after receiving a multi-component intervention which includes life skills training.

Figure 17. Effects on sexual and reproductive health and rights



Source: Authors

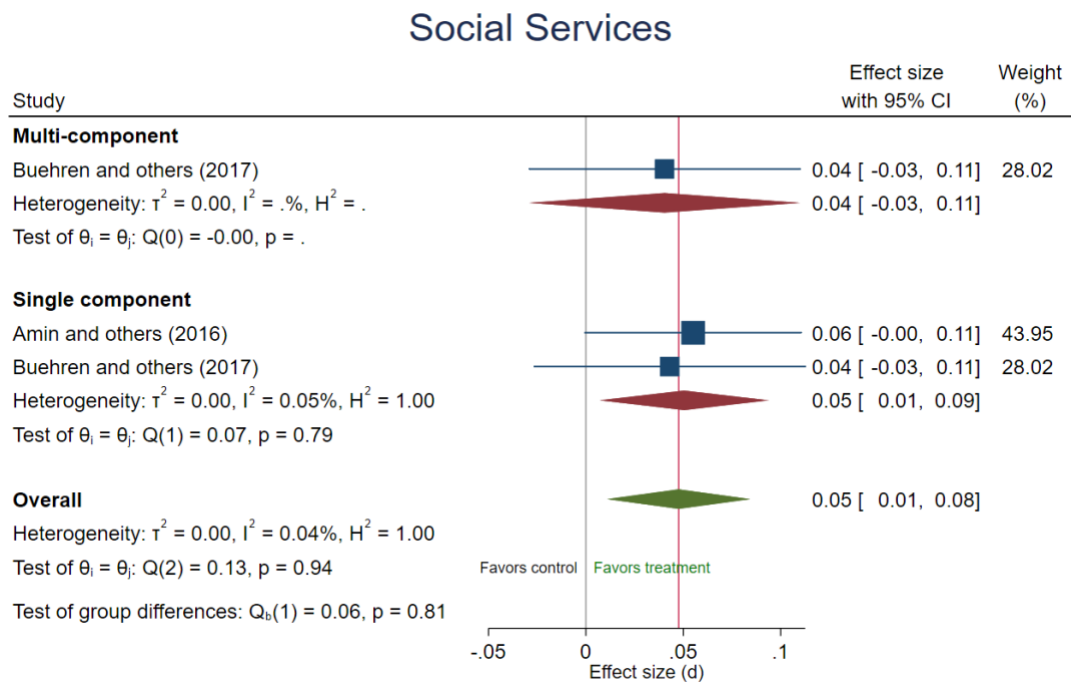
Note: Only RCTs with passive controls included

A significant, but small, pooled effect size estimate is also found regarding social services (SMD = 0.05; 95% CI = 0.01, 0.08) (Figure 18)⁶. Overall heterogeneity across the studies is also low ($I^2 = 0.05\%$), although it is important to note that only two studies were covered. One of these two studies finds that the Empowerment and livelihoods for adolescents programme, an intervention involving life skills training, significantly impacted school enrolment (Buehren and others, 2017). In the rest of the outcome subcategories under the social empowerment dimension, no significant effect was found. While social safety has more studies, the effect sizes were still insignificant both for multi-component (SMD = 0.02; 95% CI = -0.07, 0.12) and single component interventions (SMD = 0.00; 95% CI = -0.08, 0.08) (Figure 19)⁷. For example, Gibbs and others (2020) show that the Women for Women International's intervention, which included numeracy and business skills training, had no impact on decreasing married women's experiences of interpersonal violence.

⁶ These studies have a quasi-experimental design.

⁷ See Figure A - 2 for the forest plot with the outlier.

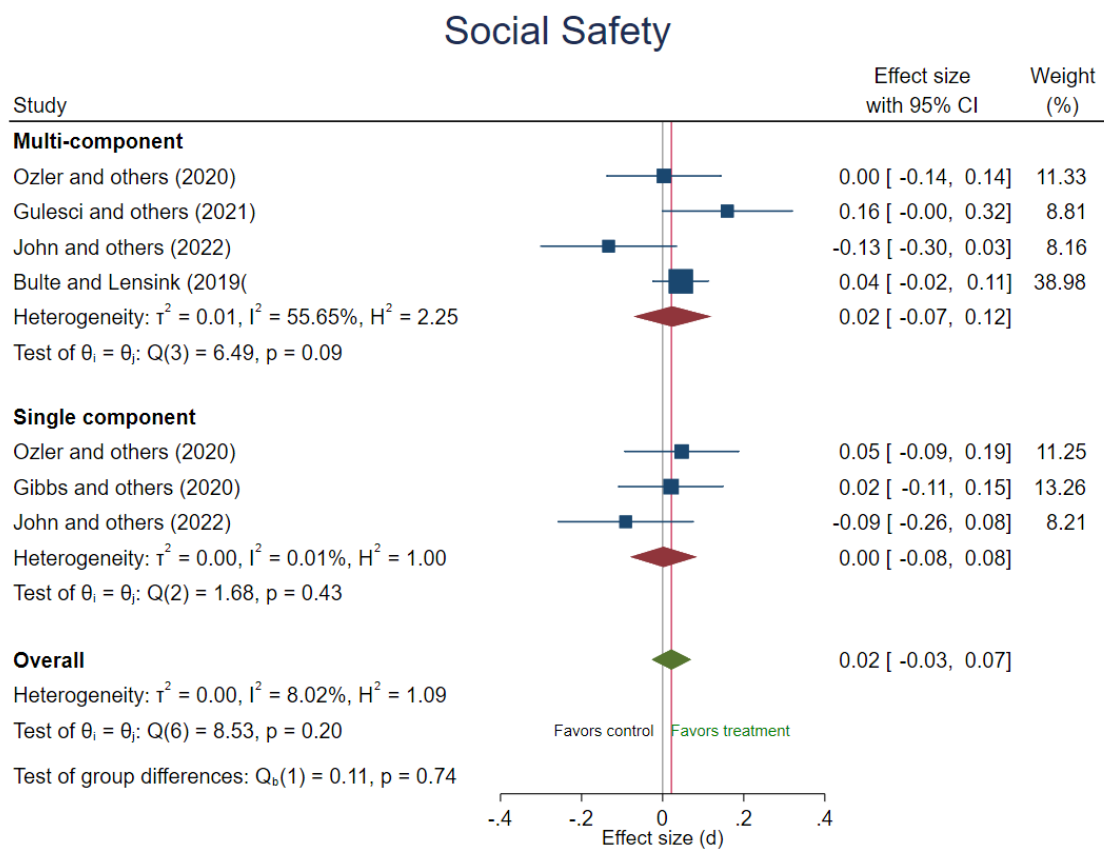
Figure 18. Effects on social services



Source: Authors

Note: Only non-RCTs with passive controls included

Figure 19. Effects on social safety

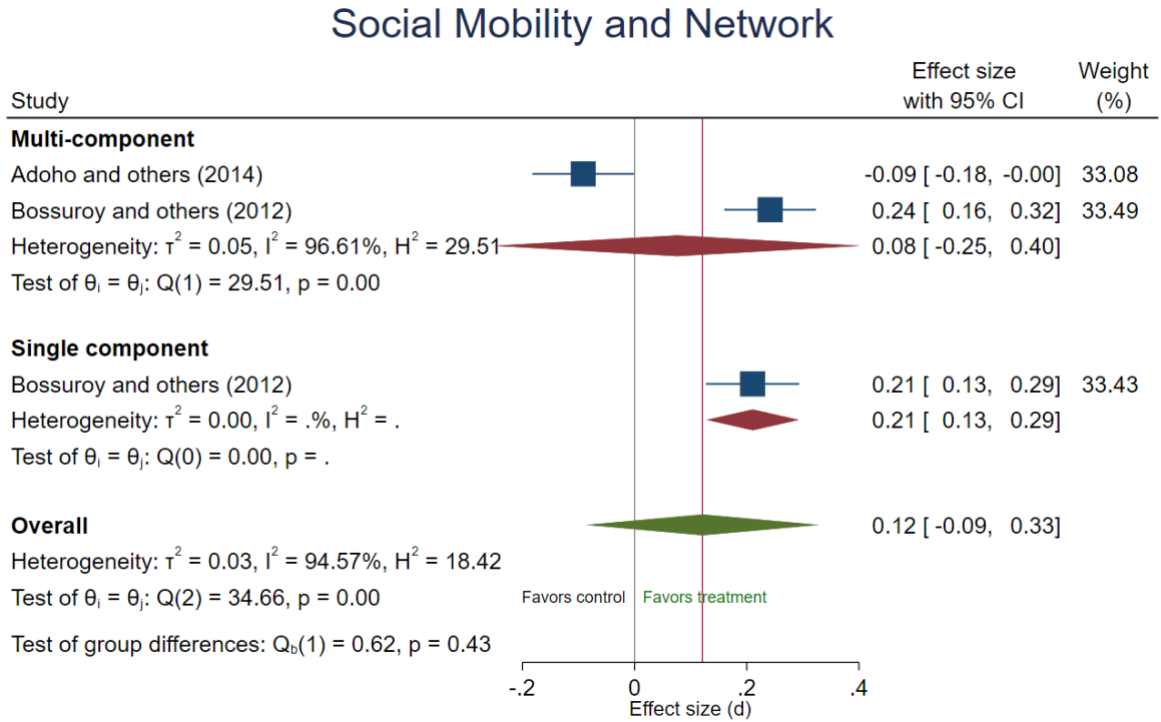


Source: Authors

Note: Only RCTs with passive controls included. Excludes Dunkle (2020).

For social mobility and network (Figure 20) and social norms (Figure 21), the overall pooled effect sizes are an insignificant 0.12 SMD (95% CI = -0.09, 0.33), and 0.16 SMD (98% CI = -0.13, 0.44), respectively.

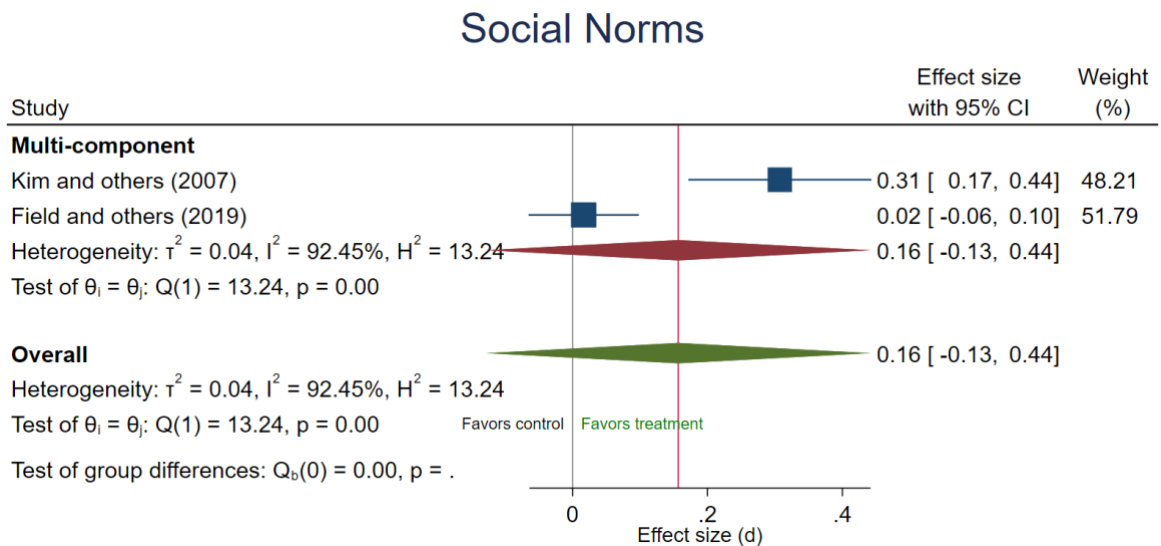
Figure 20. *Effects on social mobility & network*



Source: Authors

Note: Only RCTs with active controls included.

Figure 21. *Effects on social norms*



Source: Authors

Note: Only RCTs with passive controls included

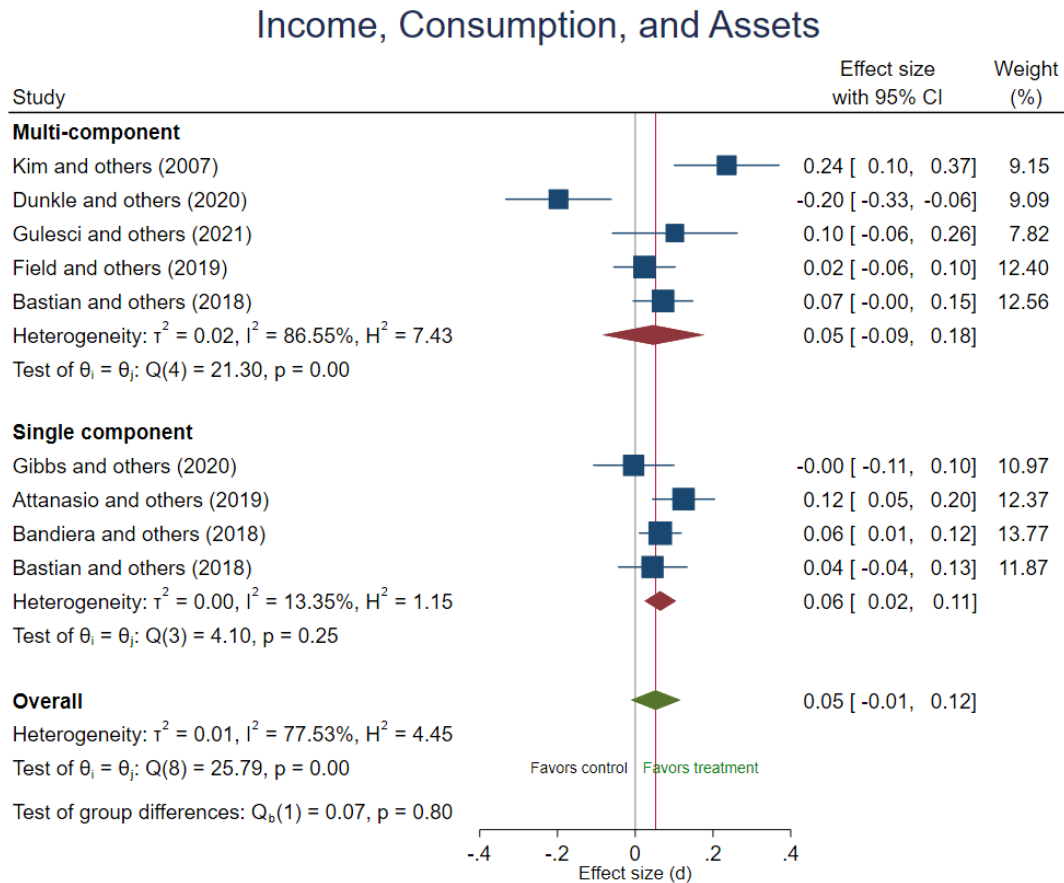
3. ECONOMIC EMPOWERMENT

Under economic empowerment, the final set of outcome categories include: (i) income, consumption and assets, (ii) finance, and (iii) employment.

There are 16 studies which cover outcomes regarding economic empowerment. The majority of these were conducted in Sub-Saharan Africa. Twelve have an RCT design, while four have a quasi-experimental design.

For the outcome subcategory of income, consumption and assets, the overall pooled effect size estimate is positive yet insignificant (SMD = 0.05; 95% CI = -0.01, 0.11) (Figure 22). The overall heterogeneity of the studies is high (I-squared = 76.32%). A closer look at the subgrouping by component shows that while pooled effect sizes for multi-component interventions are insignificant (SMD = 0.05; 95% CI = -0.09, 0.18), the opposite is true for single component interventions. As such, we find a positive pooled effect size estimate for single component interventions (SMD = 0.06; 95% CI = 0.02, 0.10). In addition, heterogeneity across the studies within this group is low (I-squared = 0.00%).

Figure 22. *Effects on income, consumption and assets*

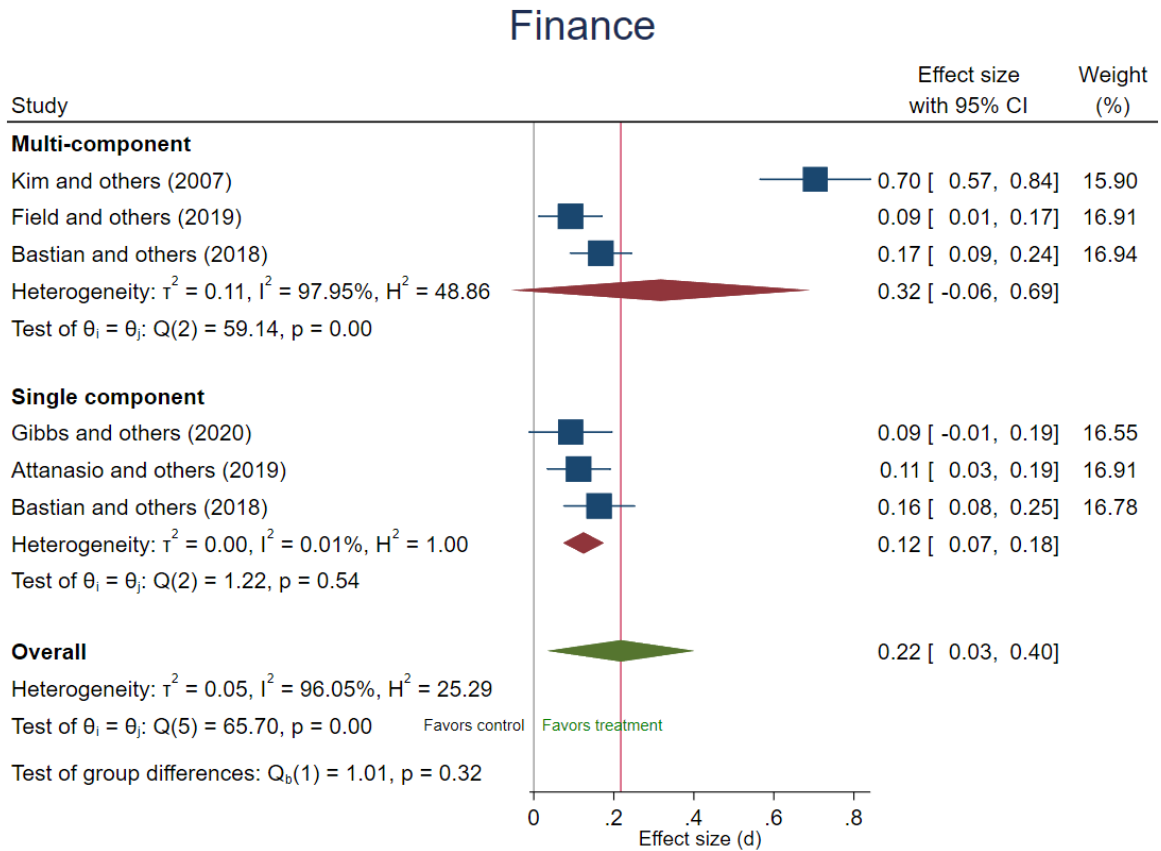


Source: Authors

Note: Only RCTs with passive controls included

Overall pooled effect size is also positive and significant for finance (SMD = 0.22; 95% CI = 0.04, 0.40), with high heterogeneity (I-squared = 96.00%) (Figure 23). At the component level, the pooled effect size for multi-component interventions is found to be insignificant (SMD = 0.32; 95% CI = -0.06, 0.69). The estimate for single component interventions is significant (SMD = 0.13; 95% CI = 0.08, 0.18), with low heterogeneity across the studies within this group (I-squared = 0.01%).

Figure 23. Effects on finance

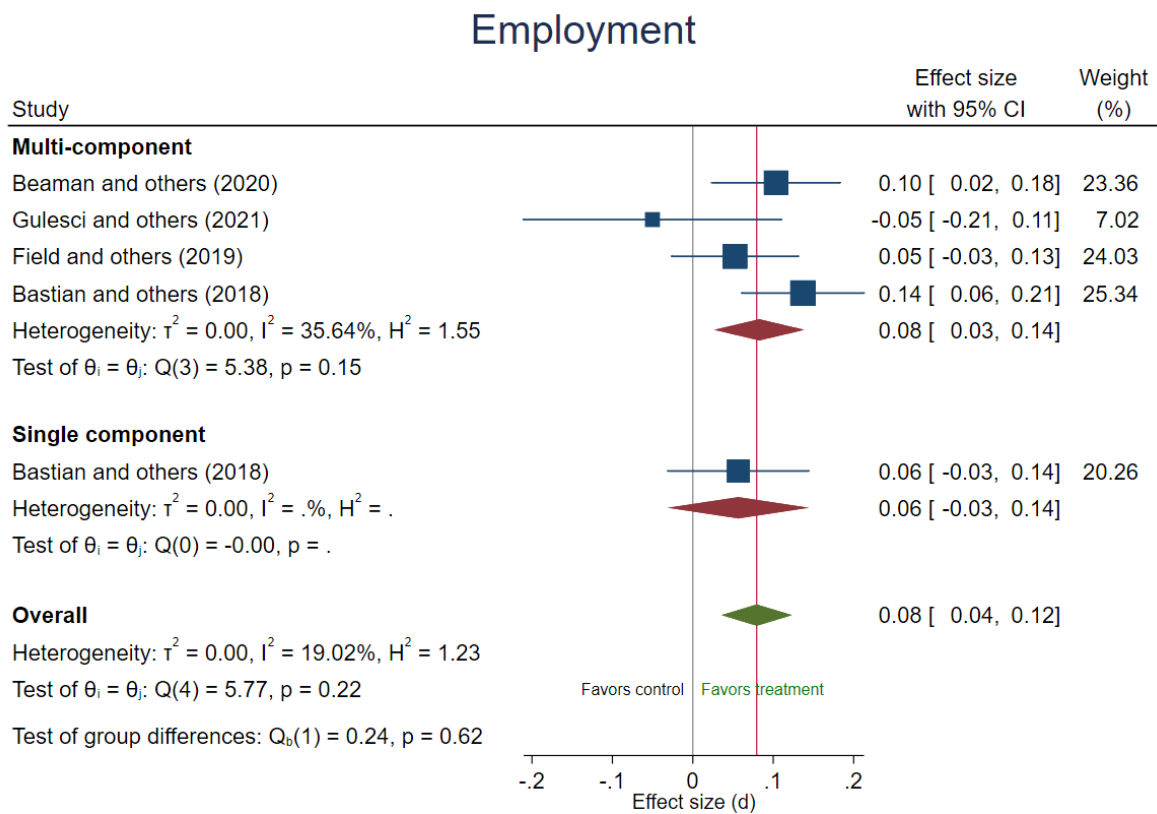


Source: Authors

Note: Only RCTs with passive controls included

Pooled overall effect size for employment is also significant (SMD = 0.08; 95% CI = 0.04, 0.12), with a relatively low level of heterogeneity (I-squared = 19.02%) (Figure 24). Within multi-component interventions, pooled effect size estimates are also found to be positive and significant (SMD = 0.08; 95% CI = 0.03, 0.14), yet heterogeneity across the studies within this subgroup is moderate (I-squared = 35.64%).

Figure 24. Effects on employment



Source: Authors

Note: Only RCTs with passive controls included

4. POLITICAL EMPOWERMENT

Two studies reported outcomes related to political empowerment, particularly regarding political participation. However, we were unable to run a meta-analysis on these two studies as one of them did not have enough information to compute the effect sizes. Both studies were conducted in India.

We were able to compute effect sizes for the study conducted by Kandpal, Baylis and Arends-Kuenning (2013). The study assessed the impact of the Mahila Samakya programme, which provided literacy camps and adult education classes to its beneficiaries and explicitly mentioned gender empowerment as one of its objectives. Results show a positive yet insignificant effect of the programme on women’s participation in village council meetings. The results also show some evidence of the programme having positive spill over effects on non-participants in the treated villages, as their attendance was higher than those who were untreated.

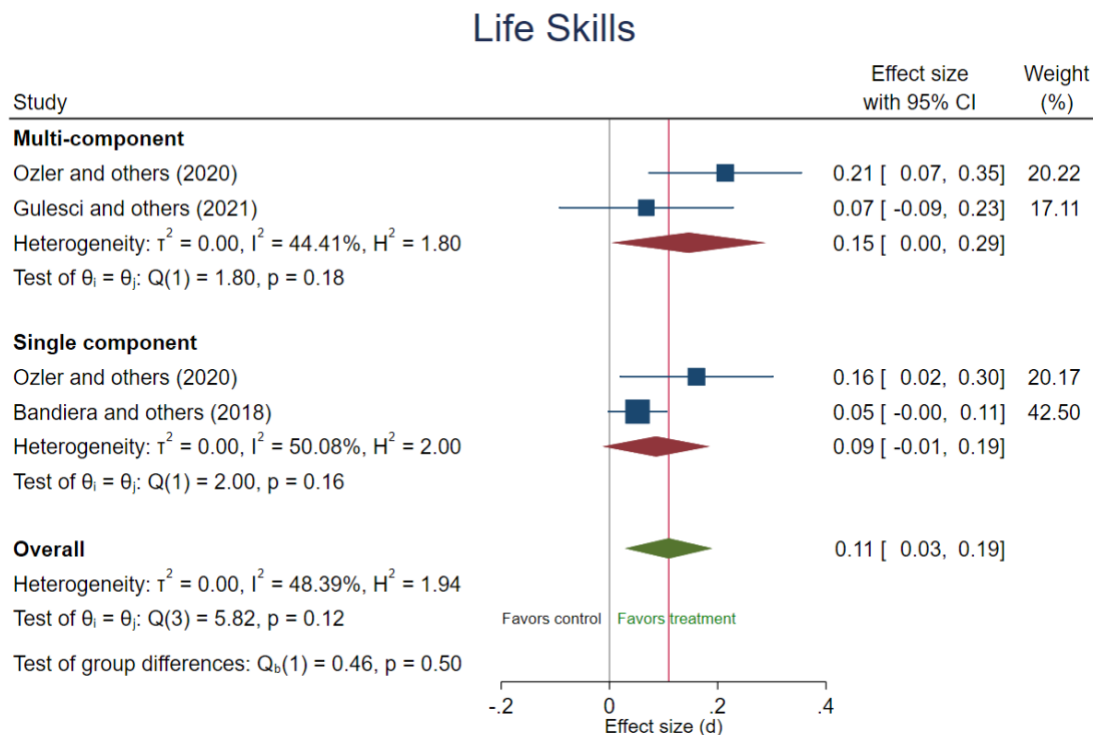
Meanwhile, the study lacking sufficient information to compute effect sizes was Anand and others (2020). It included outcomes representing ‘influence on local decisions’ and ‘freedom of political and religious expression’. The study analysed the impact of the Mahila Vikas Pariyojana self-help programme in India. Apart from microfinance, the programme also provided the beneficiaries with other services. These included enterprise training, nutrition education and a citizenship element that encourages political participation (Anand and others, 2020). Their analysis reveals a significantly positive effect of the programme on the outcome variables representing political participation, where the average treatment effect for influence on political decisions ($ATE^8 = 0.1433$; p -value < 0.01) and freedom of political and religious expression ($ATE = 0.1380$; p -value < 0.01).

⁸ ATE stands for average treatment effect.

5. LIFE SKILLS

The overall pooled effect size estimate for life skills is positive and significant (SMD = 0.11; 95% CI = 0.03, 0.19), with a moderate level of heterogeneity (I-squared = 48.39%) (Figure 25). Within the component subgroupings, pooled effect size estimates are insignificant for both multi-component interventions (SMD = 0.15; 95% CI = 0.00, 0.29) and single component interventions (SMD = 0.09; 95% CI = -0.01, 0.19). Outcomes included in this category mostly included skills relevant to communication and entrepreneurship.

Figure 25. *Effects on life skills*



Source: Authors

Note: Only RCTs with passive controls included

B. MODERATOR ANALYSIS

We conducted a moderator analysis through meta-regression. The analysis included variables likely to affect empowerment outcomes. It examined (i) psycho-social well-being and self-worth, (ii) SRHR, (iii) income, consumption and assets, (iv) employment, (v) finance, and (vi) social mobility and network, all of which had 10 or more studies, making them viable for meta-regression. The covariates of the meta-regression model include the programme design characteristics (e.g., multi-component/single component, participant group/s covered, programme and session duration), study design characteristics (e.g., experimental/non-experimental, passive/active control), and other variables such as participant's age and number of beneficiaries.

The results from the meta-regression analysis are presented in Tables 1 to 6. Coefficients from the meta-regression analysis for studies covering SRHR outcomes show a significantly positive relationship between life skills intervention effects and some explanatory variables (Table 1). These variables include study design, participant groups covered, number of beneficiaries and type of control group. Among these items, type of control (1 = Passive) has the largest coefficient, meaning that effect sizes (SMD) for programmes with a passive control group were, on average, four times

larger than those with an active control group. Participant groups covered (1 = female) were also found to have a large coefficient. This indicates that effect sizes for programmes concentrating on only female beneficiaries were on average 3.45 times greater than those which cover both male and female beneficiaries. This may suggest that including boys/men as programme beneficiaries could dilute the effectiveness of life skills interventions on SRHR-related outcomes.

This finding seems to be supported by the results from a combined health and economic intervention study aimed at promoting educational aspirations and improving attitudes towards sexual risk-taking behaviour among adolescent boys and girls. Though there were improvements in attitudes towards sexual risk-taking behaviour among girls in the treatment group compared to the control group, the impact was more pronounced among boys (Ssewamala and others, 2010).

This finding, however, needs to be interpreted with caution. Also, there is a need for more studies that explain the gender disparity in effects.

Table 1. *SRHR meta-regression results*

Variables	Coefficient	Std. err.	z	P>z	I-squared (%) = 0.00 Number of observations = 10	
					95% confidence interval	
Component (1 = Multi-component)	0.00	0.06	-0.02	0.98	-0.1	0.1
Study design (1 = RCT)	2.24	0.34	6.58	0.00	1.6	2.9
Participant group (1 = Female only)	3.45	1.07	3.23	0.00	1.4	5.5
Programme duration (months)	-0.30	0.07	-4.60	0.00	-0.4	-0.2
Session duration (hours)	-0.88	0.25	-3.52	0.00	-1.4	-0.4
Age of participants	-0.19	0.04	-4.98	0.00	-0.3	-0.1
Ln (Number of beneficiaries)	0.55	0.09	6.42	0.00	0.4	0.7
Type of control (1 = Passive)	4.02	0.72	5.58	0.00	2.6	5.4
Constant	-2.63	1.13	-2.32	0.02	-4.9	-0.4

Source: Authors

Regarding outcomes under psycho-social well-being and self-worth, the significant moderators include participant group, programme duration, participant age, and type of control group used in the study (Table 2). The largest coefficient is found in the participant group. Meanwhile, the participants' age tends to be negatively associated with the effect sizes, as the results show that a unit increase in age lowers effect sizes by 0.05 SMD.

The above findings seem to draw attention to the age-specific nature of life skills interventions. The literature on life skills points to the differences in the suitability of certain phases of age-specific skills, such as the importance of infancy and early childhood in developing motor, sensory, spatial and linguistic skills (Zelazo, 2013; Immordino-Yang and others, 2019 cited in Kirchoff and Keller, 2021). However, as children grow older and their interaction extends beyond parents or caregivers to school peers and adults in school or the community, they learn to self-regulate compared to earlier stages of childhood when parents or caregivers assist in managing the challenges of everyday life (Sameroff, 2010 cited in Kirchoff and Keller, 2021)⁹. Certain interventions specific to the bio-

⁹ This is also in tandem with Jean Piaget's theory of cognitive development whereby he proposes that children's intelligence grows as they grow old. Their cognitive development passes through various stages via an interaction of innate capacities and outside events (McLeod, 2022).

psychological changes during puberty may also enhance the resilience of adolescents to face challenges specific to this age phase.

Table 2. Psycho-social well-being and self-worth meta-regression results

I-squared (%) = 85.24
Number of observations = 18

Variables	Coefficient	Std. err.	z	P>z	95% confidence interval	
Component (1 = Multi-component)	-0.18	0.19	-0.96	0.34	-0.55	0.19
Study design (1 = RCT)	0.56	0.36	1.56	0.12	-0.15	1.26
Participant group (1 = Female only)	0.86	0.29	2.95	0.00	0.29	1.43
Programme duration (months)	-0.11	0.03	-4.30	0.00	-0.16	-0.06
Session duration (hours)	-0.35	0.19	-1.87	0.06	-0.72	0.02
Age of participants	-0.05	0.02	-3.04	0.00	-0.09	-0.02
Ln (Number of beneficiaries)	0.13	0.08	1.62	0.11	-0.03	0.29
Type of control (1 = Passive)	0.85	0.29	2.97	0.00	0.29	1.41
Constant	0.57	1.47	0.39	0.70	-2.31	3.45

Source: Authors

For the income, consumption and assets category, the largest effect size is also found in the type of control (1 = Passive), followed by having only women in the participant group (Table 3). The degree to which the latter effect size has been influenced by other welfare programmes targeted at women is unclear. For example, Field (2019) notes how the scaling-up of the Mahatma Gandhi National Rural Employment Guarantee Scheme's direct deposit to female-owned accounts by the Indian government might have influenced the findings from their study.

Table 3. Income, consumption and assets meta-regression results

I-squared (%) = 99.68
Number of observations = 16

Variables	Coefficient	Std. err.	z	P>z	95% confidence interval	
Component (1 = Multi-component)	-0.69	0.65	-1.07	0.28	-1.96	0.58
Study design (1 = RCT)	2.50	1.01	2.48	0.01	0.52	4.48
Participant group (1 = Female only)	3.12	1.07	2.92	0.00	1.03	5.22
Programme duration (months)	-0.52	0.10	-5.22	0.00	-0.72	-0.33
Session duration (hours)	-3.02	0.94	-3.21	0.00	-4.87	-1.18
Age of participants	-0.32	0.06	-5.84	0.00	-0.43	-0.21
Ln (Number of beneficiaries)	0.09	0.35	0.26	0.79	-0.59	0.78
Type of control (1 = Passive)	4.52	1.14	3.98	0.00	2.29	6.74
Constant	12.80	4.86	2.63	0.01	3.27	22.34

Source: Authors

For employment, none of the moderators were significant (Table 4). On the other hand, for finance, only programme duration was found to be highly significant and positive (Table 5). This implies that a unit increase in programme duration (months) tends to increase effect sizes by 0.09 SMDs on

average for financial outcomes. Catalano and others (2004) recommended that the duration of life skills programmes should at least be nine months or 10 sessions to spur behavioural change. In the financial context, this may suggest that programme duration is important to beneficiaries for improving financial access or financial behaviour. An example of this is the Microfinance for AIDS and Gender Equity (IMAGE) programme in South Africa. This intervention integrated a participatory learning programme (Sisters-for-Life) and spanned 12 months. An evaluation showed the programme had a significantly large and positive effect on financial confidence (Adjusted Risk Ratio = 2.25; 95% CI = 0.42, 12.10).

Finally, except for component type, number of beneficiaries, and study design, all other moderators were found to significantly affect the effect sizes for social mobility and network outcomes.

Table 4. Employment meta-regression results

I-squared (%) = 0.00
Number of observations = 11

Variables	Coefficient	Std. err.	z	P>z	95% confidence interval	
Component (1 = Multi-component)	0.05	0.05	0.99	0.32	-0.05	0.14
Study design (1 = RCT)	0.01	0.24	0.04	0.97	-0.46	0.48
Participant group (1 = Female only)	0.69	0.59	1.18	0.24	-0.46	1.84
Programme duration (months)	-0.09	0.05	-1.68	0.09	-0.19	0.01
Session duration (hours)	-0.10	0.06	-1.60	0.11	-0.22	0.02
Age of participants	-0.04	0.03	-1.41	0.16	-0.10	0.02
Ln (Number of beneficiaries)	0.55	1.51	0.37	0.72	-2.40	3.51
Type of control (1 = Passive)	0.67	0.52	1.29	0.20	-0.35	1.70
Constant	-4.19	14.92	-0.28	0.78	-33.43	25.05

Source: Authors

Table 5. Finance meta-regression results

I-squared (%) = 0.00
Number of observations = 11

Variables	Coefficient	Std. err.	z	P>z	95% confidence interval	
Component (1 = Multi-component)	0.02	0.04	0.44	0.66	-0.07	0.10
Study design (1 = RCT)	0.33	0.63	0.53	0.60	-0.90	1.57
Participant group (1 = Female only)	-0.24	0.17	-1.46	0.14	-0.57	0.08
Programme duration (months)	0.09	0.03	2.76	0.01	0.03	0.15
Session duration (hours)	-0.11	0.15	-0.73	0.47	-0.40	0.18
Age of participants	-0.03	0.08	-0.41	0.68	-0.18	0.12
Ln (Number of beneficiaries)	0.19	0.16	1.23	0.22	-0.11	0.50
Type of control (1 = Passive)	-0.67	0.35	-1.91	0.06	-1.36	0.02
Constant	-0.40	1.22	-0.32	0.75	-2.80	2.00

Source: Authors

Table 6. Social mobility and network meta-regression results

I-squared (%) = 83.74
Number of observations = 11

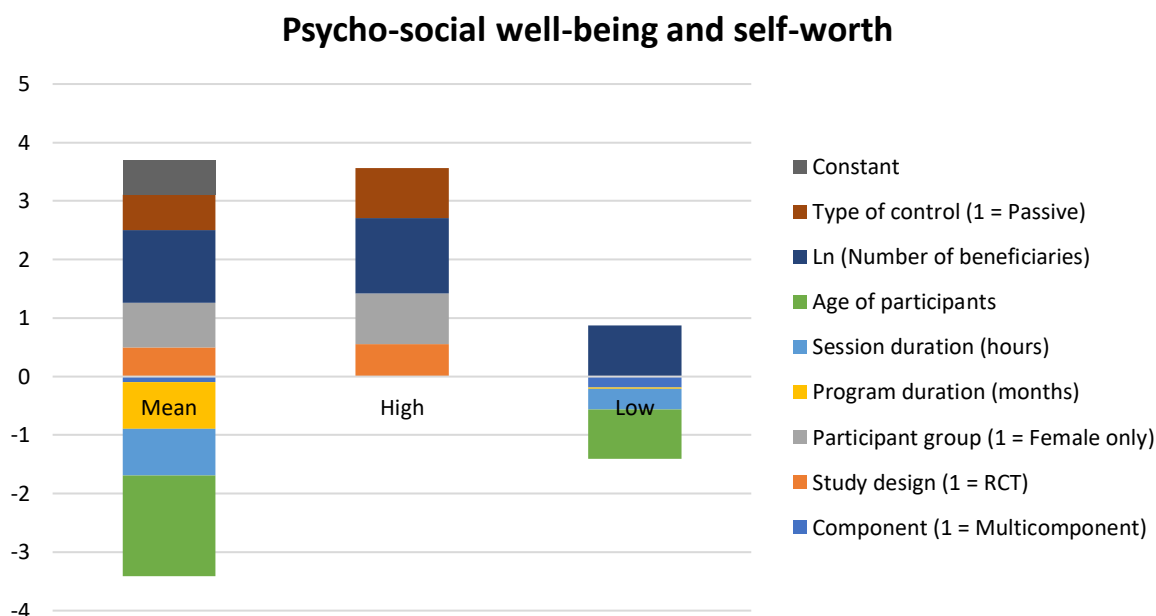
Variables	Coefficient	Std. err.	z	P>z	95% confidence interval	
Component (1 = Multi-component)	0.19	0.22	0.85	0.40	-0.24	0.61
Study design (1 = RCT)	0.23	0.29	0.81	0.42	-0.33	0.80
Programme duration (months)	-0.16	0.05	-2.93	0.00	-0.26	-0.05
Session duration (hours)	-1.64	0.55	-2.97	0.00	-2.73	-0.56
Age of participants	-0.06	0.02	-3.29	0.00	-0.10	-0.02
Ln (Number of beneficiaries)	-0.21	0.19	-1.12	0.26	-0.58	0.16
Type of control (1 = Passive)	0.84	0.31	2.67	0.01	0.22	1.45
Constant	7.88	3.47	2.27	0.02	1.08	14.69

Source: Authors

Note: Participant group dropped due to collinearity.

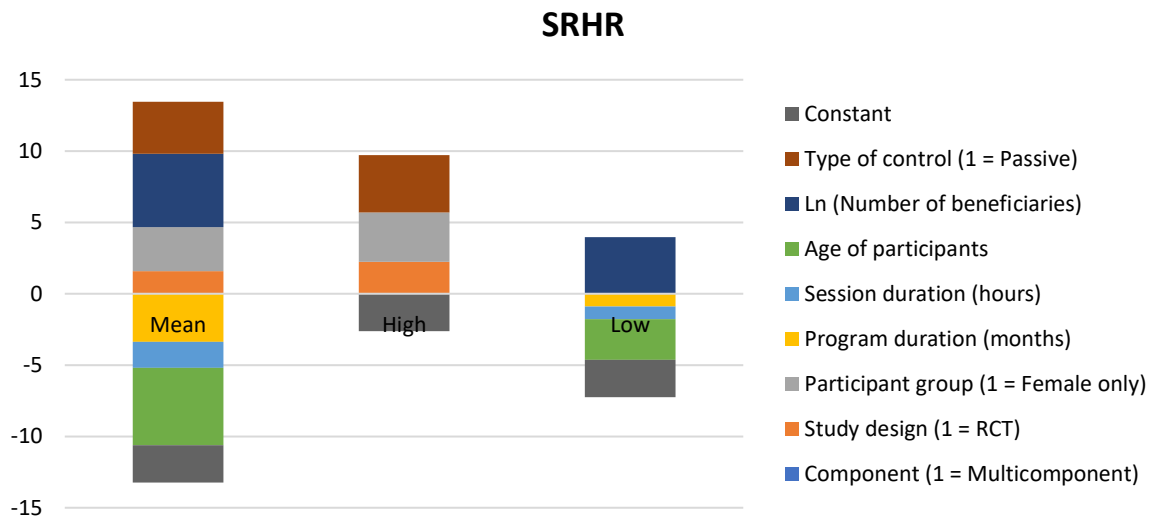
A visual representation of the coefficients is presented in Figure 26 to Figure 31. The figures show the effect sizes when the moderators are favourable (high) and unfavourable (low). In most cases, the favourable results are largely driven by higher values of the type of control group (i.e. SRHR, income consumption and assets, social mobility and network) and the number of beneficiaries (i.e. psycho-social well-being, employment, finance). Meanwhile, the unfavourable results are driven largely by the participants' average age.

Figure 26. Drivers of high and low effect sizes for psycho-social well-being and self-worth



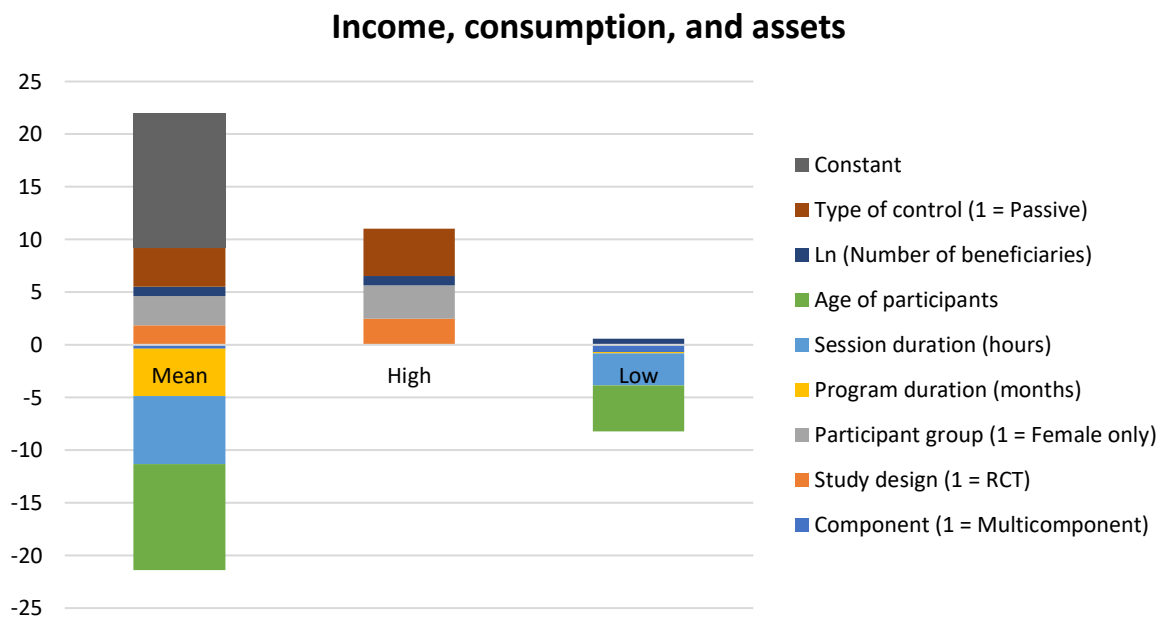
Source: Authors

Figure 27. Drivers of high and low effect sizes for SRHR



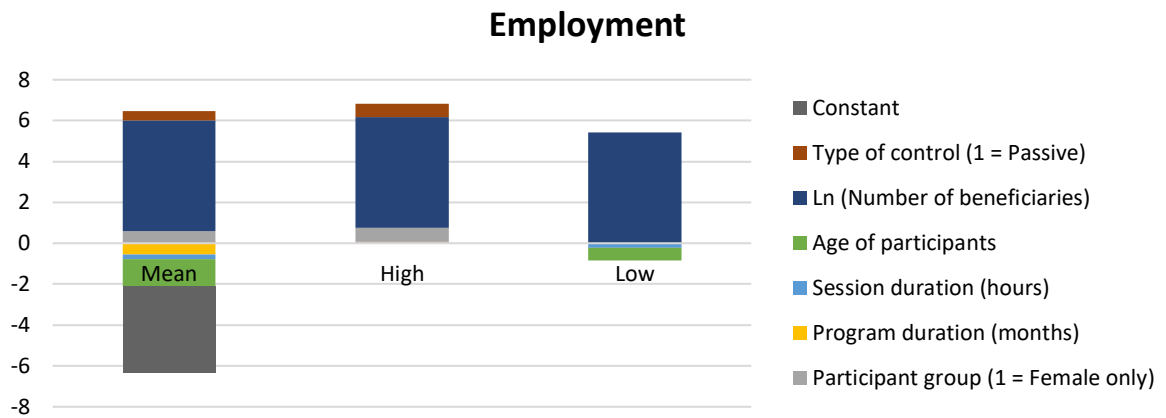
Source: Authors

Figure 28. Drivers of high and low effect sizes for income, consumption and assets



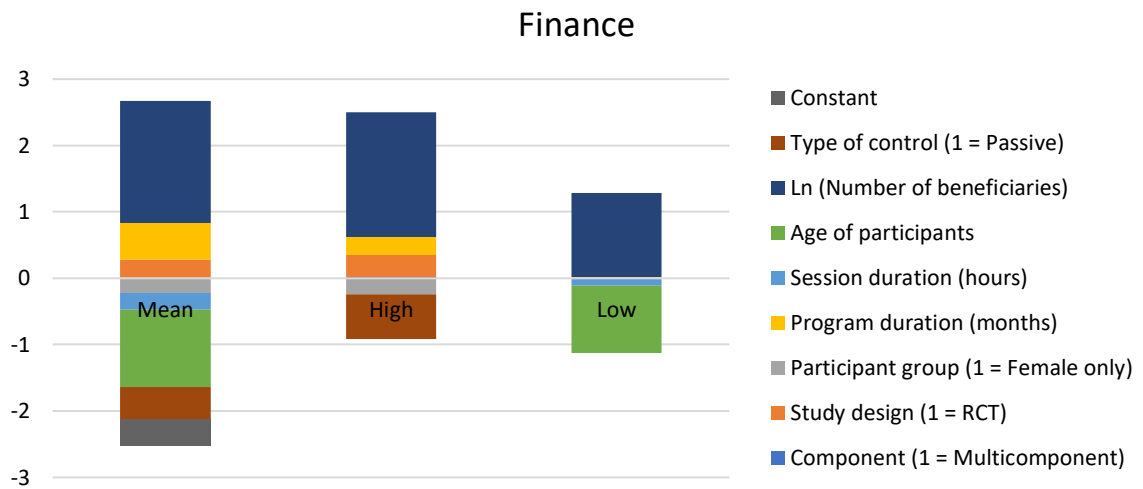
Source: Authors

Figure 29. Drivers of high and low effect sizes for employment outcomes



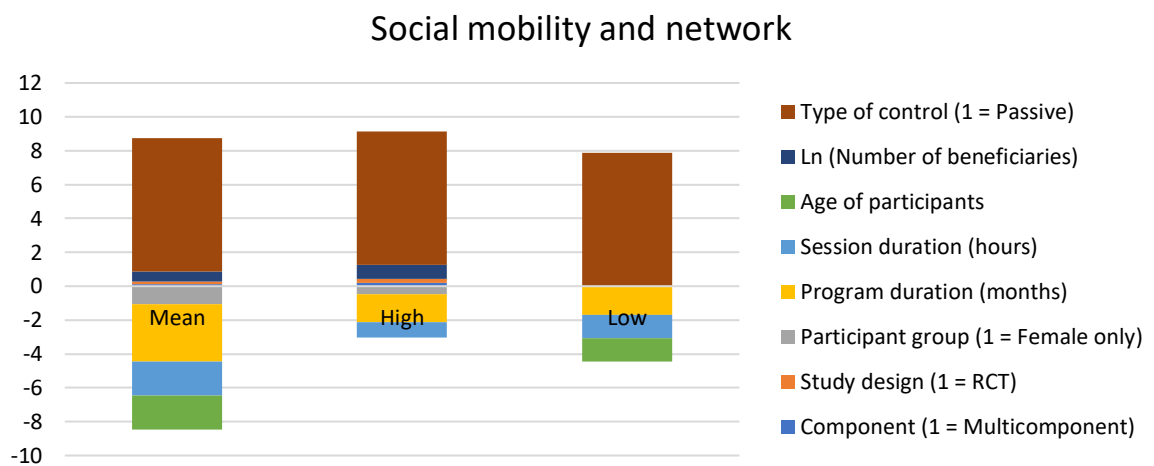
Source: Authors

Figure 30. Drivers of high and low effect sizes for finance outcomes



Source: Authors

Figure 31. Drivers of high and low effect sizes for social mobility and network



Source: Authors

C. PUBLICATION BIAS

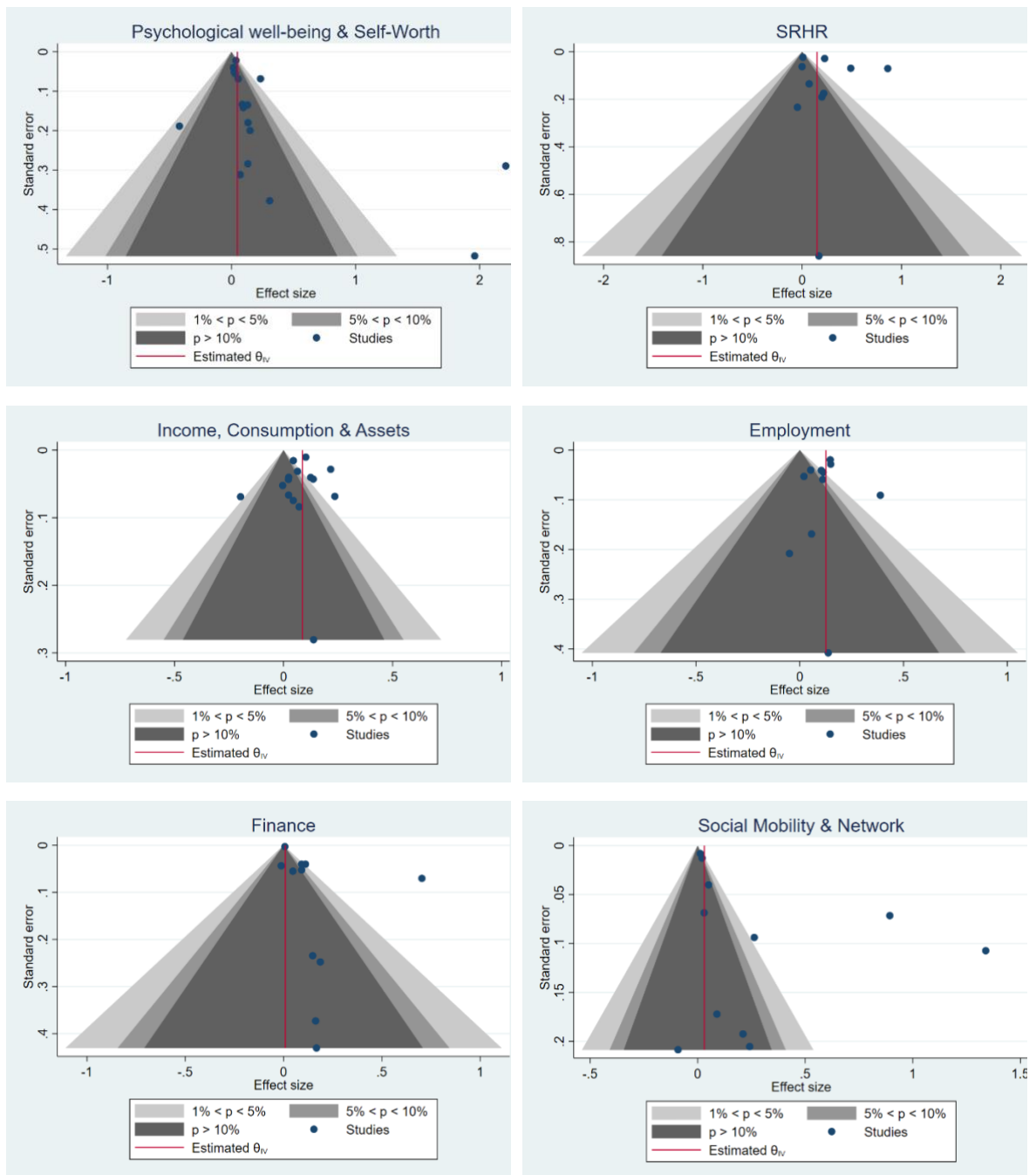
To assess for sound methodological design and publication bias, we created funnel plots for each outcome category (as described in the previous sections). This analysis was only performed when we had at least 10 observations for an outcome. These are presented in Figure 32.

Studies which have a large sample are found near the top of funnel plots as estimates are more precise (with more units, confidence levels decrease, standard errors are smaller). Studies which have a small sample (and larger standard errors) are found at the bottom of the plots. Funnel plots also show the boundaries between significance levels, and the effect size for each study (as well as the average effect size). If all studies have good methodological designs, consistently report all relevant outcomes and if publication bias did not play a role, we'd expect a degree of symmetry around the average effect size line. In addition, effect sizes would not be clustered just inside the boundary of significance levels.

The visual assessment of funnel plots in Figure 32 suggests some asymmetry as most studies tend to be to either the right or the left of average effect size lines. For example, see the funnel plots for psycho-social well-being, finance and social mobility and networks which are all skewed to the right. However, for each of the funnel plots we do not see numerous studies just inside significance boundaries, suggesting publication bias may have played a limited role.

To formally check for evidence of publication bias, we ran a regression-based Egger's test which measures the correlation between the effect size and its standard error. As shown in Table 7, Egger's regression results show p-values are insignificant at the 5 % level of significance for all studies and that only three sets of studies (psycho-social well-being, finance and social mobility and network) show significance at the 10% level. These are the same three sets of studies which are right-skewed (towards greater effect sizes) in the funnel plots: psycho-social well-being, finance and social mobility, and networks. As such, while the visual presentation of funnel plots suggests some asymmetry, Egger's test does not find evidence of publication bias in three sets of studies (SRHR, income, consumption, and assets and employment). There is weak evidence that publication bias may have influenced the results of studies on psycho-social well-being, finance and social mobility and network. These results should be interpreted cautiously, given the small number of studies.

Figure 32. *Funnel plot analysis to check for sound methodological design and publication bias*



Source: Authors

Table 7. *Egger's test of funnel plot asymmetry*

	$\beta 1$	Standard error	p-value
Psycho-social well-being and self-worth	1.43	0.724	0.065
SRHR	1.86	2.128	0.407
Income, consumption and assets	3.6	3.101	0.265
Employment	-0.4	0.754	0.607
Finance	1.93	0.987	0.082
Social mobility & network	3.64	1.825	0.077

Source: Authors

VI. SUMMARY OF MAIN RESULTS

Life skills interventions have a significant and positive, but mostly small effect on most self-empowerment indicators assessed in this review. For instance, controlling for outliers, the overall pooled effect size estimate for studies with psycho-social well-being and self-worth outcomes was significant and positive.¹⁰ Life skills interventions also tend to have a positive, slightly larger and significant effect on attitudes towards gender issues (SMD = 0.26; 95% CI = 0.02, 0.5). For self-leadership, the overall pooled effect size estimate is positive and significant (SMD = 0.20; 95% CI = 0.04, 0.37) but insignificant for multi-component interventions. Both the overall (SMD = 0.05; 95% CI = -0.02, 0.13) and multi-component pooled effect sizes (SMD = 0.05; 95% CI = -0.03, 0.14) are insignificant for education and literacy outcomes.

The effect of life skills interventions on various indicators of social empowerment was mixed. The SRHR outcome area showed a significant overall pooled effect size estimate of 0.33 SMD (95% CI = 0.10, 0.57), and a small significant pooled effect size estimate was found for social services (SMD = 0.05; 95% CI = 0.01, 0.08). Insignificant effects were observed for other social empowerment indicators such as social mobility and networks and social norms.

The meta-analysis for economic empowerment outcomes was conducted for income, consumption and assets, finance and employment. For the outcome subcategory of income, consumption and assets, the overall pooled effect size estimate was positive but small and insignificant (SMD = 0.05; 95% CI = -0.01, 0.11). The overall pooled effect size is also positive and significant for finance (SMD = 0.22; 95% CI = 0.04, 0.40), with high heterogeneity (I-squared = 96.00%). Pooled overall effect size for employment is also significant (SMD = 0.08; 95% CI = 0.04, 0.12), with a relatively low level of heterogeneity (I-squared = 19.02%).

The meta-analysis on political empowerment outcomes could not be conducted as one of the two studies with political empowerment indicators did not report sufficient information for us to compute effect sizes.

For many outcomes, there is a larger effect for multi-component interventions than single component interventions, though the difference is never significant.

A. OVERALL COMPLETENESS AND APPLICABILITY OF EVIDENCE

This systematic review is confined to assessing the effectiveness of life skills interventions on self-, social and economic empowerment, along with any intermediate outcomes, such as learning outcomes. This review suggests life skills interventions have been effective in improving empowerment and learning outcomes. We have also attempted to reflect on the factors likely to have a differential effect on outcomes. This systematic review does not discuss the implementation issues of various life skills programmes (as this was outside the scope of the study). To provide a complete picture of the evidence in this study field, an exploration of the implementation issues specific to life skills programmes for empowerment and learning outcomes would have been useful.

B. QUALITY OF THE EVIDENCE

The critical appraisal of the included studies suggests that although 70% are RCTs, only about 20% were assessed with high confidence in the findings. More than two-thirds of the included studies in

¹⁰ For psycho-social well-being and self-worth, the overall pooled effect size estimate for all the studies (SMD = 0.08; 95% CI = 0.03, 0.12), multi-component interventions (SMD = 0.10; 95% CI = 0.03, 0.18) and single component interventions (SMD = 0.05; 95% CI = 0.01, 0.09) reflect this finding.

this review are rated with low confidence in study findings. Most of the studies assessed as low confidence lacked a sufficient description of attrition or outcomes.

C. LIMITATIONS AND POTENTIAL BIASES IN THE REVIEW PROCESS

Since the review includes only studies published in English, the literature on life skills published in regional languages or languages other than English is not included in the systematic review. This limitation may be addressed by including multi-lingual team members subject to the availability of resources to expand the scope of searches beyond English publications.

Two researchers conducted title and abstract screening, full text screening and data extraction. Any disagreements between them were resolved through discussion or by approaching the arbiter. This approach limited any bias or error or judgment regarding the inclusion of studies or data extraction.

D. AGREEMENTS AND DISAGREEMENTS WITH OTHER STUDIES OR REVIEWS

We are unaware of any existing review with a similar scope as ours. The effectiveness of life skills interventions in existing reviews has been assessed mostly for certain sub-groups, such as those with disabilities or mental health problems or confined to settings such as schools. However, we can draw parallels with the existing research base regarding the effectiveness of life skills interventions for selected outcomes.

For instance, a review on the effectiveness of life skills programmes among adolescents in low and middle-income countries, which targeted at least one mental health outcome, found the interventions benefited participants in several ways, including (i) reducing symptoms of anger (SMD = 1.234), (ii) improving life skills (SMD = 0.755), (iii) improving functioning (SMD = 0.491), (iv) decreasing post-traumatic stress disorder (SMD = 0.327), and (v) lowering depression and anxiety (SMD = 0.305) (Singla and others, 2020). This finding is similar to our finding that life skills interventions were effective in enhancing the psycho-social well-being of the participants and improving life skills.

Another review on economic self-help groups among women in low and middle-income countries suggests that economic self-help groups with financial and business education or life skills training enhance the participants' psychological, social, and political empowerment (Brody and others, 2015). Our review has a similar finding on indicators related to psychological and social empowerment domains. However, we could not explore the effects on political empowerment due to a lack of sufficient data reported in the included studies for this outcome domain.

VII. AUTHORS' CONCLUSIONS

A. IMPLICATIONS FOR PRACTICE AND POLICY

The findings of this review provide modest support for using life skills training to support women's empowerment. The evidence suggests there are positive effects, but these are small. Small but significant positive changes were detected for a range of outcome areas including leadership, attitudes to gender issues, sexual and reproductive health and rights, employment and life skills themselves.

There is some indication that life skills may be more effective as a multi-component intervention than when delivered alone. Including life skills interventions within components of Green Climate Fund and International Fund for Agricultural Development project interventions can contribute to transforming women's lives, livelihoods and societal roles.

Hence, agencies adopting or supporting life skills training should engage with research teams to address a research agenda that fully informs future programme designs.

B. IMPLICATIONS FOR RESEARCH

The number of included studies for each outcome is small. Moreover, there is commonly low confidence in study findings, and high heterogeneity for many outcomes. Hence, more primary studies are needed in this area to better inform policy and practice.

Such studies should present power calculations to ensure sufficient sample size, use random assignment where feasible – and report baseline balance where not, and investigate possible blinding of enumerators and data analysts.

Research teams should engage with practitioners to determine the research questions of most interest. These are likely to include: (i) factorial designs to test the combination of different components and the relative effectiveness of single and multi-component approaches, (ii) design issues such as curriculum design and ways to ensure participation, and (iii) complementary interventions to address social norms.

Presuming such research is forthcoming, this review should be updated after 2-3 years.

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APPENDICES

Appendix 1. DESCRIPTION OF INTERVENTION AND OUTCOME CATEGORIES

Intervention categories

INTERVENTION	SUB-INTERVENTION	DEFINITIONS
Policy and institutional	Legislation	Laws supporting women's rights, access to resources and options; advocacy for rights and legislation (Addae, 2015).
	Gender-based budgeting	A gender-based assessment of budgets, incorporating a gender perspective at all levels of the budgetary process and restructuring revenues and expenditures to promote gender equality (Quinn, 2009).
	Governance and accountability	Organizational systems, procedures and interventions by government bodies that provide information and ensure accountability to non-government stakeholders, such as civil society organizations, and the general public.
	Access to justice	Use of judicial system to redress rights violations. Interventions to improve access to justice for women.
	Institutional reform and regulations	Changes at the level of institutions in policies, rules, regulations and procedures that increase gender sensitivity or gender transformation and gender equity.
Capacity building	Life skills training	Training to enhance life skills (with life skills defined as the abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life).
	Technical and vocational training	Non-traditional forms of training or learning training may comprise "a series of courses on income generating activities" (Bandiera and others, 2012) or developing soft skills such as "interaction with customers, work in teams, acting professionally and properly representing themselves in job interviews" (Groh and others, 2012). Their aim is to equip participants to find employment in any sector or be self-employed. The technical skills training may be around enhancing knowledge about the technical aspects of an occupation/vocation, such as using certain machines or technology in agriculture or seed management to enhance productivity.
	Business training & mentoring	Business coaching or mentoring programmes that provide participants with knowledge and skills to start a business or "promote entrepreneurship by providing entrepreneurship training" (Pascual, 2008), e.g. financial management and marketing strategies.
	Information and communication technology interventions	Training or learning programmes on digital tools and software, among other technologies.
Support to civil society and community organizations	National organizations	Government or civil society national level associations for women.
	Self-help groups	Community groups of about 10-20 members that pool savings and for circular credit. Groups may or may not be supported by a formal lending institution such as a bank and may undertake joint activities.
	Farmers groups	Groups or associations among farmers that support

INTERVENTION	SUB-INTERVENTION	DEFINITIONS
		collective activities such as training or input procurement.
	Savings groups	Groups or associations in which most members are women saving and borrowing.
	Cooperatives	Producer and consumer cooperatives for sales and purchases.
	Other community groups	Any other associations within the community for women or supporting women.
Economic	Cash and in-kind transfers (to households, not firms)	Cash and in-kind or other goods and services are given for free to households, either conditionally or unconditionally.
	Asset programmes (including land)	Programmes which provide ownership or use rights to assets, including land.
	Business loans and grants (including in-kind for business)	Cash loans, in-kind or other goods and services for business purposes or entrepreneurship.
	Financial services (insurance, etc.)	Financial services provided by the finance sector other than loans, e.g. insurance and forex.
	Employment support	Interventions that provide employment through work placements, apprenticeships, internships, public works opportunities and job quotas.
	Access to markets	Interventions that promote women's knowledge of and access to markets and participation in trade-related activities.
Gender awareness activities for social-behavioural change	School-based	Interventions that may be delivered at a classroom level or follow a whole-school approach towards raising awareness among students and staff about gender inequality and bias and enhance inclusive learning.
	Family/individual	Interventions that are delivered on a one-to-one or family basis (including couples/significant others/partners) to reflect on aspects of (SRHR) and gender norms, roles and relations to encourage joint decision-making.
	Community-based	Interventions delivered in a group setting among community members who may or may not be influential, to reflect, discuss and debate the gender norms and roles to address gender inequalities.
	Media campaigns	Interventions promoting gender awareness through print or electronic media and which may also concern sex-selective abortions, education for girls, immunization, nutrition and other related issues that address gender inequalities.
	Educational interventions	Various educational materials/activities/programmes on gender awareness.

Outcome categories

DOMAIN	INDICATORS	DEFINITIONS
Self-empowerment	Psycho-social well-being	Psychological well-being, self-esteem, self-efficacy, sense of inclusion and entitlement (Addae, 2015).
	Leadership	Ability to lead, manage and mobilize.
	Attitudes to gender issues	Opinions regarding gender norms, roles and relations.
	Decision-making	Role in decision-making matters, such as allocation of

DOMAIN	INDICATORS	DEFINITIONS
		household resources and SRHR.
	Awareness of rights	Knowledge of rights, exercising rights, rights awareness and collective awareness of injustice.
	Education and literacy	Competence in educational matters, knowledge and know-how, women's literacy and access to a broad range of educational options.
	Time-use	Indicators that measure the time spent by women in different activities and may indicate the hours women spend on work or leisure (recognizing multi-tasking).
Social empowerment	Mobility	Women's access to or restriction from places and spaces.
	Association and social network	Representation in associations, participation in social networks or groups outside the family that support women.
	Access to social services	Access to different public services, including those that support women or specific vulnerable groups.
	Access to justice	Access to legal services or legal advice and equality before the law.
	Digital access	Access to and ability to use digital tools and services.
	Norms and values	Beliefs and ideals about women's role in the community or society.
	Safety	The safety of an environment, community or society for women.
	SRHR	Women's control over their sexual identity, behaviour and knowledge of sexual rights and information.
Economic empowerment	Employment	Employment measures, including job quality.
	Income & expenditure	Earnings and expenditure.
	Assets (including land)	Control and ownership of assets and land.
	Finance	Access to credit/loan/finance.
	Business	Any outcome where a woman owns or controls a business.
Political empowerment	Participation (including voting)	Political engagement and participation, the right to vote and the ability to exercise that right, knowledge/awareness of the political system and the means to navigate it.
	Political representation	Representation in local government and government bodies or agencies, including formal representation of women's interests or lobbying for women's interests.
	Legal and institutional framework and rights	Changes in rules, regulations, policies, contracts, laws, and legislation by government and other agencies and organizations.

Appendix 2. SCREENING TOOL

NUMBER	QUESTION	RESPONSE
1.	Is the study conducted in developing countries per the UNFCCC's Kyoto Protocol classification of non-Annex-1 countries? See https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states	Yes, screen on Q.2 No, Exclude on country.
2.	Does the study target women/men (of any age, employment or landholding status or engaged in any sector of the economy, be it formal/informal/ self-employed) or programme staff and community-level influencers (youth/elderly) towards empowering women?	Yes, screen on Q.3 No, Exclude on population.
3.	Is it a life skills intervention (in conjunction with technical and vocational training and/or business training and mentoring) aimed at empowering women at any level, be it individual /household/community and may be led by women?	Yes, screen on Q.4 No, Exclude on intervention.
4.	Does the study analyse the effect of the life skills intervention on women's empowerment resulting from economic or socio-cultural or legal or political or familial or interpersonal or psychological outcomes? (Quantitative)	Yes, Include! No, Exclude on design.

Appendix 3. CODING/DATA EXTRACTION FORM

- Country
 - List of countries including not reported
- Region (Geographic)
 - East Asia and Pacific
 - Europe and Central Asia
 - Latin America and Caribbean
 - Middle East and North Africa
 - South Asia
 - Sub-Saharan Africa
 - Not reported
- Region (Income)
 - Low-income
 - Lower-middle income
 - Upper-middle income
 - High-income
 - Not Reported
- Target group of intervention
 - Women (25 and above)
 - Young women (15-24)
 - Girls
 - Men and boys
 - Community leaders
 - Government officials
 - NGO workers
 - Target not stated/relevant
- Population
 - Poor and disadvantaged
 - People with disabilities
 - Humanitarian settings/conflict affected
 - Not reported
- Study Design
 - Randomized Controlled Trial
 - Non-experimental design with comparison group
- Study Status
 - Completed
 - Ongoing

- Level of intervention
 - Individual
 - Household
 - Firm
 - Community and community groups
 - Not stated/relevant
- Location of intervention
 - Rural, including semi-rural
 - Urban, including peri-urban
 - Both
 - Not stated or unclear
- Scale
 - Local
 - Regional
 - National
 - Not stated/not reported
- Implemented by
 - Government agency
 - Official development agency
 - International NGO
 - Local NGO
 - Private sector
 - Research team
 - Community or individual
 - Other
 - Not reported
- Setting of intervention
 - School and college
 - Training centre
 - Community (centres, public spaces, field, etc.)
 - Private sector organization
 - Other
 - Not stated/reported
- Intervention
 - Policy and institutional
 - + Legislation
 - + Gender-based budgeting
 - + Governance & accountability
 - + Professional training

- + Institutional reform & regulations
- Capacity building
 - + Life skills training
 - + Technical and vocational training
 - + Business training and mentoring
 - + Information and communication technology interventions
- Support to civil society and community organizations
 - + National organizations
 - + Self-help groups
 - + Farmers groups
 - + Savings groups
 - + Cooperatives
 - + Other community groups
- Economic interventions
 - + Cash and in-kind transfers (to households not firms)
 - + Asset programmes (including land)
 - + Business loans and grants (including in-kind for business)
 - + Financial services (insurance, etc.)
 - + Employment support
 - + Access to markets
- Gender awareness activities for social-behavioural change
 - + School-based
 - + Family-individual
 - + Community-based
 - + Media campaigns (including social media)
 - + Educational interventions
- Outcomes
 - Self-empowerment
 - + Psycho-social well-being
 - + Leadership
 - + Attitudes to gender issues
 - + Decision-making
 - + Awareness of rights
 - + Education and literacy
 - + Time-use
 - Social empowerment
 - + Mobility
 - + Association and social network
 - + Access to social services

- + Access to justice
- + Digital access
- + Norms and values
- + Safety
- + SRHR
- Economic empowerment
 - + Employment
 - + Income and expenditure
 - + Assets (inc. land)
 - + Finance
 - + Business
- Political empowerment
 - + Participation (including voting)
 - + Political representation
 - + Legal and institutional framework and rights
- Programme name/ Branded Programmes
- Effect size (Numerical values)
- Type of effect
 - Proportion or percentage
 - Regression coefficient
 - Mean
- Sample or sub-sample estimate
 - Whole sample
 - Age sub-sample
- Sample size – treatment group (numerical value)
- Sample size – comparison group (numerical value)
- Other effect size statistics
 - Standard error
 - T statistics
 - Z statistics
- Time of measurement
 - Endline
 - 2 year follow up
- Attrition rate (Numerical value and time at which measured)
- Treatment estimate
 - Intention-to-treat
 - Treatment on the treated
- Comparison condition
 - Active

- Passive
- Critical appraisal for primary studies
 - 1a. Study design, end of intervention (Potential confounders taken into account)
 - + RCT
 - + Difference-in-differences (DiD) with Propensity score matching (PSM)
 - + Other
 - 1b. Study design, longest follow up if applicable (Potential confounders taken into account)
 - + RCT
 - + DiD with PSM
 - + Other
 - 2. Masking or blinding
 - + EITHER masking of of outcome measurement OR masking for analysis (or both)
 - + Unblinded or no mention of blinding
 - 3. Power calculation
 - + Mention of power calculation
 - + No discussion of power calculation
 - 4a. Losses to follow up are presented and acceptable, End of intervention
 - + Overall and differential attrition within WWC combined levels*
 - + Overall and differential attrition close to WWC combined levels*
 - + Attrition not reported, OR falls well outside WWC acceptable combined levels*
 - + N/A for ex post studies
 - 4b. Losses to follow up are presented and acceptable (Longest follow up, if applicable)
 - + Attrition not reported, OR falls well outside WWC acceptable combined levels*
 - + Overall and differential attrition close to WWC combined levels*
 - + Overall and differential attrition within WWC combined levels*
 - + N/A for ex post studies
 - 5. Definition of intervention are clearly defined
 - + Intervention named but not described, or not named
 - + Brief description of intervention
 - + Intervention clearly and fully described
 - 6. Outcome measures are clearly defined and reliable
 - + Outcome named but not described
 - + Brief description of outcome
 - + Outcome measure clearly and fully described, preferably with reference to validation
 - 7. Baseline balance (N/A. for before versus after)
 - + No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing common support
 - + Baseline balance test, imbalance on 5 or fewer measures

- + RCT or baseline balance report and satisfactory (imbalance on 2 or less measures)
- Overall confidence in study (end of intervention)
 - + Low: Low on any one of items 1a, 4a, 6 and 7
 - + Medium: Medium on any one of items 1a, 4a, 6 and 7 AND NOT LOW
 - + High: High on all of items 1a, 4a, 6 and 7
- Longest follow up (if applicable)
 - + Low on any one of items 1b, 4b, 6 and 7 (N/A if 1b and 4b N/A)
 - + Medium on any one of items 1b, 4b, 6 and 7 AND NOT LOW (N/A if 1b and 4b N/A)
 - + High on all of items 1b, 4b, 6 and 7 (N/A if 1b and 4b N/A)

Appendix 4. CRITICAL APPRAISAL TOOL TO ASSESS CONFIDENCE IN THE FINDINGS OF INCLUDED STUDIES

ITEM	DESCRIPTION	KEY
<i>Intervention</i>	Is the intervention clearly named and described, including all relevant components? See examples below.	High: full and clear description, so that the main components and how they are delivered are clear Medium: Partial description Low: Little or no description
<i>Evaluation questions</i>	Are the evaluation questions clearly stated?	High: full and clear description, so that the main components and how they are delivered are clear Medium: Partial description Low: Little or no description
<i>Study design</i>	Use the study design coding.	High: Experimental Medium: Non-experimental Low: Before versus after
<i>Outcomes</i>	Are the outcomes clearly defined? Where appropriate, do they use an existing, validated measurement tool? See examples below.	High: full and clear definitions using validated instruments where available (a researcher wishing to use these outcomes would have sufficient information to do so) Medium: Partial definition. May use validated instruments but without sufficient references to source Low: Little or no definition
<i>Sample size (power calculation)</i>	Do the authors report a power calculation as the basis for sample size?	High: Power calculation report and sample size meets the required number Medium: Power calculation report and sample size meets the required number Low: No mention of power calculation
<i>Attrition</i>	Reported for endline and longest follow-up. Calculate overall attrition and differential attrition (see example below). It is often necessary to calculate from a table of results. If sample size varies by outcome, calculate for the highest attrition.	High: Attrition within the Institute of Education Sciences conservative standard Medium: Attrition within Institute of Education Sciences liberal standard Low: Attrition outside Institute of Education Sciences liberal standard
<i>Baseline balance</i>	Are the treatment and comparison group comparable at baseline (same average values of observed indicators)?	High: Balance observed for 90% or more of reported indicators Medium: Balance observed on 80-89% of reported indicators Low: Balance observed on less than 80% of report indicators OR balance not reported

ITEM	DESCRIPTION	KEY
<i>Overall (including questions for all studies)</i>	The overall score uses the “weakest link in the chain” principle, i.e. is the lowest score on any item.	High: High on all items Medium: No lower than medium on any item Low: At least one low

Appendix 5. SEARCH TERMS

The following search terms were used:

Population

“adolsцен*” OR juvenile* OR minor* OR youth OR “young adult” OR “young women” OR “girl” OR (school adj6 student*) OR teen* OR schoolgirl* OR “young mother*” OR “young men” OR schoolboy* OR male or female or gender

Intervention

(Legislation OR "Sensitisation campaigns" OR "Gender awareness" OR "Information provision" OR "Multifunctional platform project*" OR "Safer spaces" OR "Civic education" OR "Reform village-level" OR "Inclusive community" OR "Cash transfers" OR "Financial literacy" OR "job skills training" OR "Active labor market") OR ("Transport infrastructure" OR "Business grants" OR "Public works programme*" OR "Women co-operatives" OR "Self-help groups" OR "Gender based budget*" OR "In-kind transfers" OR "group education" OR "Gender equality champions" OR PRADAN OR Priyadarshini OR STEP OR Kudumbasree OR NREGS OR "BRAC Project*" OR Insurance)) OR (Kiosks OR "Mahila E-Haat" OR "Rashtriya mahila kosh" OR "SWADHAR scheme" OR "Advocacy group" OR "small enterprises" OR "social-enterprises" OR "BRAC'S PROGRAMME" OR "Young women citizen center*" OR "Joint gender programme" OR "One-stop centers" OR "media advocacy" OR "Gender focal points")) OR ("educational incentives" OR microlending OR "Women on wheels" OR NGO OR "National skill development corporation" OR "Beti bachao beti padhao" OR "micro finance support" OR "Emerge center for reintegration

Location

Afghanistan Or Albania Or Algeria Or Angola Or Antigua And Barbuda Or Argentina Or Armenia Or Azerbaijan Or Bahamas Or Bahrain Or Bangladesh Or Barbados Or Belize Or Benin Or Bhutan Or Bolivia Or Bosnia Or Botswana Or Brazil Or Bulgaria Or "Brunei Darussalam" Or "Burkina Fasso" Or Burundi Or Burundi "Cabo Verde" Or Cambodia Or Cameroon Or "Central African Republic" Or Chad Or Chile Or China Or Colombia Or Comoros Or Congo Or "Cook Islands" Or "Costa Rica" Or Cote D'ivoire Or Cuba Or "Democratic Peoples Republic Of Korea" Or "Democratic Republic Of The Congo" Or Djibouti) Or (Dominica Or "Dominican Republic" Or Ecuador Or Egypt Or El Salvador Or "Equatorial Guinea" Or Eritrea Or Eswatini Or Ethiopia Or Fiji Or Gabon Or Gambia Or Georgia Or Ghana Or Grenada Or Guatemala Or Guinea Or Guiana Bissau Or Guyana Or Haiti Or Honduras Or India Or Indonesia Or Iran Or Iraq Or Jamaica Or Jordan Or Kazakhstan Or Kenya Or Kiribati Or Kuwait Or Kyrgyzstan Or "Lao Pdr" Or Lebanon Or Lesotho Or Liberia Or Libya Or Madagascar Or Malawi Or Malaysia Or Maldives Or Mali Or "Marshall Islands" Or Mauritania Or Mauritius Or Mexico Or Micronesia Or Mongolia Or Montenegro Or Morocco Or Mozambique Or Myanmar Or Nauru Or Namibia)) Or (Nepal Or Nicaragua Or Niger Or Nigeria Or Niue Or Oman Or Pakistan Or Palau Or Panama Or Paraguay Or Peru Or Philippines Or "Papua New Guinea" Or "Republic Of Moldova" Or Rwanda Or ("Saint Kitts And Nevis") Or "St Lucia" Or ("Saint Vincent And The Grenadines") Or Samoa Or ("Sao Tome And Principe") Or "Saudi Arabia" Or Senegal Or Serbia Or Seychelles Or "Sierra Leone" Or Singapore Or "Solomon Islands" Or Somalia Or "South Africa" Or "Sri Lanka" Or Sudan Or Suriname Or "Syrian Arab Republic" Or Tajikistan Or Thailand Or "The Republic Of North Macedonia" Or "Timor-Leste" Or Togo Or Tonga Or ("Trinidad And Tobago") Or Turkmenistan Or Tuvalu Or "United Arab Emirates" Or "United Republic Of Tanzania" Or Uganda Or Uzbekistan Or Vanuatu Or Venezuela Or Vietnam Or Viet Nam Or Yemen Or Zambia Or Zimbabwe)) Or

("Developing Countr*" Or "Less Developed" Or "Under Developed" Or Underdeveloped Or "Low Income Countr*" Or Deprived Or "Fragile States" Or "Deprived Nation" Or Lmic)

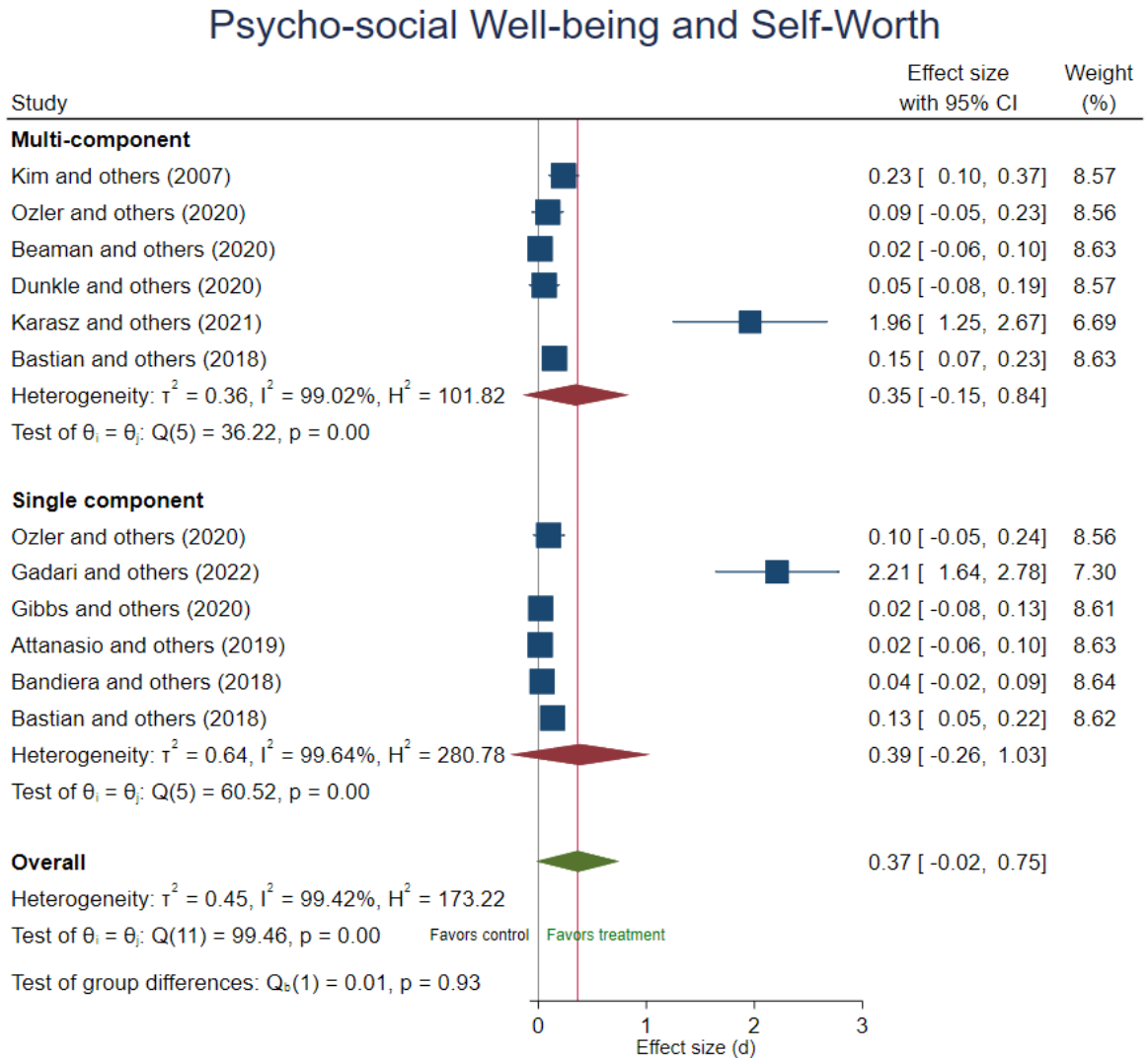
Outcomes

women empowerment index" OR "Self confidence" OR "Self esteem" OR "Self image" OR "Decision making" OR "" OR Bargaining OR "Freedom of mobility" OR "Freedom of movement" OR "Reduced age of marriage" OR "family size" OR "Women leader*" OR "Women entrepreneurs" OR "Awareness of rights" OR "Gender transformation" OR Education* OR "inheritance of property" OR Negotiations OR "Voting rights" OR "land rights" OR Empowered OR Capabilit* OR Autonomy OR "political empowerment" OR "Digital access" OR "Gender equality" OR "Political inclusion"

Appendix 6. FOREST PLOTS

1. FOREST PLOTS WITH OUTLIERS

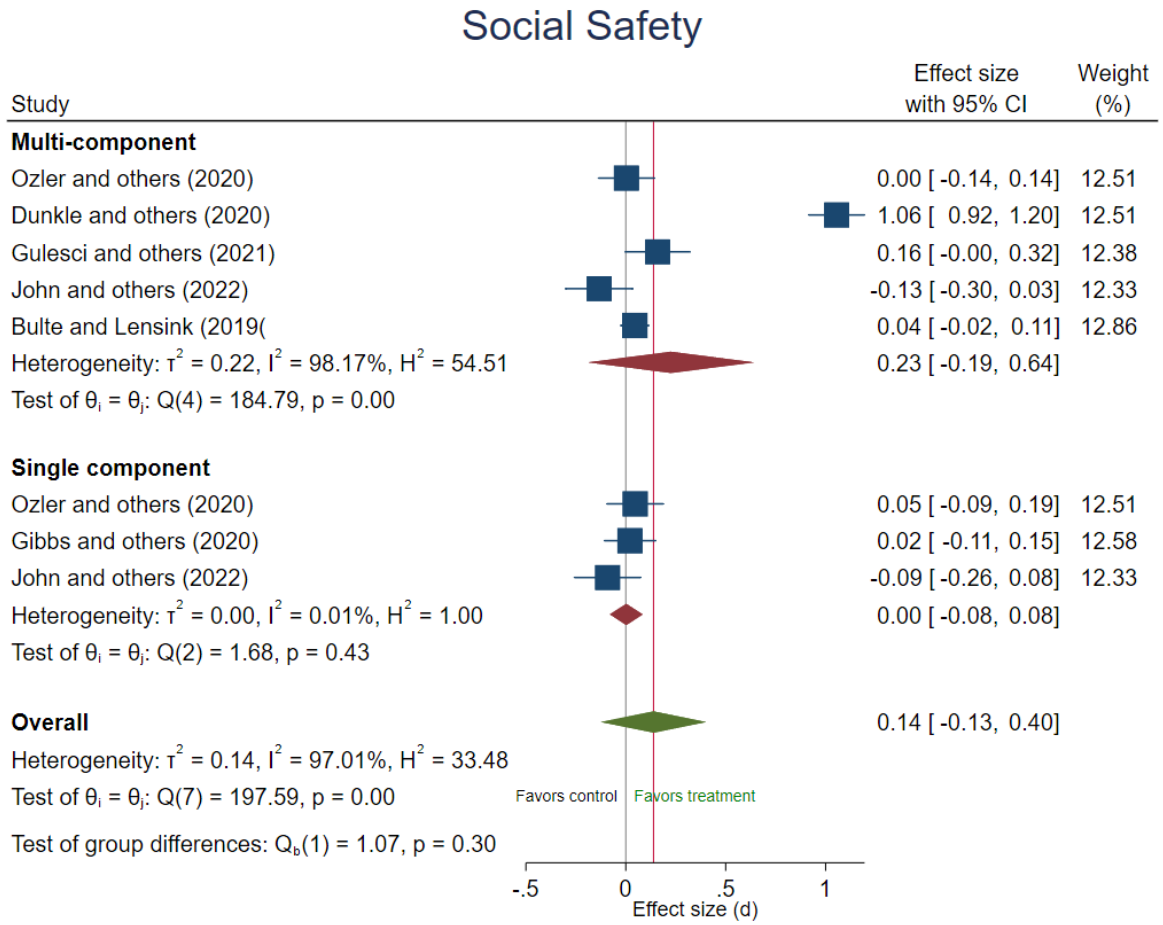
Figure A - 1. Effects on psycho-social well-being and self-worth



Source: Authors

Note: Only RCTs with passive controls included

Figure A - 2. Effects on social safety

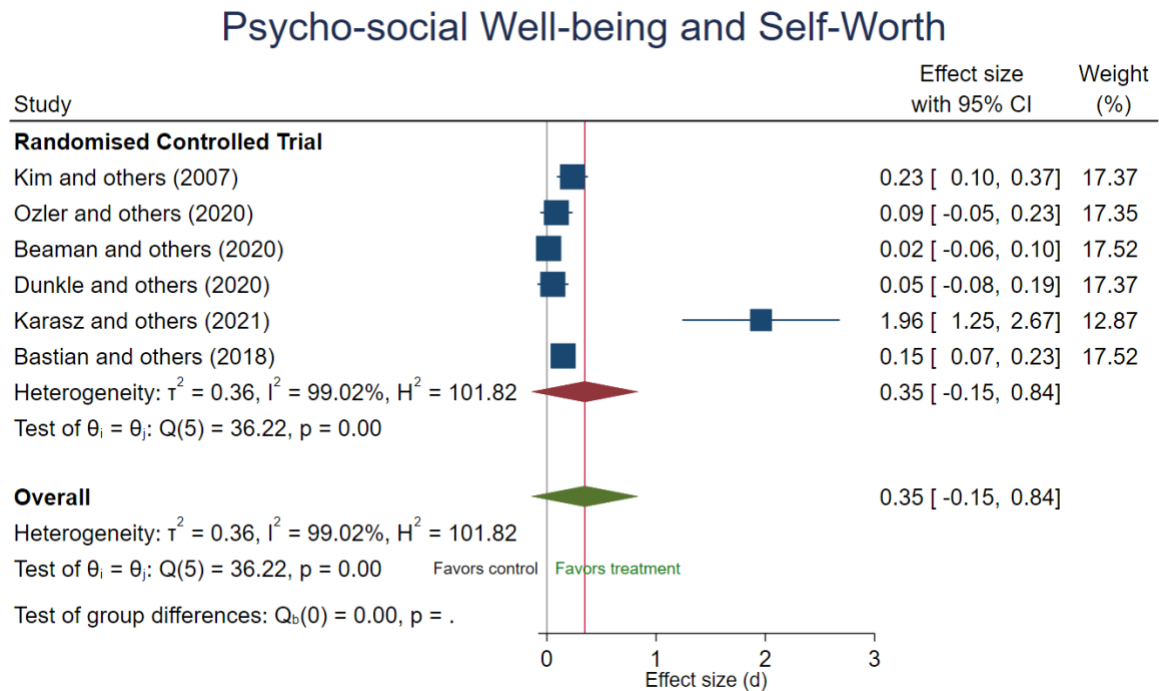


Source: Authors

Note: Only RCTs with passive controls included

2. FOREST PLOTS ON MULTI-COMPONENT INTERVENTIONS WITH A PASSIVE CONTROL GROUP, BY STUDY DESIGN

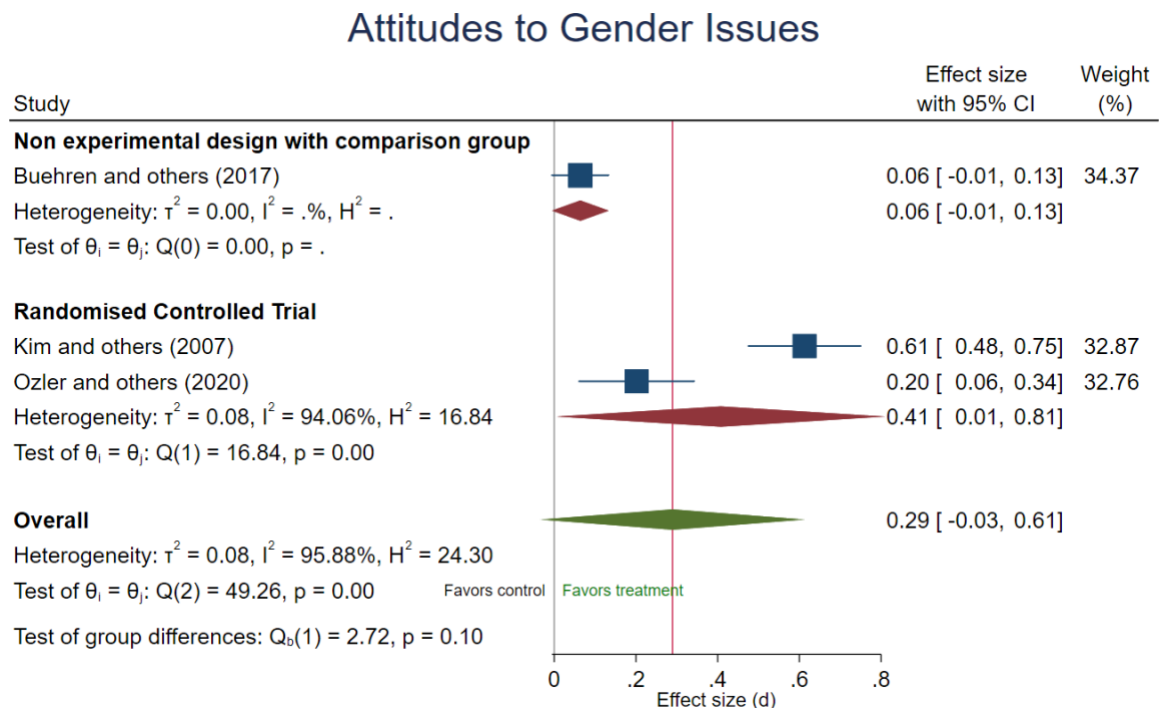
Figure A - 3. Effects on psycho-social well-being and self-worth



Source: Authors

Note: Only multi-component interventions with passive controls included

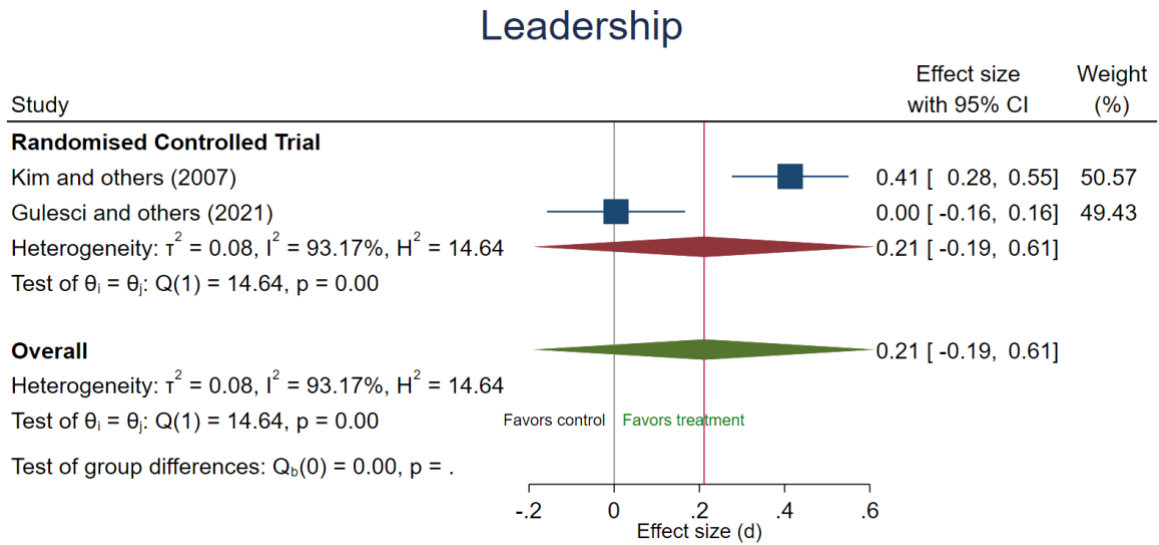
Figure A - 4. Effects on attitudes to gender issues



Source: Authors

Note: Only multi-component interventions with passive controls included

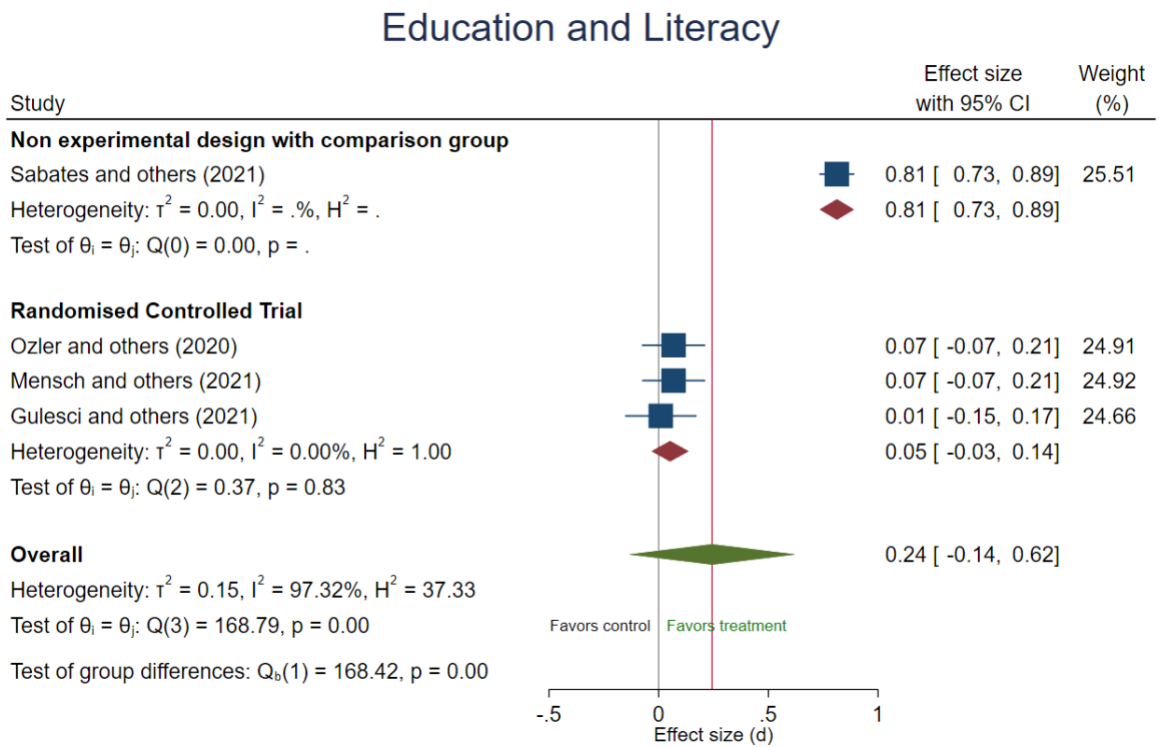
Figure A - 5. Effects on self-leadership



Source: Authors

Note: Only multi-component interventions with passive controls included

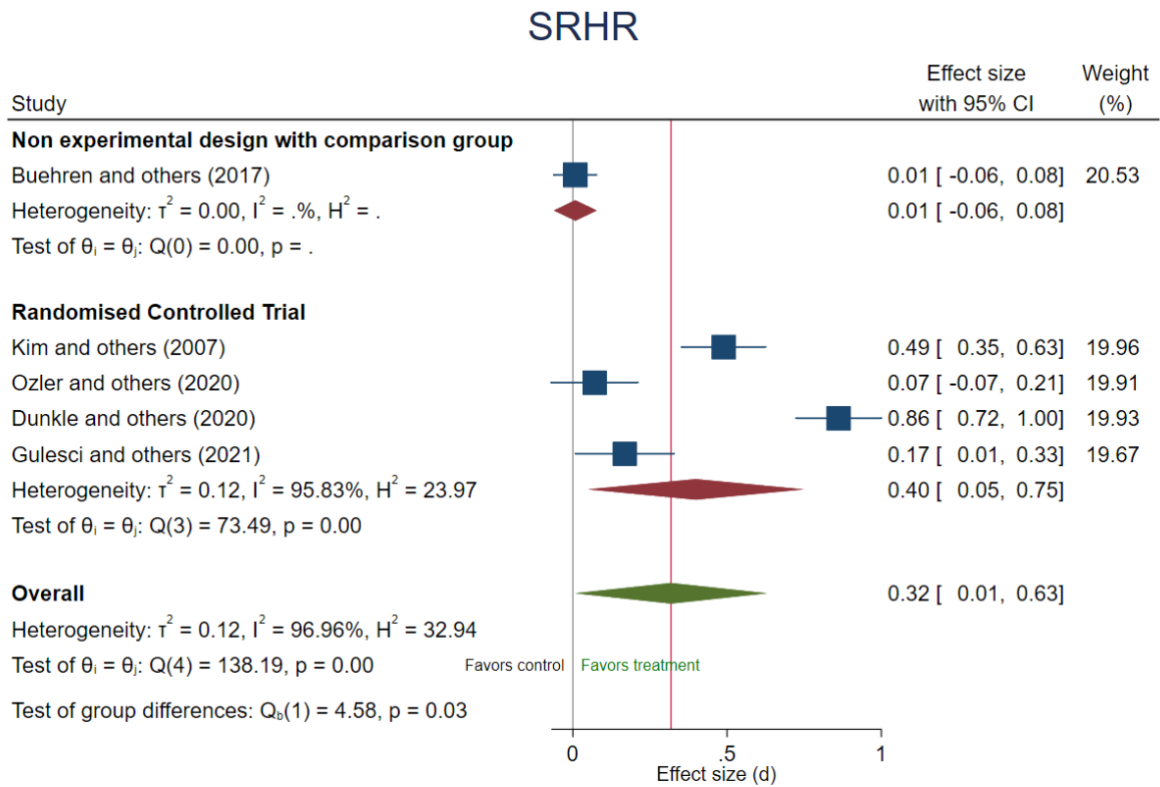
Figure A - 6. Effect on education and literacy



Source: Authors

Note: Only multi-component interventions with passive controls included

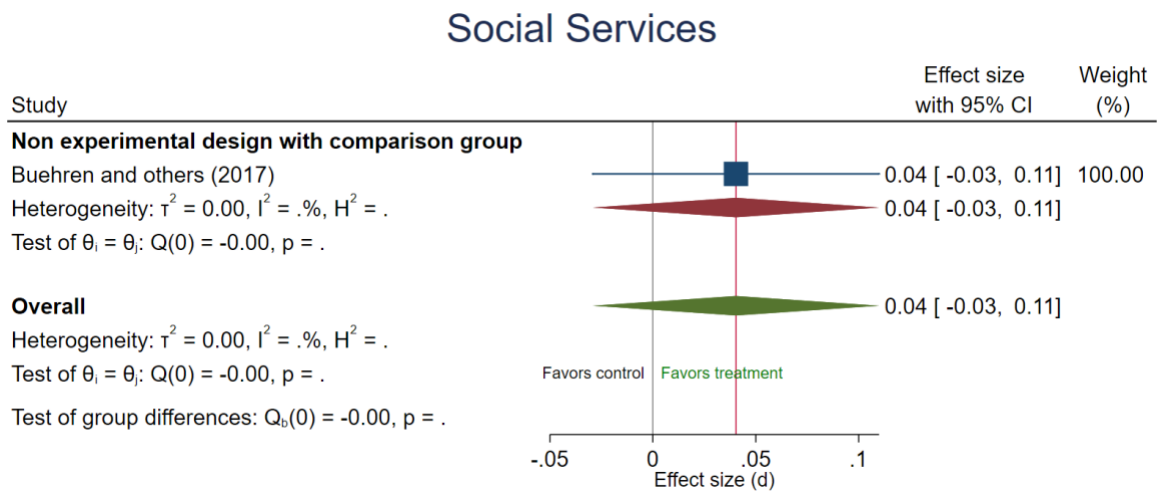
Figure A - 7. Effects on sexual and reproductive health and rights



Source: Authors

Note: Only multi-component interventions with passive controls included

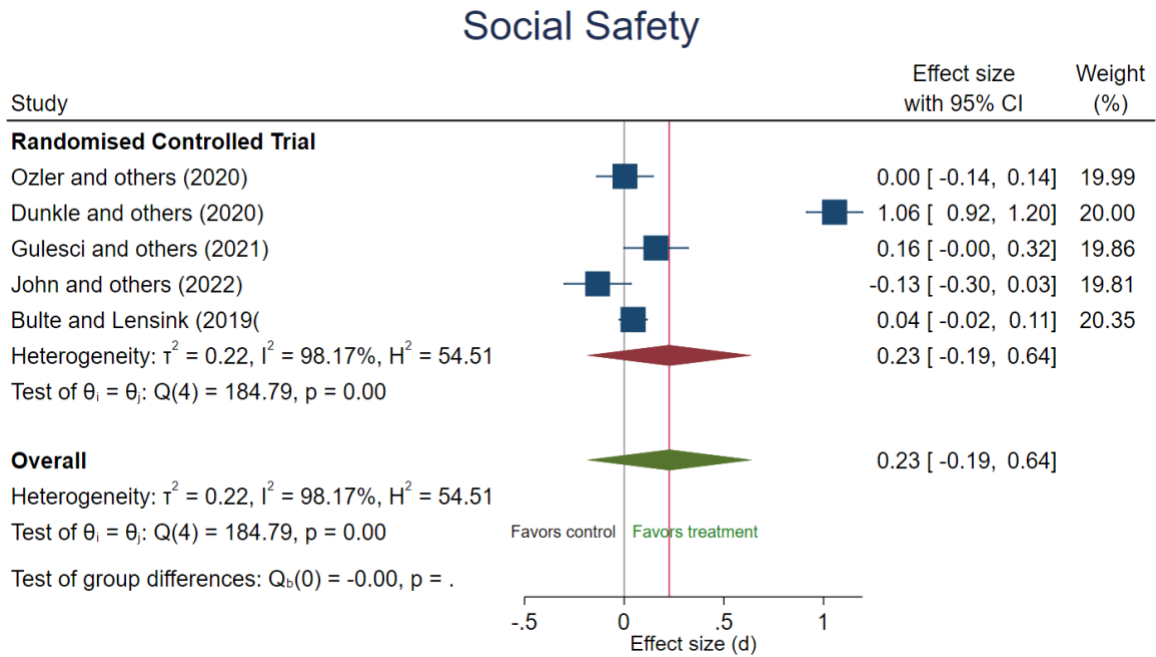
Figure A - 8. Effects on social services



Source: Authors

Note: Only multi-component interventions with passive controls included

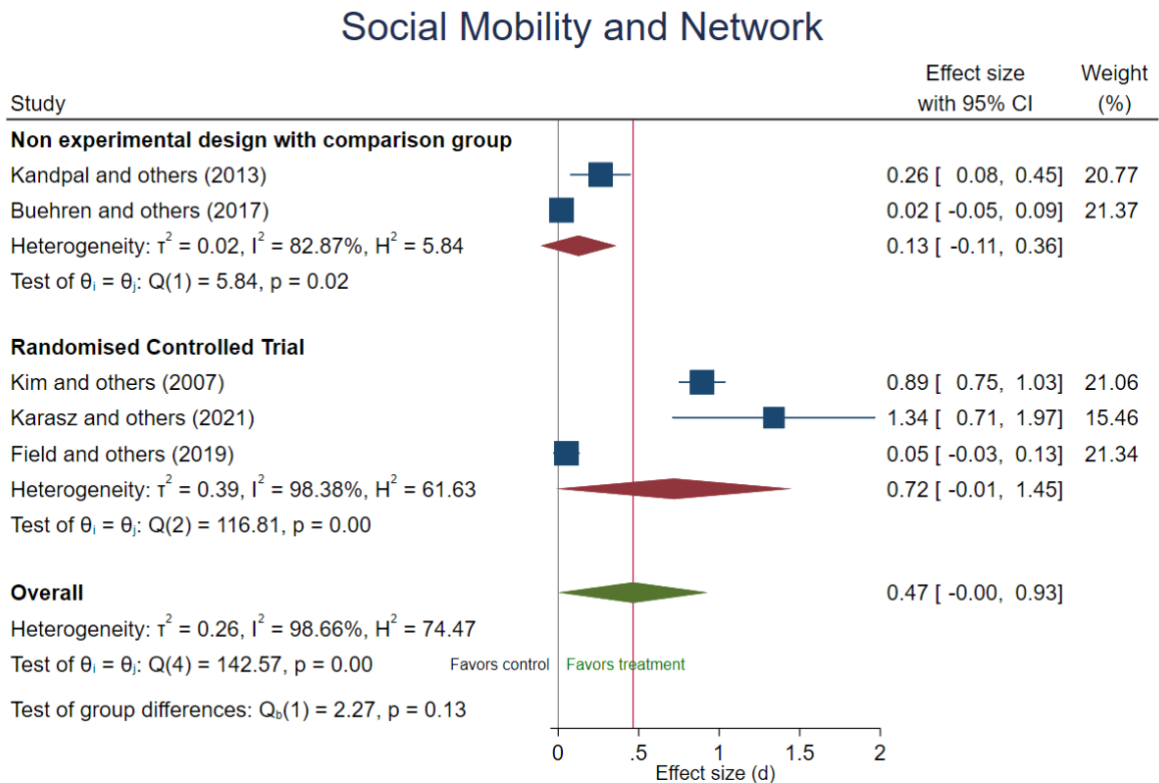
Figure A - 9. Effect on social safety



Source: Authors

Note: Only multi-component interventions with passive controls included

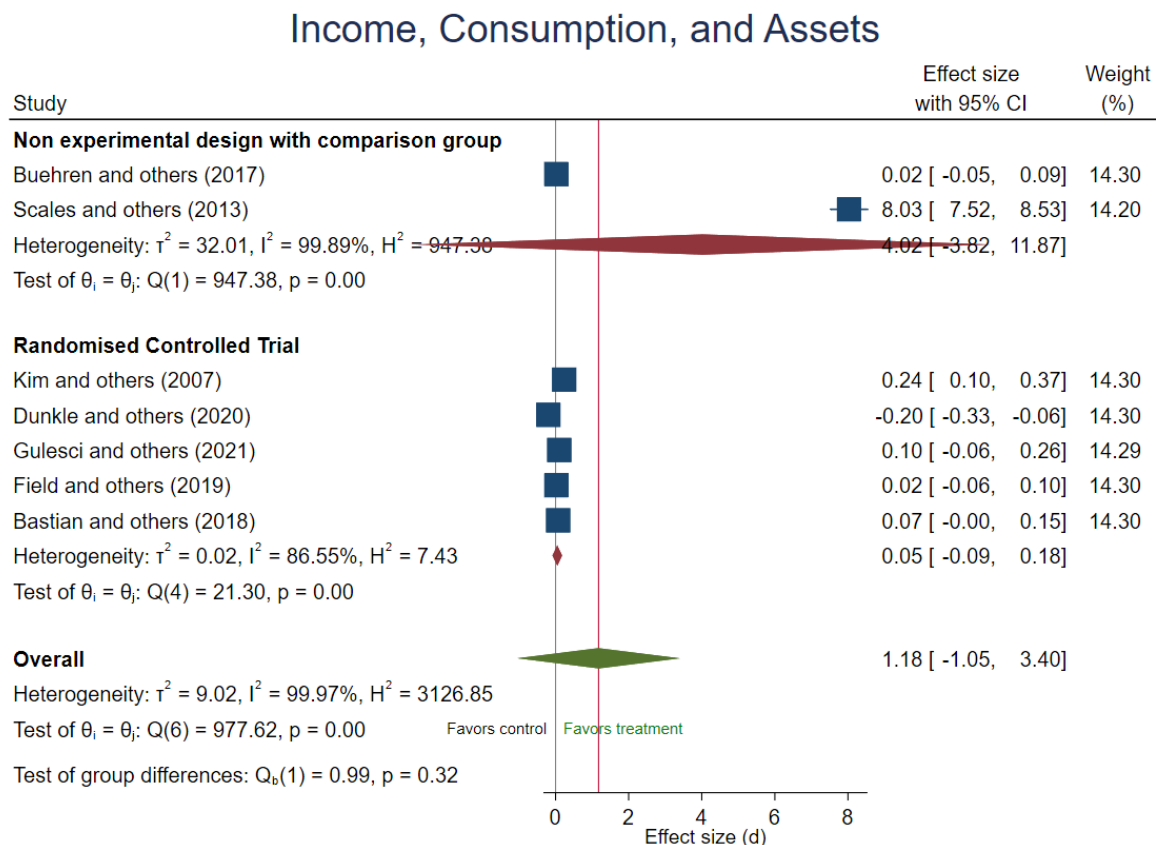
Figure A - 10. Effect on social mobility and network



Source: Authors

Note: Only multi-component interventions with passive controls included

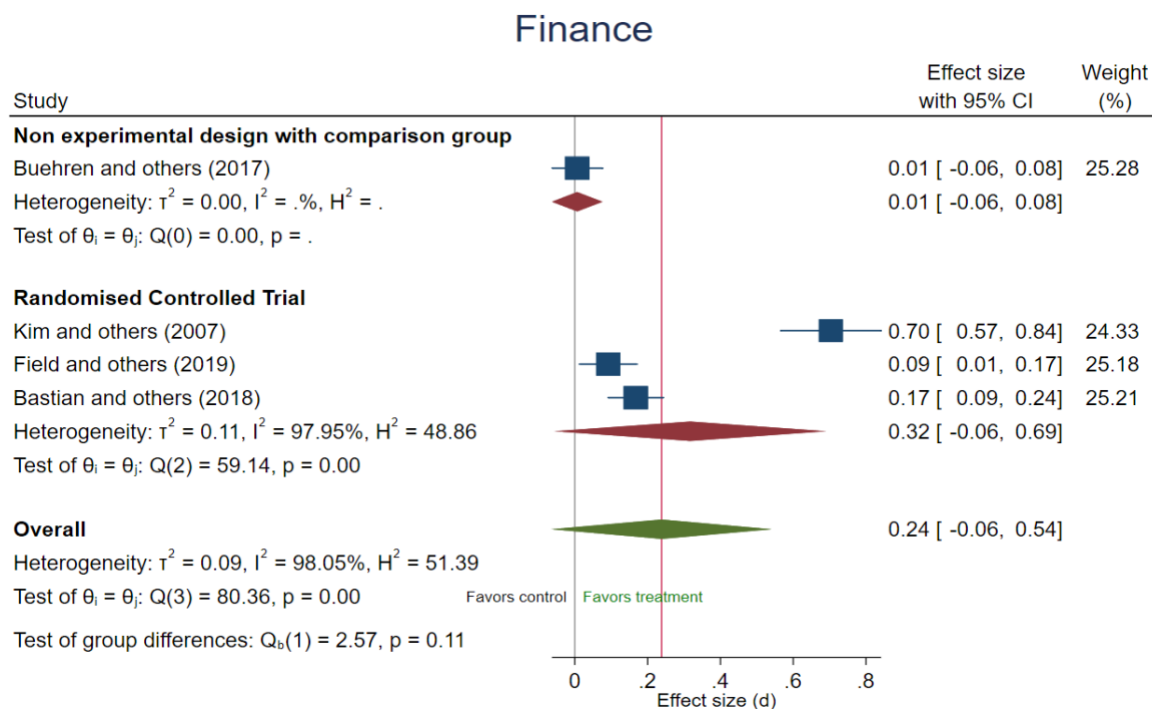
Figure A - 11. Effect on income, consumption, and assets



Source: Authors

Note: Only multi-component interventions with passive controls included

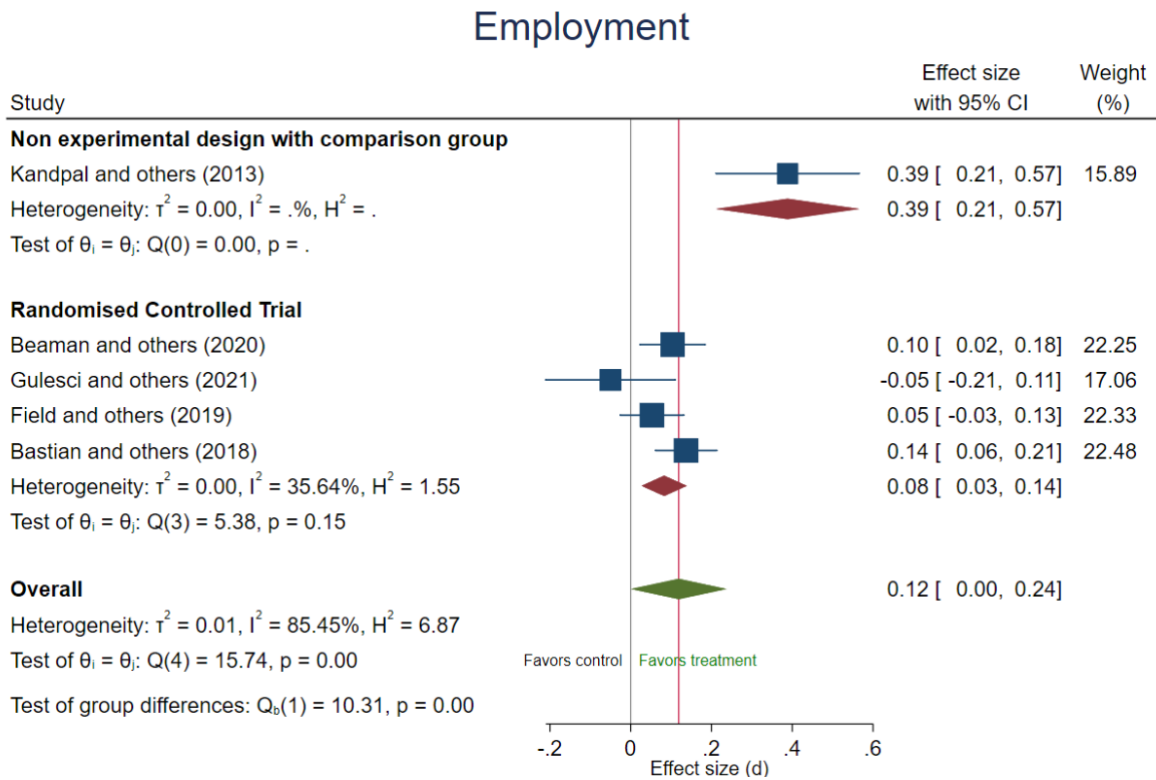
Figure A - 12. Effect on finance



Source: Authors

Note: Only multi-component interventions with passive controls included

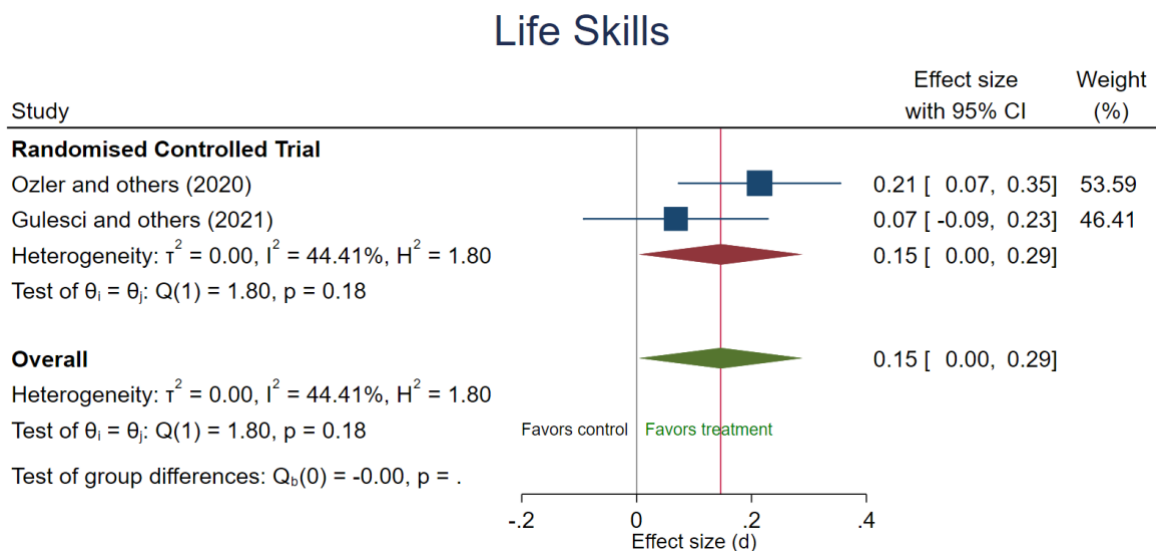
Figure A - 13. Effect on employment



Source: Authors

Note: Only multi-component interventions with passive controls included

Figure A - 14. Effect on life skills



Source: Authors

Note: Only multi-component interventions with passive controls included

Appendix 7. CHARACTERISTICS OF INCLUDED STUDIES

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
Adoho and others (2014)	Female only Young women 16-27 years	Regional	Urban	Community	Six months of classroom training followed by six months placement and support phase	7-18 months	Active	Face-to-face	Groups	Critical thinking skills/Decision-making skill Bundled with others	Self-empowerment Economic empowerment	Randomized Controlled Trial	Low
Alhassan and Goedegebuure (2015)	Female only	Regional	Rural	Community	30-45 minutes every meeting for 4-6 weeks	36 months or more	Active	Face-to-face	Groups	Critical thinking skills/Decision-making skill Bundled with others Microcredit	Self-empowerment Social empowerment; Economic empowerment Political empowerment	Non experimental design with comparison group	Low
Alibhai and others (2019)	Female only	Local	Urban	School TVET colleges Community Business Development Service centre	Approx. 30 hours for 15-20 half days (Digital Opportunity Trust, DOT) Approx. 40 hours for 10 half days (Personal Initiative, PI) Approx. 40 hours for 10 half days (Basic Business Skills and Entrepreneurship Development, (BSED)	7-18 months PI and BSED 19-35 months DOT	Active	Face-to-face	Groups	Critical thinking skills/Decision-making skills Coping and self-management skills Bundled with others BSED (Business skills training)	Self-empowerment Economic empowerment	Randomized Controlled Trial	Low

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
Amin and others (2016)	Female only Young women 12-18 years	Regional	Rural	School	Basic life skills training totalling 44 hours was given to all girls. One of three additional skill trainings (livelihood, education, gender rights) was offered to each girl, totalling 100 hours Weekly for two-hour-long training sessions. The sessions took place after school hours	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills; Interpersonal/Communication skills	Self-empowerment; Social empowerment;	RCT	Low
Anand and others (2020)	Female only	Regional	Rural	Community	Monthly or more frequently	36 months or more	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills; Bundled with others	Self-empowerment; Social empowerment; Economic empowerment; Political empowerment	Non-experimental design with comparison group	Medium
Attanasio and others (2019)	Female/ Male/ Mixed	Local	Both	Community	Activity/ session/ frequency not reported	Up to 6 months	Passive	Online	Both	Critical thinking skills/Decision-making skills	Self-empowerment; Economic empowerment	RCT	Low
Austrian and others (2020)	Female only Young women 10-19 years	Regional	Both	Community	Weekly meetings	19-35 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	High

Effectiveness of life skills training interventions for the empowerment of women in developing countries
A systematic review

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
Bandiera and others (2018)	Female only young women 14-20 years	Local	Both	Community	Five afternoons every week	19-35 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills Interpersonal/Communication skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	Low
Bastian and others (2018)	Female only	Regional	Urban	Community	2 interventions: M-Pawa: 2.5h training session on the uses and benefits of Vodacom's M-Pawa savings account. Business Training: twelve 2.5h weekly face-to-face training sessions on business skills	7-18 months	Passive	Face-to-face Written Online	Both	Critical thinking skills/Decision-making skills Bundled with others	Self-empowerment; Economic empowerment	RCT	Low
Beaman and others (2020)	Female/ Male/ Mixed Young women 15-25 years	Local	Urban	Community	A total of 16 sessions of three hours each with one or two sessions each week	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills Interpersonal/Communication skills Coping and self-management skills Bundled with others	Self-empowerment Economic empowerment	RCT	Low
Bossuroy and	Female only women over	National	Rural	Community	Weekly	18 months	Active	Face-to-	Groups	Critical thinking skills/Decision-	Self-	RCT	High

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
others (2012)	20 years							face		making skills Bundled with others	empowerment Social empowerment Economic empowerment		
Buehren and others (2017)	Female only Young women 13-19 functional definition but not restricted to this age bracket	Regional	Both	Community	Club - 5 days/week in the afternoons	19-35 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	Low
Bulte and Lensink (2019)	Female only Female members of a microfinance organization	Regional	Rural	Community credit centres	45 minutes each for nine modules Monthly meetings with weekly refresher meetings	Up to 6 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Interpersonal/ Communication skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	Low
Chadha and Wadhwa (2018)	Female only	Regional	Rural	Other Not reported, stated classes	56-day long TA+ classes and six month long post-literacy programme called GC (Gyan Chaupali) 6 days/week (2h/day)	Not applicable		Face-to-face Online Computer-based training module	Groups	Critical thinking skills/Decision-making skills	Self-empowerment Social empowerment Political empowerment	Non-experimental design with comparison group	Low
Chakravarty and others (2016)	Female/ Male/ Mixed 16-35 years	Regional	Not stated	Other Not reported (classroom based)	40h of life skills training	Not applicable	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Bundled with	Self-empowerment Social empowerment;	Non-experimental design with comparison	Low

Effectiveness of life skills training interventions for the empowerment of women in developing countries
A systematic review

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
				training)						others	Economic empowerment	group	
Das (2021)	Female/ Male/ Mixed 14-18 years Women with disabilities 15-21 years	Regional	Both	Other Not reported (classroom-based training) and on-site job training	6 months each for classroom and on-site job training with 3.5h/ week (classroom based training) plus 5 days a week on-site job training	Up to 6 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills Bundled with others	Self-empowerment Economic empowerment	RCT	High
Dunkle and others (2020)	Female only 18-45 years Women with disabilities	Regional	Urban	Community	90-180 minutes of classes a week	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	Low
Erulkar and Medhin (2017)	Female only 7-18 years	Regional	Urban	School after school hours Community	2 hours and 5 days per week	Up to 6 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Interpersonal/ Communication skills Coping and self-management skills	Self-empowerment Social empowerment	Non experimental design with comparison group Before vs After Design	Low
Field and others (2019)	Female only	Regional	Rural	Other Bank Customer Service Point	Two hours session (One-time session)	36 months or more	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills	Self-empowerment Social empowerment Economic empowerment	RCT	Low
Gadari, Farokhzadian and	Female only Young women	Regional	Not stated	Other Virtual	6 weeks with twice a week	Up to 6 months	Passive	Online	Groups	Critical thinking skills/ Decision-making skills	Self-empowerment	RCT	Medium

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
Shahrbabaki (2022)	9-10 years										Interpersonal/Communication skills Coping and self-management skills		
Gibbs and others (2020)	Female only 18-45 years	Regional	Rural	Humanitarian	90 to 180 min of programming per week for 12 months	19-35 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills	Self-empowerment; Social empowerment; Economic empowerment	RCT	Low
Gulesci and Ubfal (2021)	Female/ Male/ Mixed 15-18 years Young women	Regional	Urban	Other Not reported	Activity/session duration General training (16h) Technical skills training (70h)	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Interpersonal/Communication skills Coping and self-management skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	Low
John and others (2022)	Female/ Male/ Mixed	Local	Urban	Other Clinics	Activity/session duration 6 sessions with each session being 2h long, weekly	Up to 6 months	Passive	Face-to-face	Both	Critical thinking skills/ Decision-making skills Interpersonal/Communication skills Coping and self-management skills	Social empowerment	RCT	Low
Kachingwe and others (2022)	Female only 18 and below	Regional	Rural	Community Other	Activity/session duration	7-18 months	Passive	Face-to-face	Groups	Coping and self-management	Self-empowerment	Non experimental	Low

Effectiveness of life skills training interventions for the empowerment of women in developing countries
A systematic review

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
others (2021)	Young women Adolescent mothers				2 sessions of 4h each during bimonthly meetings					skills		design with comparison group	
Kafaei-Atrian and others (2022)	Female only 45-60 years	Local	Urban	Other Health centres	4 sessions each lasting 1-1.5 hours of weekly training Weekly for 4 weeks	Upto 6 months	Active	Face-to-face	Groups	Coping and self-management skills	Self-empowerment	Non experimental design with comparison group	Low
Kandpal, Baylis and Arends-Kuenning (2013)	Female only	Regional	Rural	Community	Biweekly literacy camps and weekly vocational training	Not applicable	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Bundled with others	Social empowerment Economic empowerment Political empowerment	Non experimental design with comparison group	Medium
Karasz and others (2021)	Female only 18-40 years	Local	Rural	Community	2h for 6 months Fortnightly	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Coping and self-management skills Bundled with others	Self-empowerment Social empowerment	RCT	High
Kim and others (2007)	Female only 18 and above	Local	Rural	Community	Ten 1-hour training sessions	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Interpersonal/Communication skills Coping and self-management skills Bundled with others	Self-empowerment Social empowerment Economic empowerment	RCT	Low

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
Mensch and others (2021)	Female only Adolescent girls in grade 7 Young women	Regional	Rural	School	6 months during the school term after school hours; weekly	7-18 months	Passive	Face-to-face Online	Groups	Critical thinking skills/Decision-making skills;	Self-empowerment	Randomised Controlled Trial	High
Özler and others (2020)	Female only Girls aged 13-14 Young women	Local	Rural	Community	32 weekly sessions	19-35 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Coping and self-management skills Bundled with others	Self-empowerment Social empowerment	RCT	High
Prennushi and Gupta (2014)	Female only	Regional	Rural	Community	Not reported	36 months or more	Passive	Face-to-face	Groups	Critical thinking skills/Decision-making skills; Interpersonal/Communication skills Bundled with others	Self-empowerment; Social empowerment; Economic empowerment; Political empowerment	Non-experimental design with comparison group	Low
Sabates and others (2021)	Female/Male/ Mixed Adolescent secondary school girls and boys of marginalized backgrounds Young women	Regional	Rural	School	Not reported	Not applicable	Passive	Not reported/ clear	Not reported/ clear	Bundled with others	Self-empowerment Social empowerment	Non-experimental design with comparison group	Medium
Scales and others (2013)	Female only 10-19 years Young women	Regional	Rural	Community spare household spaces	6 months with 2h session, 5-6 days a week during afterschool hours	7-18 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Bundled with others	Self-empowerment	Non-experimental design with comparison group	Low

Effectiveness of life skills training interventions for the empowerment of women in developing countries
A systematic review

SHORT TITLE	PARTICIPANTS CHARACTERISTICS	SCALE	LOCATION	SETTING	INTENSITY	TIME OF EFFECT MEASUREMENT	CONTROL TYPE	DELIVERY FORMAT	SERVICE METHOD	INTERVENTION TYPE	OUTCOMES	STUDY DESIGN	CONFIDENCE IN STUDY FINDINGS
Sieverding and Elbadawy (2016)	Female only Out-of-school girl aged 11–15 Young women	Regional	Rural	Community	3h per day 4 times per week for 20 months	Up to 6 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills	Self-empowerment Social empowerment	Non-experimental design with comparison group	Low
Ssewama la and others (2010)	Female/ Male/ Mixed Average age 13.5 years Young women	Local	Rural	School	1–2h workshops with 12 workshops in 10 months, monthly mentorship programme	7-18 months	Active	Face-to-face	Groups	Critical thinking skills/ Decision-making skills	Social empowerment Economic empowerment	RCT	Low
Ubfal and others (2022)	Female/ Male/ Mixed Entrepreneurs	Local	Urban	Community	10 weekly classes for four hours each; weekly	Up to 6 months	Passive	Face-to-face	Groups	Critical thinking skills/ Decision-making skills Coping and self-management skills	Economic empowerment	RCT	High

Appendix 8. CHARACTERISTICS OF INCLUDED STUDIES ACROSS VARIOUS DOMAINS TO ASSESS CONFIDENCE IN FINDINGS

ITEM ID	SHORT TITLE	STUDY DESIGN	MASKING OR BLINDING	POWER CALCULATION	ATTRITION	INTERVENTION DESCRIPTION	OUTCOME DESCRIPTION	BASELINE BALANCE
69381107	Adoho and others (2014)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	RCT
69391919	Alhassan and Goedegebuure (2015)	Before and after with control group	N/A.	No discussion of power calculation	N/A for ex post studies	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing a common support
69391933	Alibhai and others (2019)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome named but not described	RCT
70538463	Amin and others (2016)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Brief description of outcome	RCT
69392003	Anand and others (2020)	DiD with matching, PSM	N/A.	No discussion of power calculation	N/A for ex post studies	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	baseline balance report and satisfactory (imbalance on 2 or less measures)
69889788	Attanasio and others (2019)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Brief description of outcome	RCT
69392109	Austrian and	RCT	Unblinded or no	Mention of power	Overall and differential	Intervention fully and	Brief description of	RCT

ITEM ID	SHORT TITLE	STUDY DESIGN	MASKING OR BLINDING	POWER CALCULATION	ATTRITION	INTERVENTION DESCRIPTION	OUTCOME DESCRIPTION	BASELINE BALANCE
	others (2020)		mention of blinding	calculation	attrition within WWC combined levels	clearly described	outcome	
70046254	Bandiera and others (2018)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Brief description of outcome	RCT
70538468	Bastian and others (2018)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Outcome named but not described	RCT
68574994	Beaman and others (2020)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Outcome measure clearly and fully described, preferably with reference to validation	RCT
70046256	Bossuroy and others (2012)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	RCT
70538471	Buehren and others (2017)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Outcome named but not described	RCT
69675171	Bulte and Lensink (2019)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Brief description of outcome	RCT
69392533	Chadha and Wadhwa (2018)	Other	N/A.	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Brief description of outcome	No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing a common support

ITEM ID	SHORT TITLE	STUDY DESIGN	MASKING OR BLINDING	POWER CALCULATION	ATTRITION	INTERVENTION DESCRIPTION	OUTCOME DESCRIPTION	BASELINE BALANCE
68574998	Das (2021)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	RCT
69392955	Dunkle and others (2020)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Outcome measure clearly and fully described, preferably with reference to validation	RCT
70538482	Erulkar and Medhin (2017)	Other	N/A.	Mention of power calculation	N/A.	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	baseline balance report and satisfactory (imbalance on 2 or less measures)
69889791	Field and others (2019)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	RCT
69393187	Gadari, Farokhzadian and Shahrabaki (2022)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Brief description of outcome	RCT
69393277	Gibbs and others (2020)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Outcome measure clearly and fully described, preferably with reference to validation	RCT
69393380	Gulesci and others (2021)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Outcome named but not described	RCT
69393826	John and	RCT	Unblinded or no	Mention of power	Attrition not reported,	Intervention fully and	Outcome measure	RCT

ITEM ID	SHORT TITLE	STUDY DESIGN	MASKING OR BLINDING	POWER CALCULATION	ATTRITION	INTERVENTION DESCRIPTION	OUTCOME DESCRIPTION	BASELINE BALANCE
	others (2022)		mention of blinding	calculation	OR falls well outside WWC acceptable combined levels	clearly described	clearly and fully described, preferably with reference to validation	
69393867	Kachingwe and others (2021)	Before and after with a control group	N/A.	No discussion of power calculation	N/A.	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing a common support
69393868	Kafaei-Atrian and others (2022)	Other	N/A.	Mention of power calculation	N/A.	Brief description of intervention	Brief description of outcome	No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing a common support
70059864	Kandpal, Baylis and Arends-Kuenning (2013)	RCTDiD with matching, PSM	Unblinded or no mention of blinding	No discussion of power calculation	N/A for ex post studies	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	Baseline balance test, imbalance on 5 or fewer measures
69393926	Karasz and others (2021)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	RCT
68032654	Kim and others (2007)	RCT	Unblinded or no mention of blinding	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Brief description of intervention	Outcome measure clearly and fully described, preferably with reference to validation	RCT
68574978	Mensch and others (2021)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably	RCT

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							with reference to validation	
68032657	Özler and others (2020)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Overall and differential attrition within WWC combined levels	Brief description of intervention	Outcome measure clearly and fully described, preferably with reference to validation	RCT
68032659	Prennushi and Gupta (2014)	DiD with PSM	N/A.	No discussion of power calculation	N/A for ex post studies	Intervention fully and clearly described	Outcome named but not described	RCT or baseline balance report and satisfactory (imbalance on 2 or less measures)
68574968	Sabates and others (2021)	DiD with PSM	N/A.	Mention of power calculation	N/A for ex post studies	Brief description of intervention	Outcome measure clearly and fully described, preferably with reference to validation	RCT or baseline balance report and satisfactory (imbalance on 2 or less measures)
70541111	Scales and others (2013)	Other <i>ANOVA/ ANCOVA</i>	N/A.	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Brief description of outcome	No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing a common support
68032649	Chakravarty and others (2016)	DiD with matching, PSM	N/A.	No discussion of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome named but not described	Baseline balance test, imbalance on 5 or fewer measures
70541110	Sieverding and Elbadawy (2016)	DiD with PSM	N/A.	No discussion of power calculation	Attrition not reported, OR falls well outside WWC acceptable combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	No baseline balance test (except RCT) OR reported and significant differences on more than five measures. PSM without establishing a common support
69396021	Ssewamala and others	RCT	EITHER masking of outcome measurement	No discussion of power calculation	Attrition not reported, OR falls well outside	Intervention fully and clearly described	Outcome measure clearly and fully	RCT

ITEM ID	SHORT TITLE	STUDY DESIGN	MASKING OR BLINDING	POWER CALCULATION	ATTRITION	INTERVENTION DESCRIPTION	OUTCOME DESCRIPTION	BASELINE BALANCE
	(2010)		OR masking for analysis (or both)		WWC acceptable combined levels		described, preferably with reference to validation	
68574997	Ubfal and others (2022)	RCT	Unblinded or no mention of blinding	Mention of power calculation	Overall and differential attrition within WWC combined levels	Intervention fully and clearly described	Outcome measure clearly and fully described, preferably with reference to validation	RCT

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