

**UNDERSTANDING WOMEN EMPOWERMENT THROUGH IPMA-NCA
ANALYSIS OF MULTI-DIMENSIONAL INTERVENTION STRATEGIES**

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Abstract

This study investigates the relative importance and performance of five key intervention domains which help in women empowerment through an integrated methodological framework combining Importance-Performance Map Analysis (IPMA) and Necessary Condition Analysis (NCA). Utilizing data from women beneficiaries, we examined Economic & Livelihood Support, Education & Skill Development, Healthcare & Sanitation, Legal Rights and Awareness, and Women's Safety & Security as predictor constructs. Results reveal that Education & Skill Development demonstrates the highest importance (0.211) alongside substantial performance (66.129), while Healthcare & Sanitation shows relatively lower importance (0.164) despite moderate performance levels. NCA findings indicate that Education & Skill Development (0.207) and Healthcare & Sanitation (0.233) represent critical necessary conditions, with their absence creating ceiling constraints on empowerment outcomes. The intercept value of 0.151 for Economic & Livelihood Support suggests baseline threshold effects. This dual-analytical approach provides nuanced insights for policymakers and development practitioners, emphasizing that while some factors drive empowerment (sufficiency perspective), others constitute indispensable prerequisites (necessity perspective). The findings advocate for strategic resource allocation prioritizing education and healthcare infrastructure while maintaining concurrent investments across all dimensions to achieve sustainable women empowerment outcomes.

Keywords: Women empowerment, IPMA, Necessary Condition Analysis, multi-dimensional interventions, development policy, gender equality

1. Introduction

Women empowerment remains a critical developmental priority across global contexts, recognized as both a fundamental human right and a catalyst for sustainable development (Kabeer, 2005; Mosedale, 2014). Despite substantial progress over recent decades, significant disparities persist in women's access to resources, opportunities, and decision-making power, particularly in developing regions (Duflo, 2012). The multifaceted nature of empowerment necessitates comprehensive intervention strategies addressing economic, educational, health, legal, and social dimensions simultaneously (Malhotra et al., 2002).

Traditional analytical approaches often examine the sufficiency of predictors in explaining outcome variance, yet recent methodological advances highlight the importance of distinguishing between sufficient and necessary conditions (Dul, 2016). While sufficient conditions increase the likelihood of outcomes, necessary conditions represent indispensable prerequisites without which desired outcomes cannot be achieved (Richter et al., 2020). This distinction holds profound implications for resource allocation and policy design in women empowerment initiatives.

Importance-Performance Map Analysis (IPMA) extends conventional structural equation modelling by identifying which constructs demonstrate high importance for target outcomes while simultaneously assessing their current performance levels (Ringle & Sarstedt, 2016). This dual perspective enables practitioners to prioritize improvement efforts toward high-importance, low-performance areas. Conversely, Necessary Condition Analysis (NCA) identifies ceiling lines beyond which outcome levels cannot be achieved regardless of other favourable conditions (Dul, 2016; Richter et al., 2020).

The present research integrates IPMA and NCA methodologies to examine five intervention domains: Economic & Livelihood Support, Education & Skill Development, Healthcare & Sanitation, Legal Rights and Awareness, and Women's Safety & Security. This integrated analytical framework addresses critical gaps in existing literature by simultaneously identifying (a) which factors drive empowerment outcomes most strongly, and (b) which factors constitute necessary prerequisites. Such insights enable more strategic resource allocation and intervention design.

1.1 Research Objectives

This study pursues three primary objectives:

1. To assess the relative importance and performance of five intervention domains in predicting women empowerment outcomes using IPMA
2. To identify necessary conditions and bottleneck effects through NCA, determining which interventions constitute prerequisites for empowerment
3. To provide evidence-based recommendations for policymakers and development practitioners regarding strategic resource allocation

2. Literature Review

2.1 Conceptualizing Women Empowerment

Women empowerment encompasses multidimensional processes enabling women to realize their full identity and powers across all spheres of life (Kabeer, 1999, 2005). Researchers conceptualize empowerment through three interrelated dimensions: resources (preconditions), agency (process), and achievements (outcomes) (Kabeer, 1999). Resources include material, human, and social assets accessible to women; agency represents decision-making capabilities and negotiation power; achievements reflect well-being outcomes and goal realization (Malhotra et al., 2002; Mosedale, 2014). Contemporary scholarship emphasizes that empowerment cannot be bestowed but must be self-generated, though external interventions can create enabling environments (Narayan, 2005). This perspective underscores the importance of understanding which interventions facilitate versus which constitute prerequisites for empowerment processes.

2.2 Economic & Livelihood Support

Economic empowerment through livelihood support and financial inclusion represents a cornerstone of women empowerment initiatives (Duflo, 2012; Swain & Wallentin, 2009). Microfinance programs, entrepreneurship training, and employment generation schemes aim to enhance women's economic agency and independence (Kabeer, 2005). Evidence suggests that economic resources strengthen bargaining power within households and communities, though effects vary considerably across contexts (Malhotra et al., 2002).

Research indicates that economic interventions demonstrate greatest effectiveness when complemented by other empowerment dimensions rather than implemented in isolation

(Banerjee et al., 2015). Access to financial resources without corresponding education, health, or legal protections may prove insufficient for sustainable empowerment (Duflo, 2012).

2.3 Education & Skill Development

Education consistently emerges as a fundamental driver of women empowerment across diverse settings (Stromquist, 2015; UNESCO, 2014). Educational attainment correlates with enhanced economic opportunities, improved health outcomes, greater political participation, and strengthened decision-making capabilities (Duflo, 2012; Psacharopoulos & Patrinos, 2018). Beyond formal education, skill development programs addressing vocational, digital, and soft skills enable women to access higher-quality employment and entrepreneurial opportunities (Stromquist, 2015).

The transformative potential of education operates through multiple pathways: cognitive skill development, credential acquisition, social network formation, and consciousness-raising regarding rights and opportunities (Kabeer, 2005; Mosedale, 2014). These mechanisms position education as potentially both a sufficient driver and a necessary condition for broader empowerment outcomes.

2.4 Healthcare & Sanitation

Access to quality healthcare and sanitation services fundamentally impacts women's empowerment by enabling physical well-being, reproductive autonomy, and productive capacity (Sen & Östlin, 2008). Maternal health services, family planning access, and menstrual hygiene management represent particularly critical components (Sommer et al., 2016). Poor health and inadequate sanitation constrain women's educational participation, economic productivity, and social mobility (Sen & Östlin, 2008).

Healthcare access also intersects with empowerment through enhanced decision-making regarding reproductive choices and bodily autonomy (Upadhyay et al., 2014). The necessity of basic health for pursuing any empowerment-related activities suggests healthcare may function as a fundamental prerequisite rather than merely a contributing factor (Sen & Östlin, 2008).

2.5 Legal Rights and Awareness

Legal frameworks protecting women's rights and awareness programs promoting knowledge of these rights constitute essential empowerment enablers (Merry, 2006; Schuler & Islam, 2008). Property rights, inheritance laws, anti-discrimination legislation, and violence protection statutes create institutional foundations for empowerment (Agarwal, 1994). However, formal legal rights prove insufficient without corresponding awareness and enforcement mechanisms (Merry, 2006). Legal literacy programs enhancing women's understanding of their rights demonstrate significant impacts on empowerment outcomes (Schuler & Islam, 2008). Knowledge of legal protections strengthens negotiating positions, facilitates resource access, and enables redress for rights violations (Merry, 2006).

2.6 Women's Safety & Security

Personal safety and security from violence represent fundamental prerequisites for women's empowerment (García-Moreno et al., 2015). Gender-based violence restricts mobility, educational participation, economic activity, and political engagement (Ellsberg et al., 2015). Safety concerns particularly constrain women's access to public spaces and opportunities beyond domestic spheres (García-Moreno et al., 2015). Interventions addressing safety encompass legal reforms, law enforcement training, community mobilization, and support services for violence survivors (Ellsberg et al., 2015). The pervasive threat or experience of

violence fundamentally undermines empowerment efforts across all other dimensions, suggesting safety may constitute a necessary foundation (García-Moreno et al., 2015).

2.7 Methodological Considerations: IPMA and NCA

Traditional regression-based approaches examine net effects of predictors assuming sufficiency logic—adequate levels of predictors produce outcomes (Dul, 2016). However, this perspective overlooks necessity relationships where predictor absence creates outcome ceilings regardless of other conditions (Richter et al., 2020). NCA identifies these necessity relationships by detecting empty spaces in scatter plots where high outcome values never occur at low predictor levels (Dul, 2016).

IPMA extends Partial Least Squares Structural Equation Modeling (PLS-SEM) by calculating total effects (importance) alongside average construct scores (performance), enabling prioritization matrices (Ringle & Sarstedt, 2016). Integrating IPMA with NCA provides complementary insights: IPMA identifies where improvement efforts yield greatest outcome increases, while NCA reveals which factors constitute bottlenecks requiring minimum thresholds (Richter et al., 2020).

3. Methodology

3.1 Research Design and Data Collection

This research employs a cross-sectional quantitative design examining relationships between five intervention domains and women empowerment outcomes. Data were collected from 200 women beneficiaries of development programs through structured surveys measuring perceived performance levels of each intervention domain and self-reported empowerment status. The sampling strategy employed purposive selection of program participants, ensuring respondents had exposure to multiple intervention types.

3.2 Measurement Instruments

Each construct was measured using multi-item scales adapted from validated instruments in women empowerment literature. Economic & Livelihood Support items assessed access to financial resources, employment opportunities, and entrepreneurship support. Education & Skill Development measures captured formal education access, vocational training, and capability development. Healthcare & Sanitation items evaluated health service availability, reproductive health access, and sanitation facilities.

Legal Rights and Awareness scales measured knowledge of rights, legal resource access, and discrimination protection. Women's Safety & Security items assessed freedom from violence, mobility constraints, and security perceptions. The women empowerment outcome construct integrated measures of economic agency, decision-making power, mobility, and self-efficacy consistent with multidimensional conceptualizations (Kabeer, 1999; Malhotra et al., 2002).

3.3 Analytical Approach

3.3.1 Importance-Performance Map Analysis

IPMA was conducted following established protocols (Ringle & Sarstedt, 2016). For each predictor construct, importance represents total effects on the target construct (women empowerment), calculated by summing direct and indirect effects through mediating paths. Performance reflects average scores of construct indicators rescaled to 0-100 range, representing current achievement levels. Results are interpreted through a priority matrix: constructs with high importance and low performance require immediate attention; high importance and high performance indicate successful areas to maintain; low importance and

high performance suggest potential resource reallocation opportunities; low importance and low performance represent lower priorities for resource investment.

3.3.2 Necessary Condition Analysis

NCA was performed using established procedures (Dul, 2016; Richter et al., 2020). The analysis identifies ceiling lines above which no observations exist, indicating necessity relationships. Effect sizes (d) represent the ceiling zone as a percentage of outcome scope, with $d \geq 0.1$ suggesting small, $d \geq 0.3$ medium, and $d \geq 0.5$ large necessity effects.

Bottleneck analysis determines minimum required predictor levels for achieving specific outcome targets. For instance, the analysis identifies what minimum education performance level must be achieved to enable 80% empowerment outcomes. This information guides threshold-based policy recommendations.

4. Results

4.1 Importance-Performance Map Analysis Results

Table 1 presents IPMA results showing importance (total effects) and performance (average scores) for each intervention domain.

Table 1: IPMA Results for Women Empowerment Predictors

Intervention Domain	Importance (Total Effect)	Performance (Index Score)
Economic & Livelihood Support	0.170	64.726
Education & Skill Development	0.211	66.129
Healthcare & Sanitation	0.164	63.143
Legal Rights and Awareness	0.157	68.319
Women's Safety & Security	0.210	63.146

Education & Skill Development demonstrates the highest importance (0.211), indicating that improvements in this domain yield the strongest impacts on women empowerment outcomes. Women's Safety & Security shows comparable importance (0.210), highlighting its critical role as an empowerment driver. Economic & Livelihood Support (0.170) exhibits moderate importance, while Healthcare & Sanitation (0.164) and Legal Rights and Awareness (0.157) show relatively lower importance values.

Performance analysis reveals that Legal Rights and Awareness achieves the highest current performance (68.319), followed by Education & Skill Development (66.129) and Economic & Livelihood Support (64.726). Women's Safety & Security (63.146) and Healthcare & Sanitation (63.143) demonstrate the lowest performance levels, suggesting significant room for improvement. The IPMA priority matrix identifies Education & Skill Development as maintaining strong performance alongside highest importance—a success area requiring continued investment. Women's Safety & Security emerges as the highest priority for immediate intervention given its high importance but relatively low performance. Healthcare & Sanitation, despite lower importance, shows the weakest performance, indicating moderate priority for improvement.

4.2 Necessary Condition Analysis Results

Table 2 presents NCA results showing effect sizes and intercepts for each intervention domain.

Table 2: NCA Results for Women Empowerment Prerequisites

Intervention Domain	Effect Size (Necessity)
Economic & Livelihood Support	0.151
Education & Skill Development	0.207
Healthcare & Sanitation	0.233
Legal Rights and Awareness	0.175
Women's Safety & Security	0.095

Healthcare & Sanitation exhibits the largest necessity effect (0.233), indicating that inadequate healthcare creates substantial ceiling constraints on achievable empowerment levels. This suggests healthcare functions as a fundamental prerequisite—without minimum healthcare standards, women cannot achieve higher empowerment outcomes regardless of strengths in other domains. Education & Skill Development demonstrates the second-largest necessity effect (0.207), confirming its role as both an important driver (from IPMA) and a necessary condition. This dual status positions education as the most critical intervention domain: it both strongly influences empowerment and constitutes an indispensable prerequisite.

Legal Rights and Awareness show moderate necessity (0.175), suggesting that while not the strongest driver, minimum legal awareness represents a required foundation. Women's Safety & Security exhibits smaller necessity effects (0.095), indicating that while important for driving empowerment (IPMA results), safety may not function as strictly necessary in the same manner as healthcare and education. The intercept value of 0.151 for Economic & Livelihood Support suggests a threshold effect: minimum economic support may enable initial empowerment progress, but additional improvements yield returns through sufficiency rather than necessity mechanisms.

4.3 Integrated Interpretation

Combining IPMA and NCA results reveals nuanced relationships between intervention domains and empowerment outcomes. Education & Skill Development emerges as uniquely positioned with both high importance (strong driver) and substantial necessity (prerequisite), warranting priority investment. Healthcare & Sanitation, despite lower importance scores, demonstrates the strongest necessity effect, suggesting that healthcare improvements may not yield the highest marginal returns on empowerment but constitute essential foundations without which other interventions prove ineffective.

Women's Safety & Security presents an interesting pattern: high importance but lower necessity. This suggests that while safety improvements substantially enhance empowerment (sufficiency), absolute safety may not constitute a prerequisite in the same sense as education or healthcare. However, this interpretation requires contextual consideration—severe safety threats likely function as necessary conditions even if the statistical pattern suggests otherwise. Legal Rights and Awareness demonstrate moderate levels across both analyses, indicating steady contributions as both driver and prerequisite without dominating either dimension. Economic & Livelihood Support shows moderate importance with threshold effects, suggesting that ensuring baseline economic security enables empowerment processes that subsequently depend more heavily on other factors.

5. Discussion

5.1 Theoretical Implications

These findings contribute to women empowerment theory by empirically distinguishing between sufficient drivers and necessary prerequisites among intervention domains. Traditional approaches emphasizing economic empowerment as primary entry points (Kabeer, 2005; Duflo, 2012) receive partial support: economic interventions matter but appear neither most important nor strictly necessary. Instead, education and healthcare emerge as more fundamental requirements. The dual status of education as both strongest driver and substantial necessity aligns with capability approach frameworks (Sen, 1999) positioning education as foundational for expanding human capabilities and functioning. Education's transformative effects operate through both direct empowerment mechanisms and enabling functions for other empowerment dimensions (Stromquist, 2015).

Healthcare's role as strongest necessary condition despite moderate importance suggests that health represents a foundational platform upon which other empowerment dimensions build. This resonates with research emphasizing health as prerequisite for productive capacity, educational participation, and economic engagement (Sen & Östlin, 2008). Without basic health, women cannot effectively utilize educational opportunities or economic resources.

The lower necessity of safety despite its high importance presents a puzzle potentially explained by adaptation mechanisms or measurement limitations. Women may achieve certain empowerment dimensions despite safety constraints through adaptation strategies, though such empowerment likely remains fragile and constrained (García-Moreno et al., 2015). Alternatively, safety threats may demonstrate threshold effects where extreme violence functions as necessary condition, but moderate safety concerns permit some empowerment progress.

5.2 Practical Implications

5.2.1 Resource Allocation Strategy

Results suggest a tiered resource allocation strategy. First-tier investments should target Education & Skill Development given its dual status as both strongest driver and substantial necessary condition. Ensuring universal access to quality education and comprehensive skill development programs creates foundations for broader empowerment while simultaneously generating strong direct impacts. Second-tier priorities include Healthcare & Sanitation infrastructure given necessity effects, and Women's Safety & Security given importance despite lower current performance. Healthcare investments should focus on eliminating bottlenecks preventing minimum health standards—maternal health services, reproductive healthcare, and sanitation access. Safety interventions require substantial improvement given high importance and low performance, particularly addressing gender-based violence and mobility constraints. Third-tier interventions encompass Legal Rights and Awareness alongside Economic & Livelihood Support, maintaining steady investment ensuring threshold levels while prioritizing marginal resources toward education, healthcare, and safety.

5.2.2 Sequential vs. Simultaneous Intervention Design

NCA results support sequential intervention logic for certain domains. Healthcare improvements may need to precede or accompany other interventions to remove ceiling constraints—providing microfinance to women lacking basic health proves ineffective. Similarly, minimum educational thresholds enable effective utilization of economic and legal resources. However, the moderate necessity effects across multiple domains (education 0.207, healthcare 0.233, legal rights 0.175) suggest that strictly sequential approaches risk

inefficiency. Instead, simultaneous multi-sectoral programs ensuring minimum thresholds across all necessary conditions while providing intensive support in high-importance areas may prove most effective.

5.2.3 Monitoring and Evaluation Frameworks

Traditional M&E frameworks emphasizing average improvements across intervention domains may miss critical bottleneck effects. Results suggest that evaluation systems should incorporate threshold monitoring—tracking percentages of beneficiaries achieving minimum necessary levels in healthcare, education, and legal awareness. Beneficiaries below these thresholds face empowerment ceilings requiring targeted interventions before other support proves effective.

5.3 Methodological Contributions

This study demonstrates the value of integrating IPMA with NCA for intervention research. IPMA's sufficiency perspective identifies where marginal investments yield greatest returns; NCA's necessity perspective identifies which factors constitute prerequisites requiring minimum standards. Neither analysis alone provides complete guidance for resource allocation and program design. The complementary insights prove particularly valuable for complex social outcomes like empowerment involving multiple intervention pathways and interdependencies. Future research examining other development outcomes (poverty alleviation, child welfare, community resilience) may benefit from similar integrated analytical frameworks.

5.4 Limitations and Future Research

Several limitations warrant consideration. Cross-sectional data prevent causal inference despite theoretical reasoning suggesting causal relationships. Longitudinal designs tracking empowerment trajectories as intervention levels change would strengthen causal claims. Self-reported measures introduce potential bias, though empowerment's subjective dimensions justify this approach partially. The necessity effect sizes, while indicating relative patterns, remain modest in absolute terms. This may reflect measurement limitations, genuine complexity in empowerment processes, or contextual variations. Future research should examine necessity relationships across diverse contexts to assess generalizability.

The study examines necessity at the construct level; item-level NCA could reveal specific intervention components functioning as prerequisites within broader domains. For instance, which specific educational interventions (literacy, vocational training, higher education) constitute necessary conditions versus which drive outcomes through sufficiency? Interaction effects between intervention domains deserve investigation. Do healthcare and education combine synergistically, producing empowerment outcomes greater than additive predictions? Does legal awareness moderate relationships between economic resources and empowerment? Exploring such interactions would refine theoretical understanding and practical recommendations.

Finally, empowerment's multidimensional nature suggests that different intervention patterns may prove optimal for different empowerment dimensions (economic, social, political). Future research should examine whether education constitutes a necessary condition for economic empowerment specifically, or for political empowerment, or social empowerment, potentially revealing dimension-specific intervention strategies.

6. Conclusion

This research integrates Importance-Performance Map Analysis with Necessary Condition Analysis to examine five intervention domains' relationships with women empowerment outcomes. Results reveal that Education & Skill Development functions as both the strongest empowerment driver and a substantial necessary condition, warranting priority investment. Healthcare & Sanitation emerges as the most critical prerequisite despite moderate importance, suggesting that health improvements constitute essential foundations for broader empowerment.

Women's Safety & Security demonstrates high importance but lower necessity, indicating that safety enhancements strongly accelerate empowerment but may not function as absolute prerequisites in the same manner as education and healthcare. Legal Rights and Awareness and Economic & Livelihood Support show moderate effects across both analytical dimensions, suggesting steady contributions without dominating either driving or prerequisite functions. These findings support strategic resource allocation prioritizing education and healthcare infrastructure while maintaining balanced investments across all dimensions. The integration of sufficiency and necessity perspectives provides nuanced guidance for policymakers and development practitioners: some interventions drive outcomes most strongly (invest for impact), others constitute prerequisites requiring minimum thresholds (invest to enable), and some serve both functions simultaneously (invest first and most).

Women empowerment represents a complex process involving multiple interdependent pathways. Effective intervention strategies must recognize both which factors drive empowerment most powerfully and which factors constitute indispensable prerequisites. This dual recognition enables more strategic, efficient, and ultimately more successful empowerment initiatives contributing to gender equality and sustainable development goals.

References

- Agarwal, B. (1994). *A field of one's own: Gender and land rights in South Asia*. Cambridge University Press.
- Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Parienté, W., Shapiro, J.,
- Thuysbaert, B., & Udry, C. (2015). A multifaceted program causes lasting progress for the very poor: Evidence from six countries. *Science*, 348(6236), 1260799.
- Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4), 1051-1079.
- Dul, J. (2016). Necessary condition analysis (NCA): Logic and methodology of "necessary but not sufficient" causality. *Organizational Research Methods*, 19(1), 10-52.
- Ellsberg, M., Arango, D. J., Morton, M., Gennari, F., Kiplesund, S., Contreras, M., & Watts, C. (2015). Prevention of violence against women and girls: What does the evidence say? *The Lancet*, 385(9977), 1555-1566.
- García-Moreno, C., Zimmerman, C., Morris-Gehring, A., Heise, L., Amin, A., Abrahams, N., Montoya, O., Bhate-Deosthali, P., Kilonzo, N., & Watts, C. (2015). Addressing violence against women: A call to action. *The Lancet*, 385(9978), 1685-1695.

Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change*, 30(3), 435-464.

Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third millennium development goal 1. *Gender & Development*, 13(1), 13-24.

Malhotra, A., Schuler, S. R., & Boender, C. (2002). Measuring women's empowerment as a variable in international development. *Background paper prepared for the World Bank Workshop on Poverty and Gender: New Perspectives*.

Merry, S. E. (2006). *Human rights and gender violence: Translating international law into local justice*. University of Chicago Press.

Mosedale, S. (2014). Women's empowerment as a development goal: Taking a feminist standpoint. *Journal of International Development*, 26(8), 1115-1125.

Narayan, D. (Ed.). (2005). *Measuring empowerment: Cross-disciplinary perspectives*. World Bank Publications.

Psacharopoulos, G., & Patrinos, H. A. (2018). Returns to investment in education: A decennial review of the global literature. *Education Economics*, 26(5), 445-458.

Richter, N. F., Schubring, S., Hauff, S., Ringle, C. M., & Sarstedt, M. (2020). When predictors of outcomes are necessary: Guidelines for the combined use of PLS-SEM and NCA. *Industrial Management & Data Systems*, 120(12), 2243-2267.

Ringle, C. M., & Sarstedt, M. (2016). Gain more insight from your PLS-SEM results: The importance-performance map analysis. *Industrial Management & Data Systems*, 116(9), 1865-1886.

Schuler, S. R., & Islam, F. (2008). Women's acceptance of intimate partner violence within marriage in rural Bangladesh. *Studies in Family Planning*, 39(1), 49-58.

Sen, A. (1999). *Development as freedom*. Oxford University Press.

Sen, G., & Östlin, P. (2008). Gender inequity in health: Why it exists and how we can change it. *Global Public Health*, 3(S1), 1-12.

Sommer, M., Caruso, B. A., Sahin, M., Calderon, T., Cavill, S., Mahon, T., & Phillips-Howard, P. A. (2016). A time for global action: Addressing girls' menstrual hygiene management needs in schools. *PLOS Medicine*, 13(2), e1001962.

Stromquist, N. P. (2015). Women's empowerment and education: Linking knowledge to transformative action. *European Journal of Education*, 50(3), 307-324.

Swain, R. B., & Wallentin, F. Y. (2009). Does microfinance empower women? Evidence from self-help groups in India. *International Review of Applied Economics*, 23(5), 541-556.

UNESCO. (2014). *Teaching and learning: Achieving quality for all*. UNESCO Publishing.

Upadhyay, U. D., Gipson, J. D., Withers, M., Lewis, S., Ciaraldi, E. J., Fraser, A., Huchko, M.

J., & Prata, N. (2014). Women's empowerment and fertility: A review of the literature. *Social Science & Medicine*, 115, 111-120.