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ARTICLES

Agency-Based Empowerment Training Enhances Sales Capacity of Female Energy Entrepreneurs in Kenya

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95% CI [1.4, 5.4]), controlling for gender and rural/urban locale. Women outsold men by a margin of nearly 3 to 1 and were more likely to continue to pursue leads despite limited sales. Nonactive participants (those selling 1 improved cookstove or less) were a larger percentage of the control group (72%) than the intervention group (50%), and more men were nonactive participants (65% of men) compared with women (56% of women).These data show that women can serve as active improved cookstove entrepreneurs in both urban and rural settings and that targeted agency-based empowerment training can significantly increase women's capacity to engage effectively within the improved cookstove value chain.

There is growing evidence that women can play a critical role in the promotion and sales of improved cookstoves (ICSs) because of their roles and experience as primary cooks and household energy managers (Batliwalla & Reddy, 1996; Cecelski, 2000; Dutta, 2005; Köhlin, Sills, Pattanayak, & Wilfong, 2011; Smith & Dutta, 2011). As key beneficiaries of ICSs, women can drive demand as consumers and users, and they can catalyze more consistent ICS use and adoption. Moreover, women can leverage their existing networks to promote the adoption of these new technologies and use their firsthand experiences for marketing the ICS.

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cents of every additional dollar of income in their families' education, health, and nutrition as compared with 30–40% for men. If efforts to engage women in the clean energy sector are to be successful and if we are to leverage this opportunity to more broadly empower women, it is critical to evaluate innovative behavioral strategies that enhance women's intrinsic capacities and facilitate effective navigation of the local economic environment.

In this study, we examine two primary questions related to women's engagement in the ICS value chain: (a) "What is the relative capacity of women to become ICS sales agents as compared with men in urban and rural (last mile) environments and (b) "What is the relative effect of an agency-based empowerment training on the business capacity of both male and female entrepreneurs?" We investigate these questions using a randomized trial design conducted in two locations in Kenya, an urban slum and a rural mountain region.

The Need to Include Women in the Energy Sector

An estimated 1.3 billion people live in poverty globally, 70% of whom are women (Dutta, 2005). Since the 1970s, there have been significant efforts to foster women's engagement and include gender issues in development activities (Boserup, 1970; World Bank, 20 nergy for women l zed (Celelski brou & Piana, 2 and often produce ojects are at risk of n , 2000; Clancy, 1 gned with their implem aggregated data ava nd even fewer pr ank, 2010).

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large-scale, requiring professional expertise and considerable capital to move ahead—all aspects of business in which women traditionally face considerable challenges.

Historically, women's engagement in the local economy has focused in the informal sector, running micro- or small-scale businesses generally based in or close to the home. Women often face financial constraints in terms of accessing capital to start their business and the lack of collateral to secure loans. Male entrepreneurs face similar constraints, but are more likely to overcome these challenges (Kariuki & Balla, 2011). Moreover, many women are faced with time poverty, which adds to their reluctance to participate in new business endeavors. There has been an expansion of country efforts to use women entrepreneurs to market and distributive clean cooking solutions through women's advocacy groups and women's networks to increase distribution and sales (Global Alliance for Clean Cookstoves, 2011). Despite this, there are indications that more involvement of women in this sector is needed and interventions that address the financial and time constraints while optimizing context specific opportunities are vital.

The Need for Agency-Based Empowerment Training

Data from the recent Global Entrepreneurship Monitor, Women's Report (2013) noted that in every economy sampled, women had lower capability perceptions and greater fear of fa ne confiden eurial rates prevaile Research Associat on skill building new endeavo me commitr s are greatly enha , as any new en st be successf

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visions), forethought (visualizing the consequences of ones plans), self-reactiveness (modulation and regulation of action) and self-reflectiveness (reflecting on thoughts and actions). The agency-based training used in this study is anchored in these core properties, draws from basic tenets of positive psychology, and is aimed at increasing self-knowledge and developing actionable growth strategies. The training has been culturally and locally adapted for the Kenyan entrepreneurial context and conducted in the local language.

This work builds upon earlier research in Kenya that demonstrated that following an agency-based training, there was a substantial increase in women's capacity and willingness to identify and pursue economic opportunities and build strong relationship skills (Shankar, Onyura, Ojode, & Milliam, 2015). This study examines the impacts that agency-based empowerment training can have to increase the motivation and capacity to develop a successful ICS business, for both men and women. It is hypothesized that if people are well-informed, motivated to act, and have the skills and confidence to take action, they are more likely to initiate and maintain behaviors that support a successful ICS business.

Method

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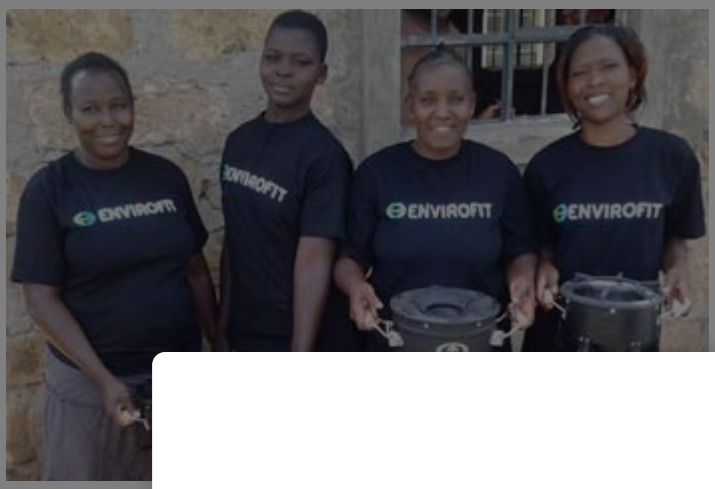
source. Tigania East is located 5 hours from Nairobi and consists of a mixture of forested areas and clearings with smaller towns, villages, and rural farms.

ESVAK was supported by Envirofit International, an industry leader in cookstove development and manufacturing. By 2015, Envirofit will have sold 1 million stoves in more than 45 countries. Envirofit has a local production and distribution plant in Nairobi and they supplied ESVAK with three brands of ICS: an M-5000 wood burning rocket stove, a CH-2200 charcoal burning stove and a larger CH-5200 charcoal burning stove (see Figure 1). Envirofit assisted ESVAK with the recruitment and selection procedure for potential entrepreneurs and supported the training of implementation staff.

Fig. 1 The three stoves used in the study: an M-5000 wood burning rocket stove, a CH-2200 charcoal burning stove, and a larger CH-5200 charcoal burning stove. © Envirofit, 2014. Reproduced by permission of Envirofit. Permission to reuse must be obtained from the rightsholder.



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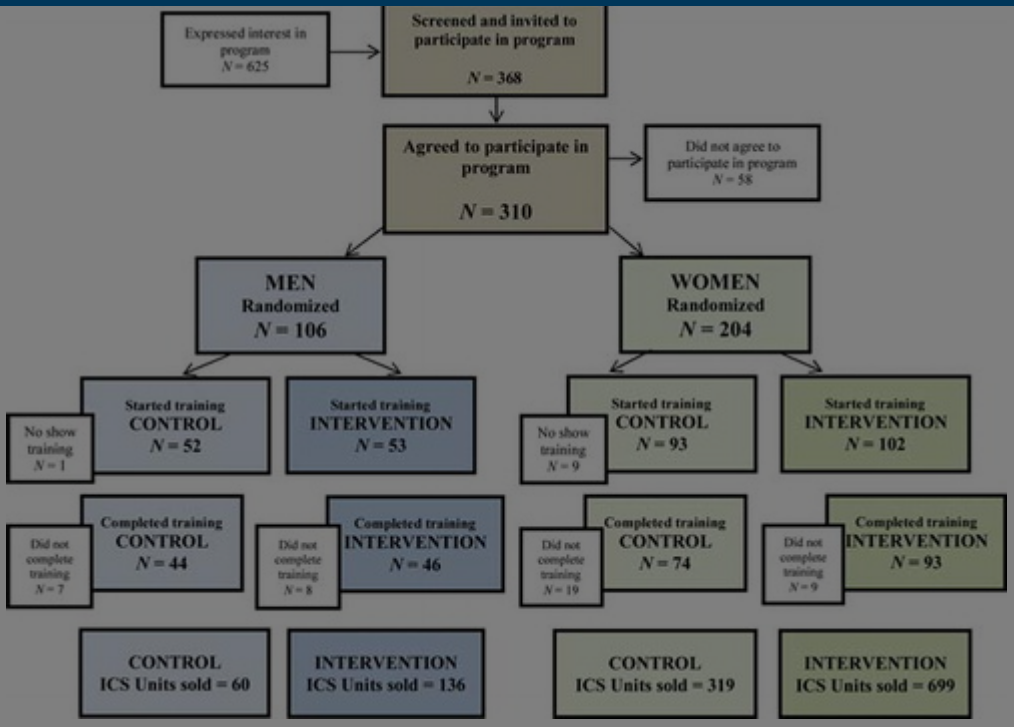
interpersonal interaction skills. Interested applicants were given a demonstration of the ICS and were told about the study. During the initial screening and selection, the field team found many challenges in identifying men who expressed interest and were willing to participate in the study. Despite earlier studies that indicate that men dominate the sales and marketing efforts in the cookstove industry, many men in the study communities reflected that ICS were associated with women's work and therefore did not believe it was a viable entrepreneurial activity for a man or that they did not have sufficient social networks to sell the ICS.

Among the individuals invited to participate, a total of 310 from both sites (106 men and 204 women) ultimately agreed to partake in the study and were randomly selected to obtain training in either the intervention (agency-based empowerment) or the control (entrepreneurial training). After randomization, individuals were placed into their respective trainings, the entrepreneurial training and the agency-based empowerment training, which ran in parallel and the participants were expected to attend each of the four days of training as well as a half day focused training on each of the Envirofit cookstove models. Both the entrepreneurial and the agency-based training consisted of mixed gender groups. Figure 2 displays the trial flowchart. We experienced some drop out after individuals were randomized, first at the beginning of the training and second through the noncompletion of the training. For women in the control group, 20% did not continue with the training whereas 9% of women in the intervention group chose no and control group di st that time constrai 57 trained entrepre and 139 in the inter

Fig. 2 Flo



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Once trained, individual entrepreneurs were allowed to identify and pursue any type of sales techniques and processes they felt were effective. For example, they could choose to sell door-to-door, visit self-help groups, or announce their wares at community or religious functions. There were no restrictions as to whom in the household they could approach or where (geographically) they could sell their product. During the half-day Envirofit training, which everyone received, individuals were provided [illegible] of fuel and time sav

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The agency-based empowerment training builds upon a 4-day workshop developed by the Empowerment Institute, based in New York, where individuals participate in an introspective examination of key areas of their life drawing from basic tenets of positive psychology and incorporating exercises that address Bandura's core properties of individual agency. Each exercise is culturally adapted to the local context and crafted to reflect existing social norms and values by a local certified trainer. The training focuses on the following competencies: (a) exercises are relevant and meaningful to the individual; (b) the locus of control sits firmly within the individual rather than on external forces; (c) a simple process of cognitive reframing is adapted; and (d) participants self-reflect to assess progress toward their goals. Over the course of the workshop, through individual and interactive exercises, participants examine aspects of their emotions, relationships, their health/body, money, and work. In this training, exercises and examples were designed to support specific challenges faced in new entrepreneurial endeavors.

Follow-up Process

The cohort of 257 male and female entrepreneurs was assigned to intervention-specific follow-up groups. The groups generally met bimonthly in the urban site and every 3 weeks in the rural site along with a key staff member who would facilitate the meetings. These follow-up meetings were designed to help entrepreneurs build their ICS busi ctices in ICS sales. M 13, to July 31, 201

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Results

Baseline Characteristics

Of the 300 ICS entrepreneurs who were randomized and started training, 169 (56%) resided in the rural area and 131 (44%) in the urban area. Gender distribution was similar in both sites, with women comprising 64% in the rural area and 66% in the urban area. To examine differences in entrepreneurial activity resulting from the intervention, it is important to establish baseline comparability between the groups. Table 1 presents baseline data on the final cohort of ICS entrepreneurs that includes those that were randomized and present at the training (n = 300). We found no significant differences between the control and intervention group with respect to key baseline characteristics that we believe could influence long-term entrepreneurial activity, such as education, age, or previous business experience.

Table 1. Baseline characteristics of randomized sample (n =300)

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with the rural areas. This is due, in large part, to the high poverty levels in the rural areas that result in reduced capacities to purchase durable goods. In addition, these entrepreneurs faced significant challenges in identifying new markets due to difficult travel conditions in the rugged mountain regions.

Table 2. Median (and range) improved cookstove sales for the duration of the study, by gender and intervention

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Sales Patterns

A review of the sales patterns over time revealed that ICS sellers fell into three distinct groups: personal, limited, and active. Personal sellers sold no ICSs or only one, usually purchased for themselves. Limited sellers were those who sold a small number (two to seven units and generally sold them to family or friends). Active sellers were those who sold eight or more ICS units and tended to sell beyond their existing familial group. We found substantial variation in ICS sales over time, with entrepreneurs selling from 0 to 85 ICSs over the nearly 8-month period. Nearly three fourths (72%) of the entrepreneurs in the control group sold no ICSs or only one, compared with 50% in the intervention group. Poor or no sales tended to be more common for men (65%) compare

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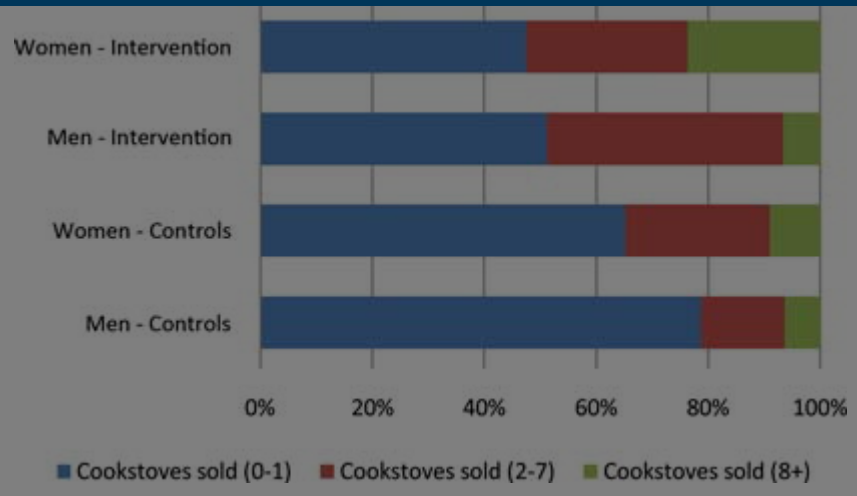

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Entrepreneurial Activity Over Time

Selling ICSs was a relatively new activity for the entrepreneurs, especially in the rural study site. ESVAK attempted to run this program as they would any new entrepreneurial activity, where they would provide general guidance through the training and follow-up meetings. Although ICS sales officially began in December entrepreneurs were slow to sell and participation in the sales meetings lagged. The field teams sent reminder text messages prior to the follow-up meetings and also called the members to encourage them to attend. All travel expenses were covered by the project. However, despite these measures, follow-up meetings were generally poorly attended (about one fourth to one third of the sellers would attend). This was particula tances were far. Whil ly follow-up meeting en no limits as to wh e main office to indica

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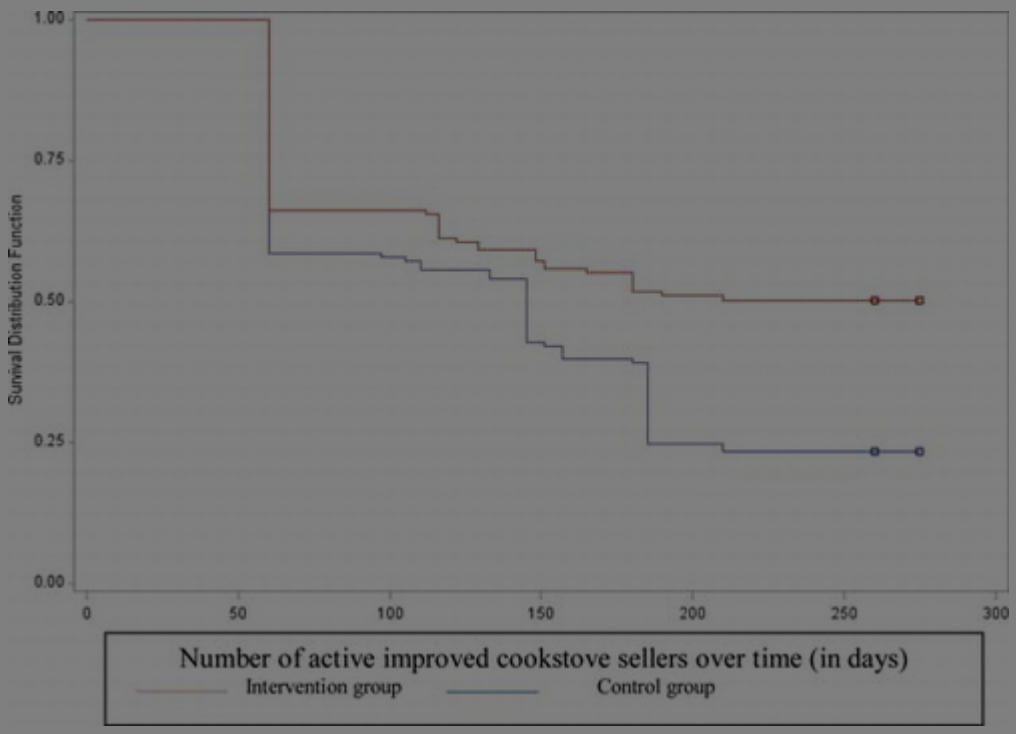
entrepreneur as inactive. Using a Kaplan-Meier survival analysis, we plotted how well the individual businesses survived on the basis of the activity of the entrepreneurs in both the intervention and control groups (Figure 4).

Fig. 4 Kaplan-Meier curve showing business survival (activity) rates over time between control and intervention groups. Statistical significance χ^2 df; Log-rank 16.23; $p < .0004$.



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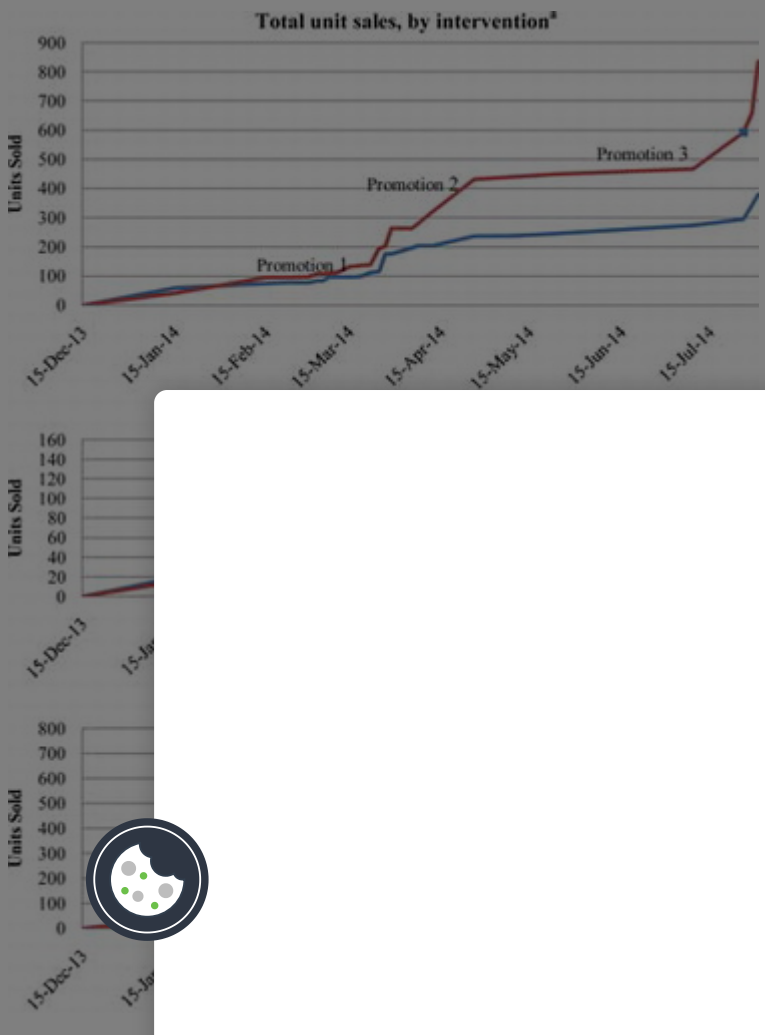
period. The incentive is referred to as a promotion; the first promotion occurred in early-March, when entrepreneurs were provided additional sales and marketing materials along with a lowered wholesale price for the ICS. A second promotion occurred in mid-April, and a final promotion was done in early July. For the final promotion in July, entrepreneurs were told that only those ICS sellers who demonstrated strong sales performance would be retained for the ESVAK business program once the study was completed. From Figure 5 it appears that the incentives were instrumental in driving sales volume up and entrepreneurs who received the agency-based training were significantly more likely to take advantage of the promotions and increase their sales in comparison to the control group.

Fig. 5 Total cookstove sales over time, by intervention group. [a]Intervention n = 835, control n = 379. [b]Intervention men n = 136, control men n = 60. [c]Intervention women n = 699, control women n = 319.



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analysis to model the relative risks (or, in this case, the relative likelihood) of being a higher seller. In this comparison, controlling for gender and location, those who received the agency-based empowerment training were nearly three times more likely to be an active seller (relative risk = 2.74, 95% CI [1.41, 5.35]). Likewise, being female or living in an urban area more than doubled the likelihood of being an active seller (relative risk [female] = 2.12, 95% CI [1.03, 4.35]) and (relative risk [urban] = 2.41, 95% CI [1.33, 4.37]).

Table 3. Relative risk estimates for intervention, gender and location on high-selling capacity

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Discussion

With greater understanding of the deleterious effects of household air pollution and the recognition that those most vulnerable are poor women, there is growing interest in addressing this energy-gender-poverty nexus (Clancy, 2011; Clancy et al., 2003). There is limited empirical research on the gender dimensions within the energy sector and much of f energy poverty ns result in different ected as compare higher rates of (Bruce, Rehfues esulting from the y, 2011; World he risk of sexu s (Global Alliance

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consistent adoption of ICS, it is critical to address gender inequalities in this area and identify ways of more effectively including women in the ICS value chain.

The recent seminal World Bank report on the need to enhance women's voice and agency (2014) stated that fostering agency (defined here as the capacity to act and make choices without fear of retribution) can lead to positive development outcomes, not only for women, but for their family and society as a whole. A recent analysis of Demographic and Health Survey data from Indonesia found that maternal agency is strongly protective of diarrhea and acute respiratory tract infections, especially in children 2 years of age or younger, even after controlling for maternal education (Agustina, Shankar, Ayuningtyas, Achadi, & Shankar, 2014).

It is likely that beyond the negative social and health impacts of energy poverty that are well documented, there is a significant loss of women's agency and voice that result from poor energy access. Within the context of the energy-gender-poverty nexus, there is a significant opportunity to leverage the need to increase access to clean energy solutions with the empowerment of women. However, engagement of women requires targeted interventions that optimize their effectiveness, not only in the economic sphere, but also to build their intrinsic capacities to navigate the often significant sociocultural challenges that they face.

This study is the first to systematically test an intervention targeted at fostering individua randomized trial des training could lea pulation of Kenyan ining, the greatest only led to greater limited succes

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them and their desires for their own lives. Because the agency-based training is internally focused, individuals are able to find meaning and associations that are relevant to them and potentially facilitate positive behaviors (Shankar et al., 2015). This agency-based approach has significant implications for the scaling of clean cooking solutions as it provides a tool to enhance an individual's overall capacity to function in new endeavors. In most regions where energy poverty is high, women can, if properly trained, successfully engage within the energy sector, enhance their own economic condition, and promote an important social innovation within their community. Moreover, the enhanced agency directly fostered through this process has potentially a wide range of benefits for the individual, their family and their community.

There are several limitations of this study. We found significant drop out in participation over time. Qualitative data from the follow-up meetings indicate that this may be due to an expectation that participation would result in the provision of free goods or other materials, as this was a program of a charitable nongovernmental organization. In addition, there was a lag in the development of strong field support systems, especially in the rural areas where the last mile terrain travel was difficult. This also led to limited ongoing support for the newly trained entrepreneurs. Last, although there was a significant improvement in sales towards the end of the study, overall sales performance was low. Qualitative data from the ongoing support meetings indicated that entrepreneurs felt additional skills would build their competency, especially more integrate e for Clean Cookstov ing curriculu business training

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Related Research Data

“We Learnt that Being Together Would Give us a Voice”: Gender Perspectives on the East African Improved-Cookstove Value Chain
Source: Informa UK Limited
Come on out of the ghetto, please! – Building the future of entrepreneurship research
Source: Emerald
A multi-stakeholder perception analysis about the adoption, impacts and priority areas in the Kenyan clean cooking sector
Source: Springer Science and Business Media LLC
The Gendered Nature of Liquefied Petroleum Gas Stove Adoption and Use in Rural India
Source: Informa UK Limited
Implementation science to accelerate clean cooking for public health
Source: eScholarship, University of California
Acceptability and feasibility of a behavioral and mobile health intervention (COMBIND) shown to increase uptake of prevention of mother to child transmission (PMTCT) care in India.
Source: Springer Science and Business Media LLC

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