Evaluation of Clean Cooking Behavior Change Communication Interventions




Summary of Baseline Results

November 2017

GLOBAL ALLIANCE FOR CLEAN COOKSTOVES

BERKELEY AIR MONITORING GROUP

GW

Colorado State University

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This presentation provides a summary of the baseline results, which are presented in greater detail in a supplemental document.

Introduction and Overview




Overview of Global Alliance BCC pilot projects

- Goal: Use behavior change communication (BCC) to accelerate clean cooking markets by increasing awareness and adoption of clean cooking solutions, thus reducing health and environmental impacts of solid fuel and kerosene use.
- 4 projects in 3 countries:

  Kenya:
  - Technology/brand neutral campaign to promote the broad themes of awareness and adoption of cleaner cooking and a targeted campaign aimed at increasing purchase and use of improved charcoal stoves (Population Services (PS) Kenya and Practical Action)
  - Home makeover TV & radio show, *Shamba Chef*, featuring a range of fuels and technologies and promoting clean cooking and nutrition (Mediae.org)

  Bangladesh:
  - Community-based promotion of improved biomass cookstoves in peri-urban and rural areas (SMC)

  Nigeria:
  - Mass media campaign supported with IPC to improve uptake of liquid petroleum gas (LPG) in urban and peri-urban areas of Abuja and Lagos State (McCann Global Health)
- Funded by UK Department for International Development (DFID)
- Project timeframe: June 2016 – December 2018

Evaluation study aims and key questions.

Overall aim

Identify which BCC interventions support scale-up of clean and efficient cooking, to understand how and why they work, and ultimately to model their impact in the Alliance's key mission areas of health, environment, livelihood and gender.

Questions the evaluation aims to answer

- Are the BCC interventions effective in motivating people to purchase and correctly use clean cooking technologies?
- To what degree can the changes in behavior be attributed to the BCC interventions?
- Is there a dose-response relationship between higher exposure to cookstove messages and the outcomes of cookstove purchasing and correct stove usage?
- Were there aspects of the BCC intervention that were more effective than others?
- What are the impacts of the BCC interventions on relative progress towards health, environment, gender, and livelihood goals?

Executive Summary




Kenya: Methods and introduction

- The Kenyan baseline evaluation collected data to evaluate both the PS Kenya and Mediae BCC interventions.
- A population-based rapid survey was conducted during February 2017 in 1000 randomly selected households (HH).
- Sample selection was designed to reflect the target audiences of both BCC implementation programs based on area (urban, rural etc.), HH socio-economic status, and age of the main participant.
- Urban, peri-urban and rural populations were selected in 4 counties across central and western Kenya.
- The main participant was the family member who organized the home-keeping, ideally carried out most of the cooking, and was involved in the decision-making for larger HH purchases.
- If the main participant was not involved in the decision-making, the main decision-maker was also interviewed.
- Visual aids of the promoted and other 'modern' stoves were used to demonstrate and define the focus of the questions.

Kenya: Overview of results

After removal of incorrect and/or incomplete data, the final study sample included a total of 496 urban, 342 peri-urban and 143 rural households.

Current stove and fuel use

- Overall 67% of households owned and used a traditional charcoal stove and 39% owned and used a traditional wood stove, with higher rates of wood stove usage in the lower SECs.
- The rate of LPG used as the primary (although not necessarily exclusive) cooking fuel was significantly higher than expected considering the target population (overall 18%). This might suggest a shift to LPG in the lower SEC, possibly as a result of rising kerosene prices.
- Time is a valuable commodity: regardless of stove type, respondents valued the cooking speed of their current primary stoves more than any other attribute.
- Too much smoke and dirtying of the kitchen were the most disliked stove attributes. LPG users were most likely to report a complete absence of dislikes.
- Stove stacking is prevalent (~65% of households had more than one stove in working order) but simultaneous use of more than one stove is seen only in ~30% of homes and usually done to speed up cooking.

Kenya: Overview of results

- A total of 13 homes were using an 'modern cookstove' (improved biomass or ethanol stove). 5 of these homes used it as their primary stove.

Decision making

- The majority of women state that they are involved in decisions to make large household purchases (over 3000 KSH). When considering making these purchases, their most frequently accessed first-line source of information is friends and family from within the community. This was the case in all three BCC evaluation countries. (Note that it was beyond the scope of this survey to investigate the relationship between this word of mouth information source and current or previous commercial marketing, although some relationship is assumed.)
- Most purchases are paid for in a single cash payment .
- TV and radio consumption is high across all locations (over 75%). Use of internet and social media is ~30% in urban areas but significantly lower in peri-urban/ rural areas (<15%.)

Awareness and perceptions of modern biomass cookstoves

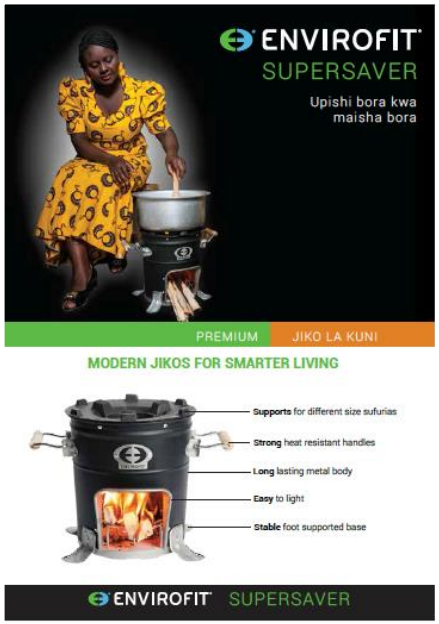
- Awareness of 'modern cookstoves' is relatively high (overall 67%). Awareness was higher among urban and wealthier SECs than in rural and poorer SEC households .

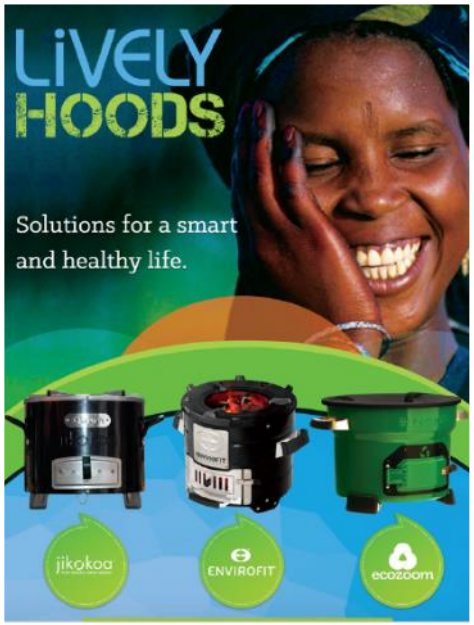
Kenya: Overview of results

- The modern charcoal stove is reported to be the leading aspirational stove across all locations. It is possible that some respondents considered this question solely within the context of a visual aid that they were shown briefly a few minutes earlier in the survey. The visual aid displayed photos of late-model wood, charcoal, and ethanol cookstoves but no LPG appliances. It is possible that this inadvertently introduced a bias against LPG. However, speculative questions are subject to many influences, and we believe that the briefly shown visual aid would not have overpowered longer held preferences.
- The aspiration to own a modern stove was driven by the belief that is will save fuel, cook fast, look modern, and produce less smoke. Liquidity constraints, was the most frequently reported reason why participants had not purchased a 'modern stove'.
- The belief that a 'modern stove' would be beneficial was highest in urban/peri-urban areas (~80%), where respondents perceived that it would help them cook faster and save fuel.

Kenya: Overview of results

- The promotional materials used to market modern cookstoves by the manufacturers as well as from recent BCC campaigns (see sample of printed materials below) had been seen by up to 75% (TV ad), up to 70% (printed materials), up to 26% (radio) of the households that reported to be aware of these types of cooking technologies.
- Materials were only shown in the geographical areas where they were used for promotional purposes.





Bangladesh: Methods and introduction

- A population-based rapid survey was conducted during April-May 2017 in 800 randomly selected households (HH).
- Sample selection was designed to reflect the target audiences of the SMC BCC campaign in terms of socio-economic class, age of both cook and main decision-maker and fuel use patterns.
- Peri-urban populations were selected in 6 upazilas in the Dhaka and Barisal divisions (3 to receive both interpersonal communication (IPC) and out of home (OOH) BCC activities and 3 to receive OOH activities only).
- The main participant was the family member who organized the home-keeping, ideally carried out most of the cooking, and was involved in the decision-making for larger HH purchases.
- If the main participant was not involved in the decision-making, the main decision-maker was also interviewed.
- Visual aids of the promoted and other 'improved' stoves were used to demonstrate/define the focus of the questions.

Bangladesh: Overview of results

After removal of incorrect and/or incomplete data, the final study sample included a total of 792 households.

Current stove and fuel use

- 98% of the HH used a homemade mud stove for their primary cooking device (one pot 78%, two pot 28%).
- The key reported advantages of these stove were that they could be made at home, the food tastes good when cooked on these devices, and they are easy to use.
- Requiring constant tending of the fire, breaking easily, producing too much smoke, and causing the cook to cough and her eyes to burn, were the most disliked factors about the stove.
- Stove stacking is prevalent, with ~71% of households had more than one stove in working order. The most prevalent stove/fuel combination was the one-pot mud stove combined with LPG (33% of those with 2 or more stoves).
- Simultaneous use of more than one stove was reported by 51% of homes with more than one stove and was usually done to speed up cooking.
- Ownership of commercially produced stoves, rather than homemade mud stoves, increased as the education level of the primary earner increased.

Bangladesh: Overview of results

- A total of 12 homes had purchased an improved biomass cookstove -- all the Bondhu Chula.
- 62% of HH that use LPG would like to use it more, but the majority reported the cost of fuel to be a major barrier.

Decision-making for large household purchases

- Decision-making is most frequently done in partnership with a spouse. As also seen in Kenya and Nigeria, the main source of information used when deciding on large HH purchases, including stoves, is family or friends.
- TV radio consumption is relatively high across all locations (~ 70%). Exposure to media information, such as radio, internet, mobile sources is low across all areas.
- The most frequently purchased stove was an LPG stove (93% of the last stove purchased by household). The key drivers to purchase this stove type was because it was a clean stove that looks modern, is easy to light, and cooks quickly.
- Most purchases are paid for in a single cash payment.

Bangladesh: Overview of results

Awareness and perceptions of modern biomass cookstoves

- Only 3 people had heard of or seen the cookstoves to be promoted under the BCC campaign.
- 65% of HH were aware of other improved cookstoves, particularly the Bondhu Chula. Most people became aware of them through a friend or family member. Awareness was higher in Barisal compared to Dhaka.
- The promotional materials used to market modern cookstoves (both those to be freatured in the BCC campaign and others) as well as from other recent BCC campaigns (see sample below) had been seen by 5% or less of the HH. The materials most frequently seen featured the IDCOL and Bondhu Chula.

Nigeria: Methods and introduction

- A population-based rapid survey was conducted during May-June 2017 in 900 randomly selected households (HH).
- Sample selection was designed to reflect the target audiences of the McCann/Africare BCC campaign in terms of socio-economic class, age of the cook, and fuel use patterns.
- Urban and peri-urban populations were selected in Lagos State and Abuja City, in areas to receive both interpersonal communication (IPC) and radio/social media and those to receive radio/social media only.
- The main participant was the family member who organized the home-keeping, ideally carried out most of the cooking, and was involved in the decision-making for larger HH purchases.
- If the main participant was not involved in the decision-making, the main decision-maker was also interviewed.

Nigeria: Overview of results

After removal of incorrect and/or incomplete data, the final study sample included a total of 890 households.

Current stove and fuel use

- Over 70% of the participants in both Lagos and Abuja used a kerosene stove as their primary cooking device (Abuja 73%, Lagos State 92%). It was more likely to see other primary stoves, such as a three-stone fire and charcoal stoves, in Abuja city.
- The key reported advantage of the primary stoves regardless of type was that it is economical with the fuel.
- Requiring constant tending of the fire and producing too much smoke were the most disliked factors about the stove. 35% of participants with a charcoal stove and 35% with a kerosene stove reported that there was nothing they disliked about their stove.
- Prevalence of stove stacking was relatively low. 36% (n=325) of HH had more than one stove in working order. The most prevalent stove/fuel combination was a kerosene stove with an LPG burner.
- Simultaneous use of more than one stove was reported by 61% (n=199) of homes with more than one stove and was usually done to speed up cooking.

Nigeria: Overview of results

LPG use and aspiration to use

- The majority of HH knew about LPG prior to the survey (98%), although less than 10% had seen the marketing materials from recent public campaigns.
- 12% (n=104) of HH used LPG as a secondary or tertiary cooking fuel.
- 92% of HH not using LPG would like to do so, but liquidity constraint was reported to be a major barrier in more than 80% of these homes.
- However, 15% (n=125) of all HH strongly agreed and 50% (n=416) agreed with the statement 'I can afford to cook with LPG'.
- Only 4% of those not currently using LPG (n=31 of 786) did not know where to purchase an LPG stove.
- The average distance to travel to source LPG was just under 160 meters.

Perceptions of LPG

- 93% of HH not using LPG believed that using LPG would be beneficial for their family mainly because cooking would be faster, their kitchen would be cleaner, and there would be less smoke.

Nigeria: Overview of results

- There was almost universal agreement (98% of those aware of LPG prior to survey) that 'LPG is a clean way to cook'.
- 78% either strongly agreed or agreed with the statement 'most people think that cooking with LPG is safe'.

Decision-making for large household purchases

- 51% (n=425) of female participants made decisions concerning large household purchase (over 7000 Naira) by themselves.
- As also seen in Kenya and Bangladesh, the main source of information used when deciding on large HH purchases, including stoves, is family or friends.
- The key factor when choosing a new stove was low cost.
- Most purchases are paid for in a single cash payment.

Access to and use of mass media

- TV viewing was relatively high, but radio and social media were accessed less frequently. Men were more likely to access social media then women (65% male vs 26% female).

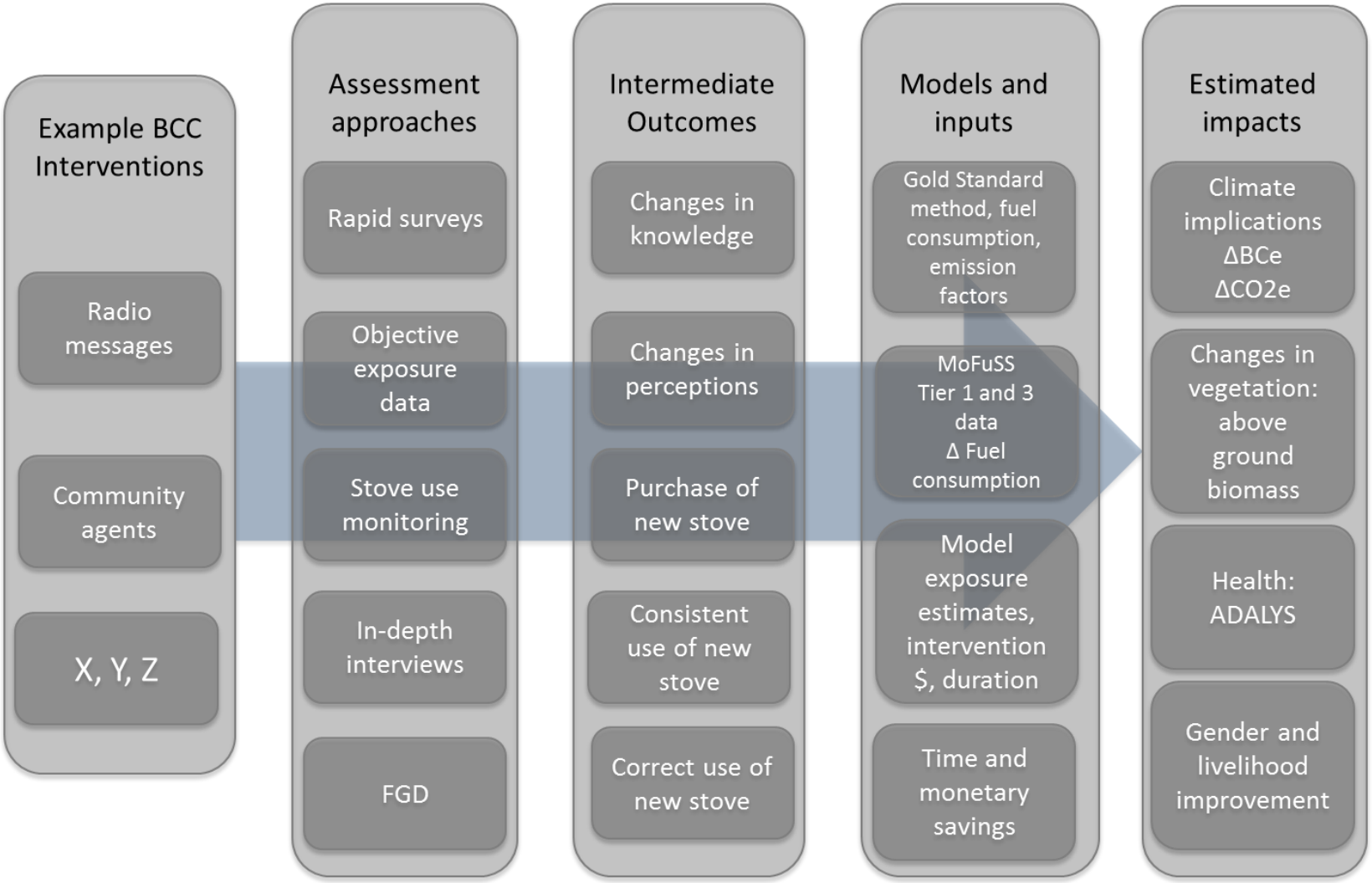
Evaluation Study Design




Evaluation study design

- The evaluation uses a quasi-experimental design to examine the dose-response relationship between the intensity of exposure to the implemented BCC interventions and behavior changes over time, specifically cookstove purchase and adoption.
- Through multivariate regression modeling, the effects of variable levels of respondent exposure to each type of cookstove promotion on knowledge, attitudes, intentions, as well as on correct and consistent use of stoves with be examined.
- The evaluation will be conducted using a multiple method approach which includes population-based rapid surveys, in-depth interviews, observations, focus group discussions, and intensive stove use monitoring.
- Core elements will be maintained across all projects to allow for cross-project comparison, while allowing flexibility so that each project evaluation is customized to the implementing consortium's needs and circumstances.
- Please see next slide for graphical representation of the evaluation study design.

BCC evaluation design overview



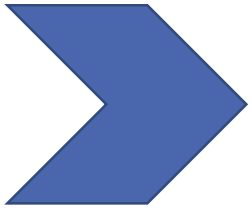
BCC evaluation design overview

- The underlying assumption of the evaluation framework is that levels of BCC exposure will vary by:
  - Intervention strategy and medium of exposure; and
  - Segments of the target populations due to different levels of access to various media channels.
- Expected that cookstove utilization outcomes will also differ across the study population.
- This variation enables the creation of a measure of campaign exposure, a cookstove-messaging dosage index (CMDI)

Cookstove messaging dosage index (CMDI)

Self-reported exposure: recall and recognition of messages and taglines for GACC BCC interventions *and* any concurrent ICS initiatives

External independent tracking: data from multiple sources measures potential exposure at community, online, or media market level



Creates a measure of campaign exposure, a **cookstove-messaging dosage index (CMDI)**

The CMDI will be formulated on a per-project basis, according to the actual BCC implementation.

Data collection overview

- Data will be collected during three cycles of fieldwork
- There will be a newly selected sample at each cycle.

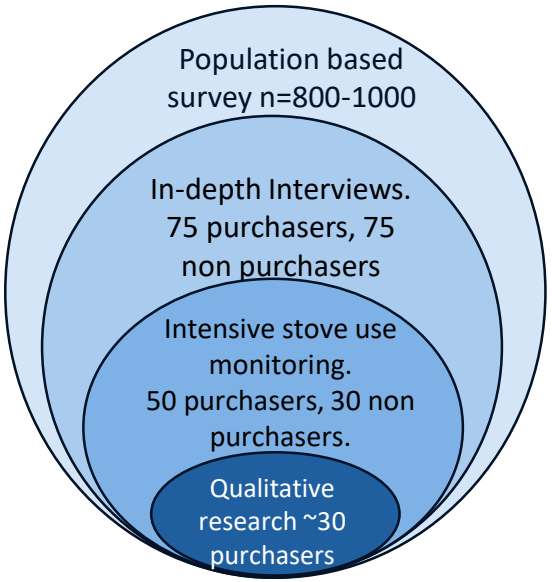
Baseline study

Population based rapid survey n=800-1000

Mid-point follow-up
(SMC/Purplewood and the Mediae evaluations will not have a midline component)

Population based rapid survey n=800

Late stage follow-up



Baseline study design: Interviewees

Main participant: The family member who organizes the cooking/home keeping. Ideally the participant carries out most of the cooking for the HH and is involved at least in some part in the decision-making for larger HH purchases.

If main participant is in no way involved in the decision-making for larger HH purchases, the **main decision-maker** was also interviewed. If the main decision-maker was not available, the HH was not eligible.

If the main participant has a housekeeper and therefore organizes the cooking and HH **but does not cook more than 3 times per week, we also interviewed the housekeeper /maid** for certain sections of the survey.

Interviews were conducted at weekends, evenings, and early mornings (as well as during the day) to ensure the sample included both men and women who work outside the home.

Key Restrictions	Kenya	Bangladesh	Nigeria
Age	23-50 (main participant)	20-35 (main participant) 25-40 (husband)	18-40 (main participant)
Socio-economic class	LSM 4-10	Low to lower middle income	SEC C2-D
Mass media	Watched TV in past week: rural areas	None	Listened to radio in past week in selected areas.
Fuels	No restrictions	Purchases at least some HH cooking fuel and no or minimal use of LPG.	No or minimal use of LPG

Baseline study design: Fuel restrictions for study sample.

Kenya: No exclusion according to cooking fuel.

- The target audiences for the BCC interventions in Kenya typically use charcoal and/or wood as the main cooking fuel with possibly kerosene and/or LPG as supplementary fuels.
- The low to lower middle SEC locations and the selection of LSM groups 5-10 was expected to exclude most households primarily using clean fuels such as LPG.

Bangladesh: Purchases at least some of the HH cooking fuel and currently uses no or minimal amount of LPG.

- It was felt that HH that collected all their cooking fuel would be in a lower SEC than the target population and/or would have a low motivation to purchase the promoted wood stoves, as they would be unlikely to appreciate economic savings from a fuel-efficient stove.
- HH that used LPG more than once daily were excluded.

Nigeria: Currently uses no or minimal amount of LPG.

- In the case of Nigeria 'minimal amount' of LPG was defined as 3 times per week or less.
- This criterion was based on the BCC intervention's key aim to not only switch HHs to LPG for cooking but also to increase the proportion of cooking done with LPG in HH using it sporadically.

Country Specific Baseline Methods and Results





MAMA PRECIOUS


Qburn
ecozoom
UNION
ASSA ABLOY
ecozoom
ecozoom


MAMA SWEETY GOD BLESSING (AMEN)
MAMA

Kenya

Baseline study design: Kenya

Sample selection was designed to reflect the target audiences of each BCC implementation programs

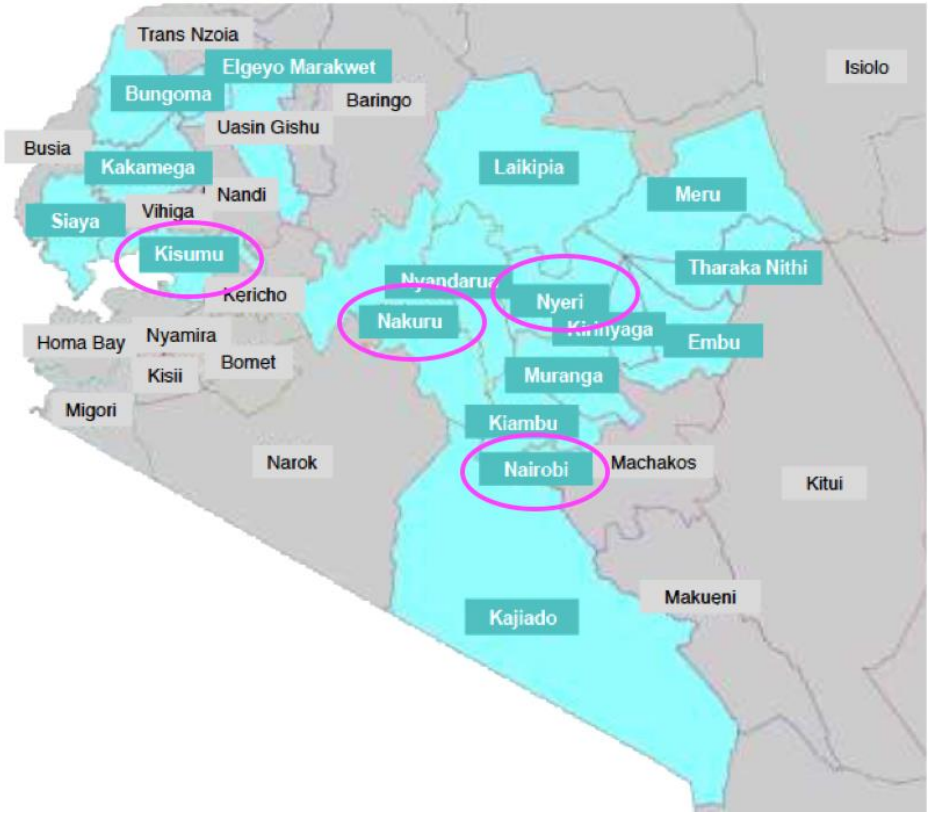
4 clusters that represented the total target population were identified:

- Greater Nairobi
- Mt Kenya
- Rift Valley
- Western/ Nyanza

For the peri-urban and urban areas, the **county** with the highest TV penetration in each of these four clusters was identified:

- Nairobi
- Nakuru
- Nyeri county
- Kisumu

	Urban	Peri-urban	Rural
PS Kenya target % by location	80%	20%	-
Mediae target % by location	20%	50%	30%
Overall study percentage	50%	35%	15%
Number of HH required	500	350	150



Baseline study design: Kenya

- The list provided by PS Kenya detailing cities/towns where the promoted charcoal stoves will be distributed was used to select 1-2 cities/towns from each of the 4 selected counties. The following were chosen:
  - Makadara
  - Dagoretti North
  - Nyeri city
  - Nakuru city
  - Kisumu East
- Residential, low to middle income wards/neighborhoods in both peri-urban and urban areas of these cities/towns were identified and randomly selected using probability proportional to size (PPS).
- Rural areas were identified outside of Kisumu East and Nyeri City.
- Households were selected from these areas using a standard approach to avoid any bias or convenience sampling (procedure included in supplementary information).

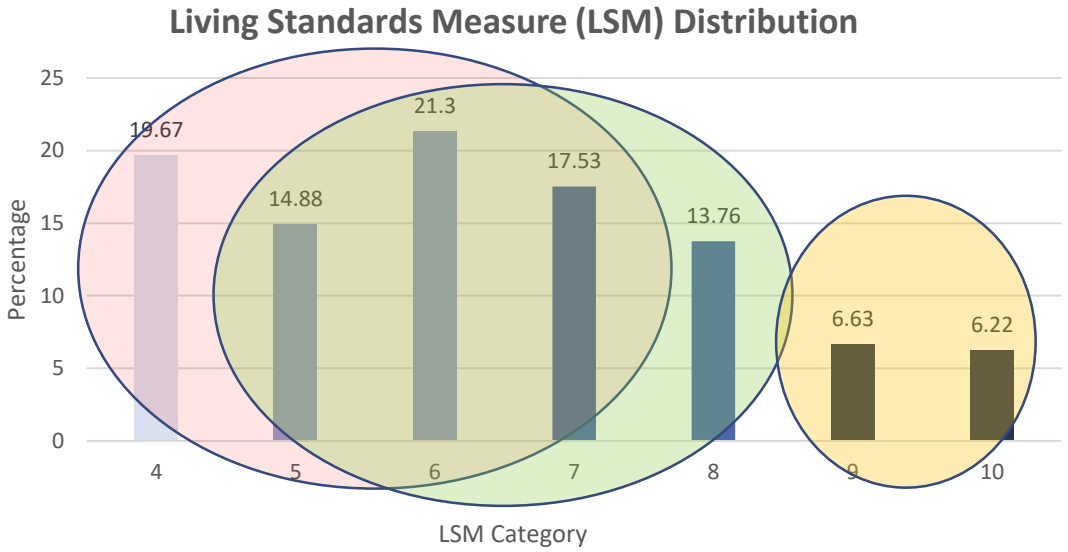
Defining and communicating the term ‘modern stoves’

Visual Aid A was used as a resource to avoid asking leading questions referring to ‘improved stoves’, while still making it clear which types of stoves were the target of the questions.

Visual Aid A

Study Sample Demographics (n=981)

		Freq.	Percent
Area of residence			
	Urban	496	50.6
	Peri-urban	342	34.9
	Rural	143	14.6
Region			
	Greater Nairobi	232	23.7
	Rift valley	214	21.8
	Mount Kenya	258	26.3
	Western/Nyanza	276	28.2
County			
	Nairobi	231	23.6
	Nyeri county	259	26.4
	Nakuru	215	21.9
	Kisumu	275	28.1
Age group			
	23-25	292	29.8
	26-30	276	28.1
	31-35	134	13.7
	36-40	118	12.0
	41-45	70	7.1
	46-50	91	9.3



Mediae target audience (TA)	PS Kenya target audience (TA)	PS Kenya TA buying for relatives in lower SES.

PS Kenya sample n=692 Mediae sample n=720

Household size	Urban (n=496)	Peri-urban (n=342)	Rural (n=143)	Total (N=981)
Total people eating an evening meal in the household (excl. infants)				
Mean	3.4	3.5	4.3	3.6
Std Dev	1.8	2.2	2.1	2

Cooking patterns: primary stove use

- The primary cooking device differed according to location. The urban households most frequently reported to use a kerosene stove(32%), whereas peri-urban and rural homes most frequently used a three stone fire.
- The rate of LPG used as the primary cooking stove was higher than expected considering the target population .

		Urban (n=495)	Peri-urban (n=342)	Rural (n=143)	Total (N=980)
Primary cooking stove					
Traditional charcoal (Metal, ceramic, KCJ)	Freq.	148	103	26	277
	%	29.9	30.1	18.2	28.3
Traditional wood (3-stone fire/ modified 3-stone fire)	Freq.	27	188	113	328
	%	5.5	55.0	79.0	33.5
Kerosene stove	Freq.	161	23	3	187
	%	32.5	6.7	2.1	19.1
LPG	Freq.	145	28	1	174*
	%	29.3	8.2	0.7	17.8
Promoted biomass stoves (e.g. Burn Jikokoa)	Freq.	5	0	0	5
	%	1.0	0	0	0.5
Other (electric, unspecified)	Freq.	9	0	0	9
	%	1.8	0	0	0.9

All % are column percentages unless otherwise stated. * 64 of these HH are in the LSM 9-10 group

Top features liked about primary stove.

Regardless of stove type, respondents valued the cooking speed of their current primary stoves more than any other attribute.

Features liked about primary stove [unprompted responses]		Traditional charcoal i.e. metal, KCJ (n=277)	3-stone / modified 3-stone fire (n=328)	Kerosene (n=187)	LPG (n=173)	Promoted biomass stoves (n=5)	Other i.e. electric, unspecified (n=9)	Total (n=979)
Cooks fast	Freq.	170	268	127	167	4	6	742
	%	61.4	81.7	67.9	96.5	80.0	66.7	75.8
Saves fuel	Freq.	109	88	59	52	4	3	315
	%	39.4	26.8	31.6	30.1	80.0	33.3	32.2
Takes larger pots	Freq.	49	85	6	4	0	0	144
	%	17.7	25.9	3.2	2.3	0.0	0.0	14.7
Low cost to buy	Freq.	69	78	63	25	0	2	237
	%	24.9	23.8	33.7	14.5	0.0	22.2	24.2
Durable	Freq.	31	46	14	30	0	3	124
	%	11.2	14.0	7.5	17.3	0.0	33.3	12.7
Easily available	Freq.	49	136	30	26	0	1	242
	%	17.7	41.5	16.0	15.0	0.0	11.1	24.7



Top features disliked about primary stove

- Too much smoke and dirtying of the kitchen were the most disliked stove attributes.
- LPG users were most likely to report a complete absence of dislikes.

Features disliked about primary stove [unprompted responses]		Traditional charcoal i.e. metal, KCJ (n=277)	3-stone /modified 3-stone fire (n=328)	Kerosene (n=187)	LPG (n=173)	Promoted biomass stoves (n=5)	Other i.e. electric, unspecified (n=9)	Total (n=979)
Takes a lot of fuel	Freq.	29.0	42	15.0	6	0	3	95
	%	10.5	12.8	8.0	3.4	0.0	33.3	9.7
Too much smoke	Freq.	103.0	241.0	118.0	3	0	2	467
	%	37.3	73.5	63.1	1.7	0.0	22.2	47.7
Needs very dry wood	Freq.	6.0	104.0	0.0	0	0	0	110
	%	2.2	31.7	0.0	0.0	0.0	0.0	11.2
Makes kitchen /utensils dirty	Freq.	16.0	114.0	11.0	0	0	1	142
	%	5.8	34.8	5.9	0.0	0.0	11.1	14.5
High risk of burns and scalds	Freq.	21.0	50.0	10.0	32	0	0	113
	%	7.6	15.2	5.3	18.4	0.0	0.0	11.5
No dislikes	Freq.	105.0	65.0	46.0	98	3	5	322
	%	38.0	19.8	24.6	56.3	60.0	55.6	32.9

Ownership and use of traditional and modern cookstoves

		Urban (n=496)	Peri-urban (n=342)	Rural (n=143)	Total (N=981)
Ownership of any traditional wood burning stove^	Freq.	45	219	127	391
	%	9.1	64.0	88.8	39.9
Ownership of any traditional charcoal stove	Freq.	339	238	83	660
	%	68.3	69.6	58.0	67.3

Overall 67% of households owned/ used a traditional charcoal stove and 39% owned /used a traditional wood stove, with higher rates of wood stove usage in the lower SECs.

		LSM 4 (n=193)	LSM 5 (n=146)	LSM 6 (n=209)	LSM 7 (n=172)	LSM 8 (n=135)	LSM 9 (n=65)	LSM 10 (n=61)	Total (N=981)
Ownership of any traditional wood burning stove^	Freq.	125	80	92	48	34	7	5	391
	%	64.8	54.8	44.0	27.9	25.2	10.8	8.2	39.9
Ownership of any traditional charcoal stove*	Freq.	115	89	155	126	96	44	35	660
	%	59.6	61.0	74.2	73.3	71.1	67.7	57.4	67.3

^ Incl. three stone fire, modified three stone fire and ceramic wood stove. * Incl. metal Charcoal, ceramic charcoal, Kenyan Ceramic Jiko

Overall only 1.3% of households owned a modern biomass or ethanol cookstove at baseline (n=13 overall sample; n=6 in Mediae sample; n=12 in PS Kenya sample).

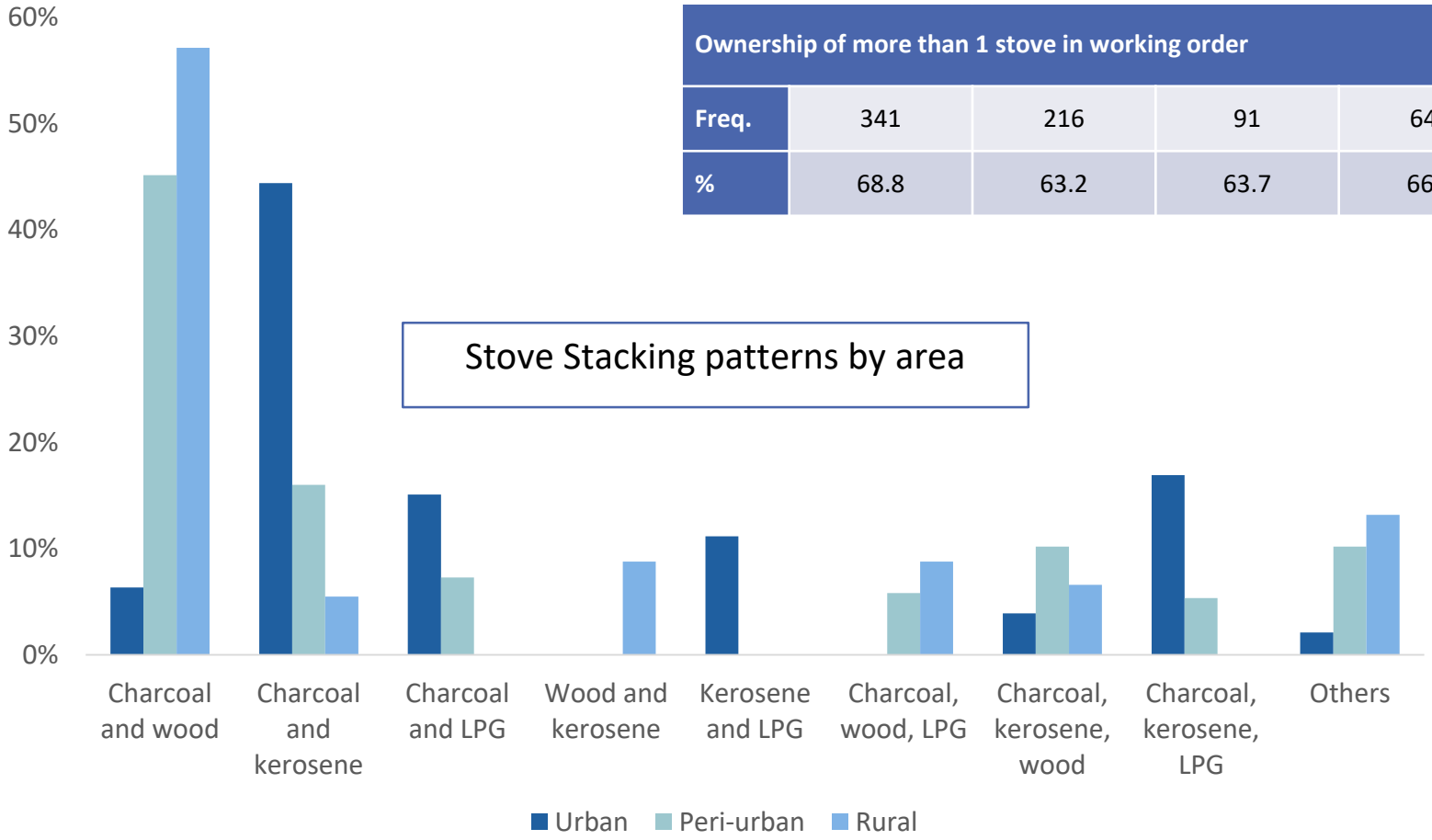




Stove stacking

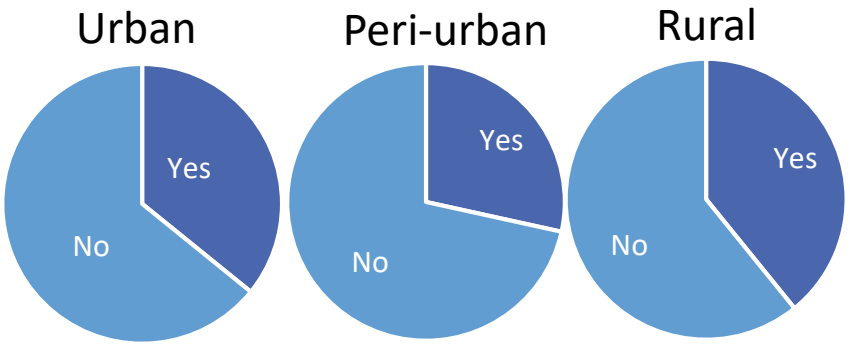
Ownership and use of more than one stove was found in approximately 2/3 of all homes.

	Urban (n=496)	Peri-urban (n=342)	Rural (n=143)	Total (N=981)
Ownership of more than 1 stove in working order				
Freq.	341	216	91	648
%	68.8	63.2	63.7	66.1



Simultaneous stove use

34% (n=330) of HH with more than one stove reported using stoves simultaneously usually to speed up cooking.



Simultaneous use of more than one stove

Common household stove configuration

		Urban (n=177)	Peri-urban (n=97)	Rural (n=56)	Total (N=330)
Top four reasons for using more than one stove at same time					
To cook more quickly	Freq.	144	86	49	279
	%	81.4	88.7	87.5	84.6
Foods need different cooking techniques	Freq.	34	28	16	78
	%	19.2	28.9	28.6	23.6
Cooking > 1 dish /drink at the same time	Freq.	98	50	36	184
	%	53.4	51.6	64.3	55.8
Different sized pots need different stoves	Freq.	8	7	1	16
	%	4.5	7.2	1.8	4.9

More than one response allowed

Aspirational stoves

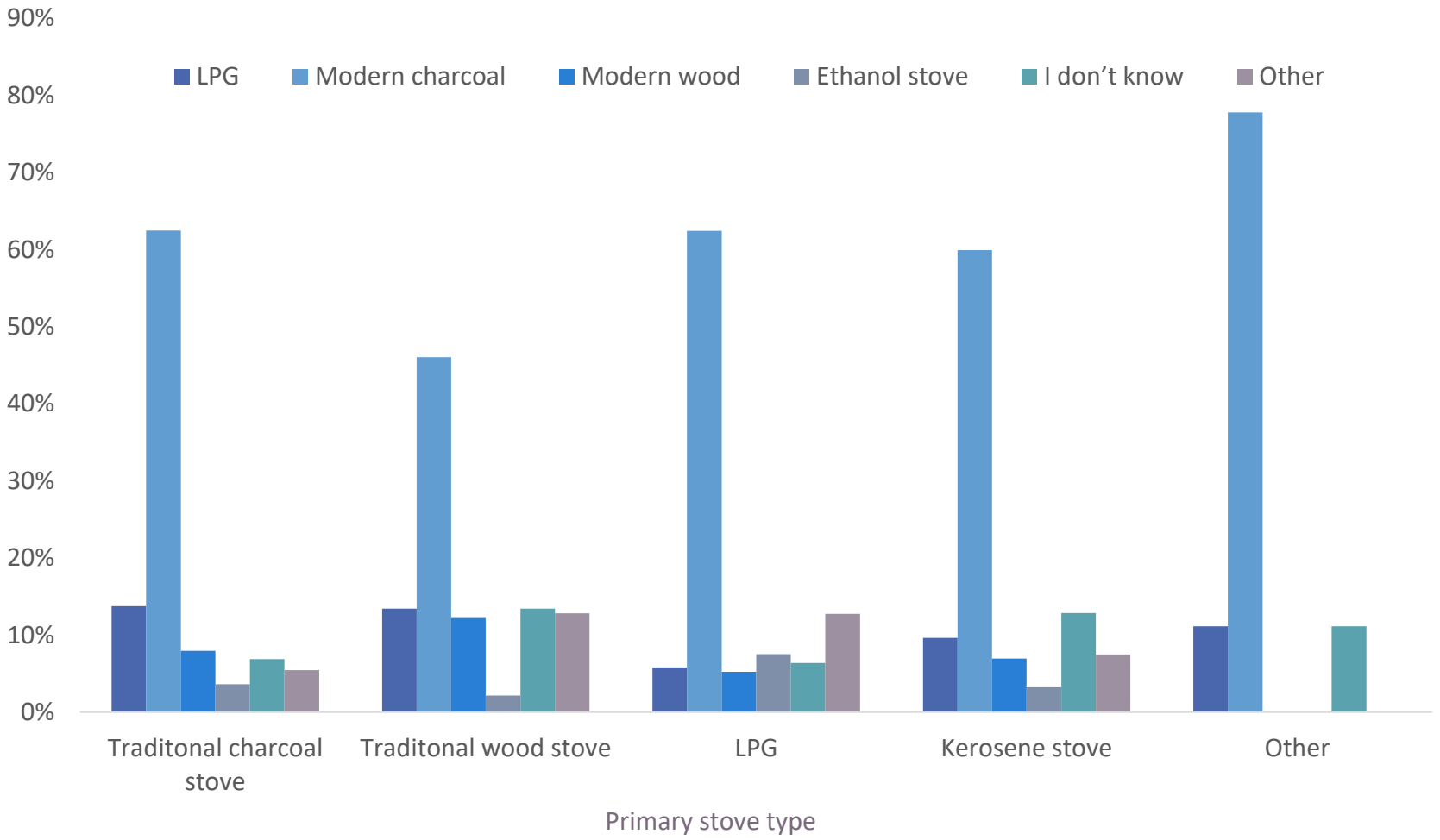
The modern charcoal stove is reported to be the leading aspirational stove across all locations. It is possible that some respondents considered this question solely within the context of a visual aid that they were shown briefly a few minutes earlier in the survey. The visual aid displayed photos of late-model wood, charcoal, and ethanol cookstoves but no LPG appliances. It is possible that this inadvertently introduced a bias against LPG. However, speculative questions are subject to many influences, and we believe that the briefly shown visual aid would not have overpowered longer held preferences.

What stove type would you have if you could have any? (by area n=980)

		Urban (n=495)	Peri-urban (n=342)	Rural (n=143)	Total
LPG	Freq.	44	48	19	111
	%	8.9	14.0	13.3	11.3
Modern charcoal stove	Freq.	298	197	62	557
	%	60.2	57.6	43.4	56.8
Modern wood stove	Freq.	34	33	17	84
	%	6.9	9.6	11.9	8.6
Ethanol stove	Freq.	28	5	3	36
	%	5.7	1.5	2.1	3.7
Don't know	Freq.	46	33	20	99
	%	9.3	9.6	14.0	10.1
Other	Freq.	45	26	22	93
	%	9.1	7.6	15.4	9.5

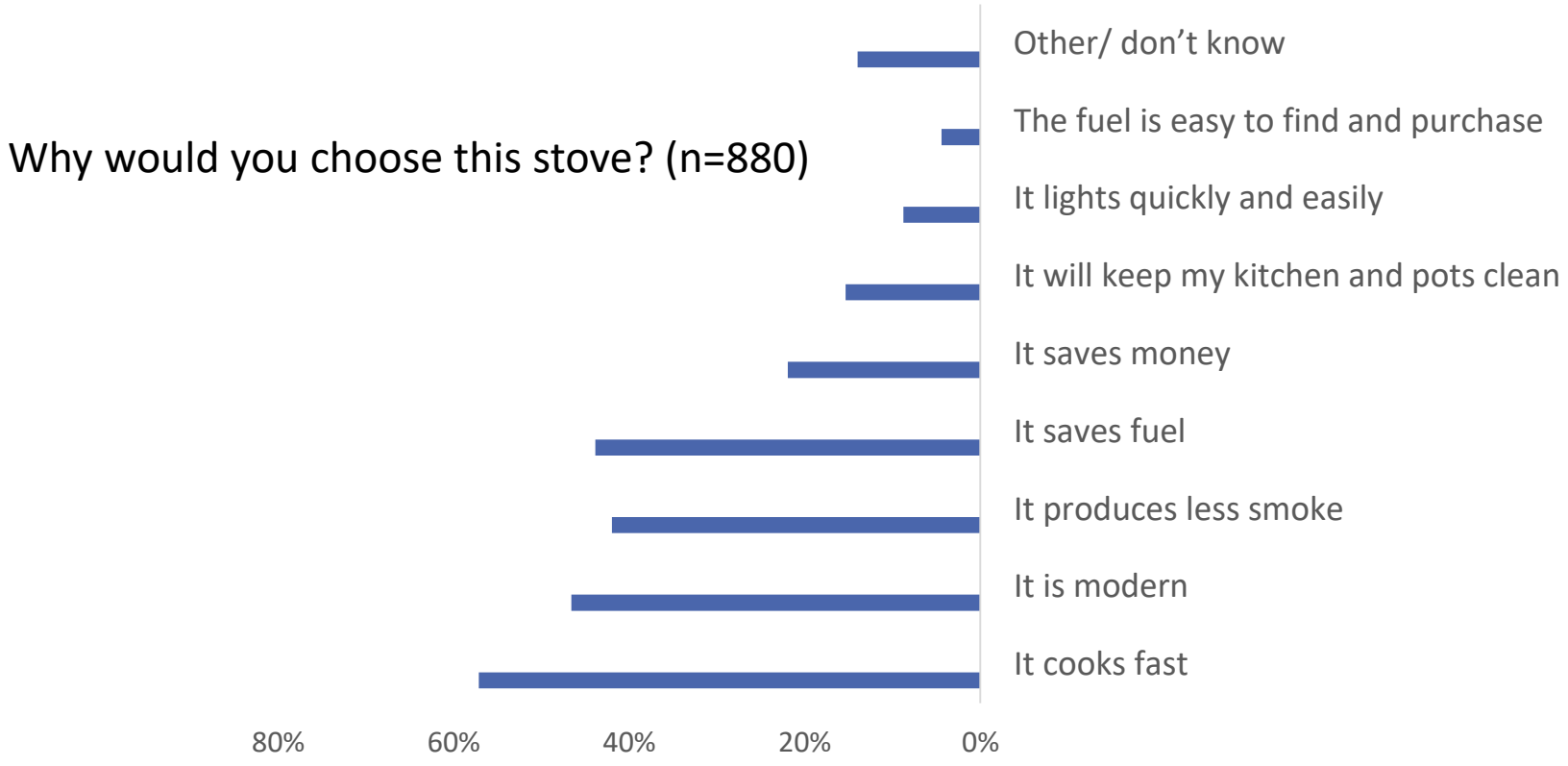
Aspirational stoves by primary stove type

What stove type would you have if you could have any? (by primary stove type n=974)

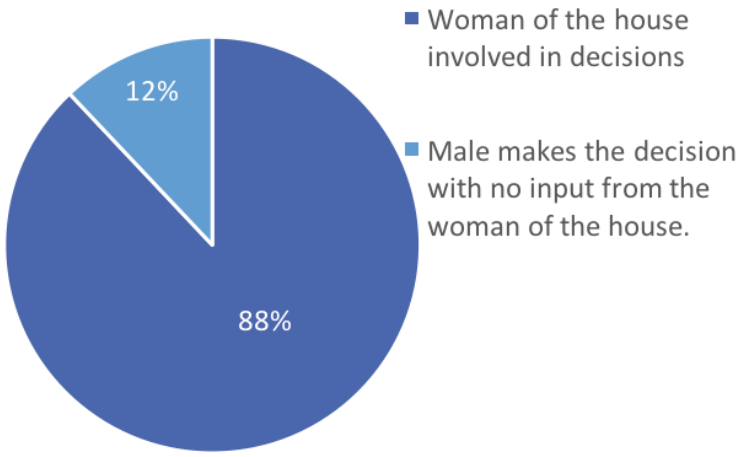


Drivers for choosing aspirational stove

The aspiration to own a modern stove was driven by the belief that is will save fuel, cook fast, look modern, and produce less smoke

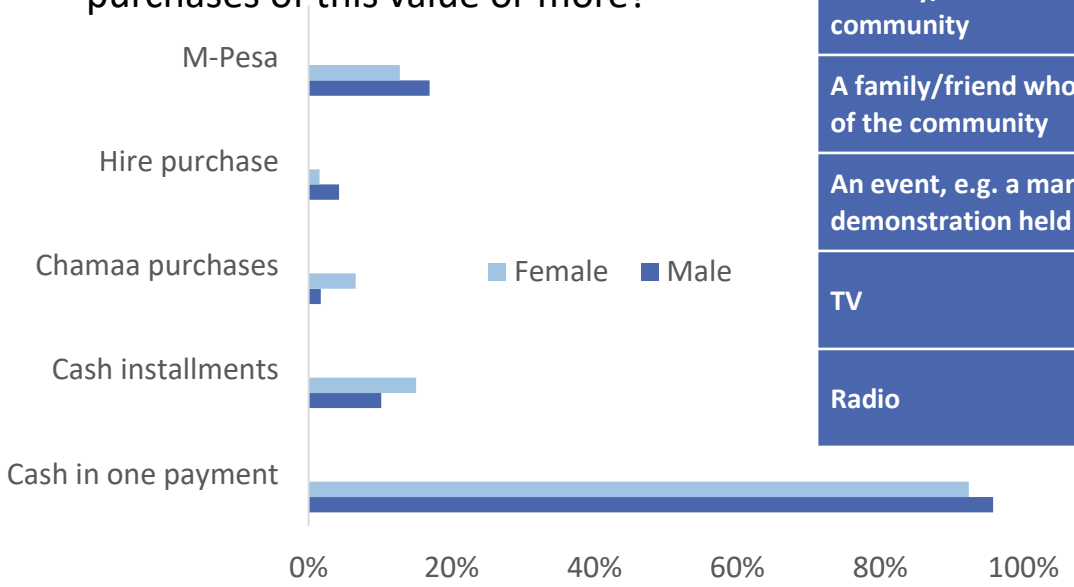


Decision-making for large household purchases



Word of mouth/friends and family is the most frequently reported source of information when choosing which product or brand to buy. A relationship between word of mouth and current or previous commercial marketing can be assumed but was not investigated.

How would you normally pay for purchases of this value or more?



		Male (n=118)	Female (n=861)	Total (N=979)
Top five sources of purchase information for larger purchases (over 3000 KSH)				
A family/friend who lives in the community	Freq.	69	557	626
	%	58.5	64.7	63.9
A family/friend who lives outside of the community	Freq.	31	205	236
	%	26.3	23.8	24.1
An event, e.g. a market demonstration held in community	Freq.	30	208	238
	%	25.4	24.2	24.3
TV	Freq.	42	222	264
	%	35.6	25.8	27.0
Radio	Freq.	26	209	235
	%	22.0	24.7	24.0

Media usage by decision-makers by location

Do you ever watch TV?

Yes

87% Urban

75% Peri-urban

80% Rural

Chi-square p-value <0.0001

Do you ever listen to the radio?

Yes

79% Urban

90% Peri-urban

85% Rural

Chi-square p-value 0.0004

Do you have a mobile phone?

Yes

Smart phone

42% Urban

19% Peri-urban

11% Rural

Non-smart phone

55% Urban

78% Peri-urban

87% Rural

Fisher's Exact Test p-value <0.0001

Do you use social media?

Yes

33% Urban

14% Peri-urban

6% Rural

Chi-square p-value <0.0001

Do you ever use the internet either on a smart phone or computer?

Yes

29% Urban

8% Peri-urban

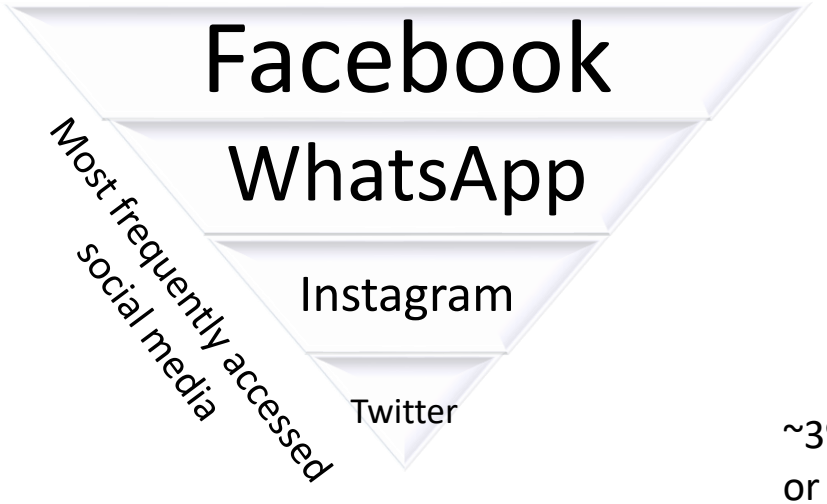
5% Rural

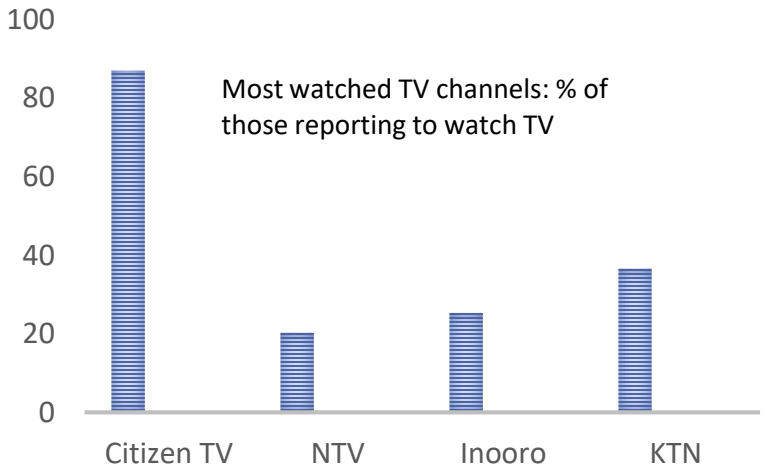
Chi-square p-value <0.0001

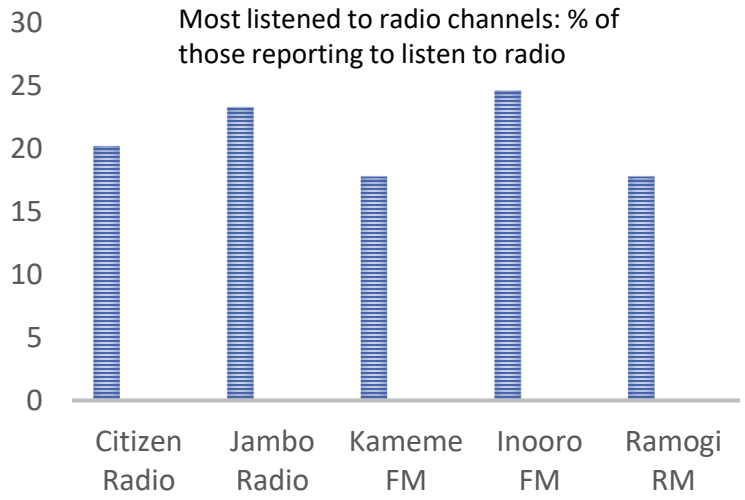
Use of mass media

Number of days of TV watched during the past week.		Male (n=98)	Female (n=701)
	Mean	5.1	5.3
	Std Dev	2.4	2.4
	P-value (pooled, equal variances)		0.50
Number of days listening to the radio in the past week.		Male (n=100)	Female (n=701)
	Mean	6.1	6.0
	Std Dev	1.7	1.8
	P-value (pooled, equal variances)		0.88

48% male vs 19% female decision-makers access social media.







~3% of the total sample never accessed TV, radio or internet. No difference in % by location.

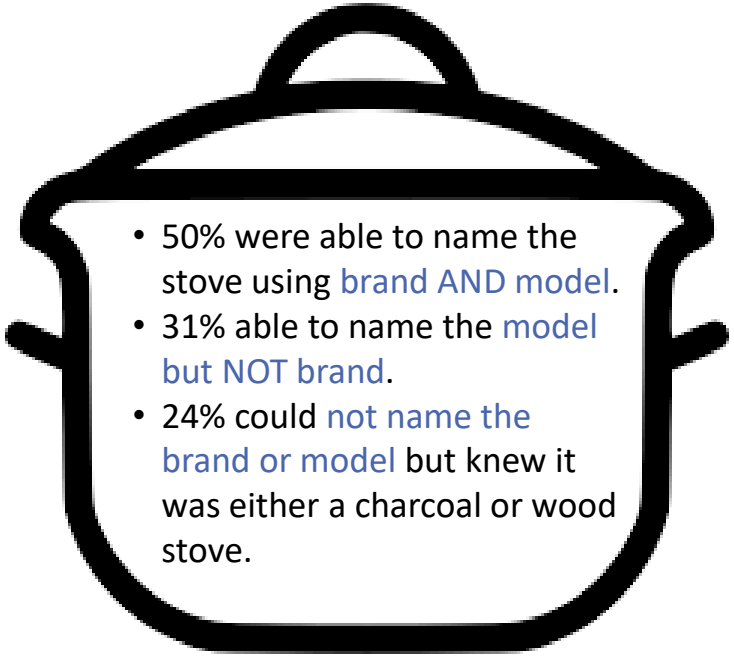
Awareness of 'modern stoves'

Referring to the visual aid shown on slide 30 participants we asked 'Before this survey had you heard, seen, or been told any information about new cookstoves such as these?'

LSM Group:		4 (n=193)	5 (n=146)	6 (n=209)	7 (n=172)	8 (n=135)	9 (n=65)	10 (n=61)	Total (N=981)
Yes	Freq.	99	84	159	123	100	46	50	661
	%	51.3	57.5	76.1	71.5	74.1	70.8	82.0	67.5

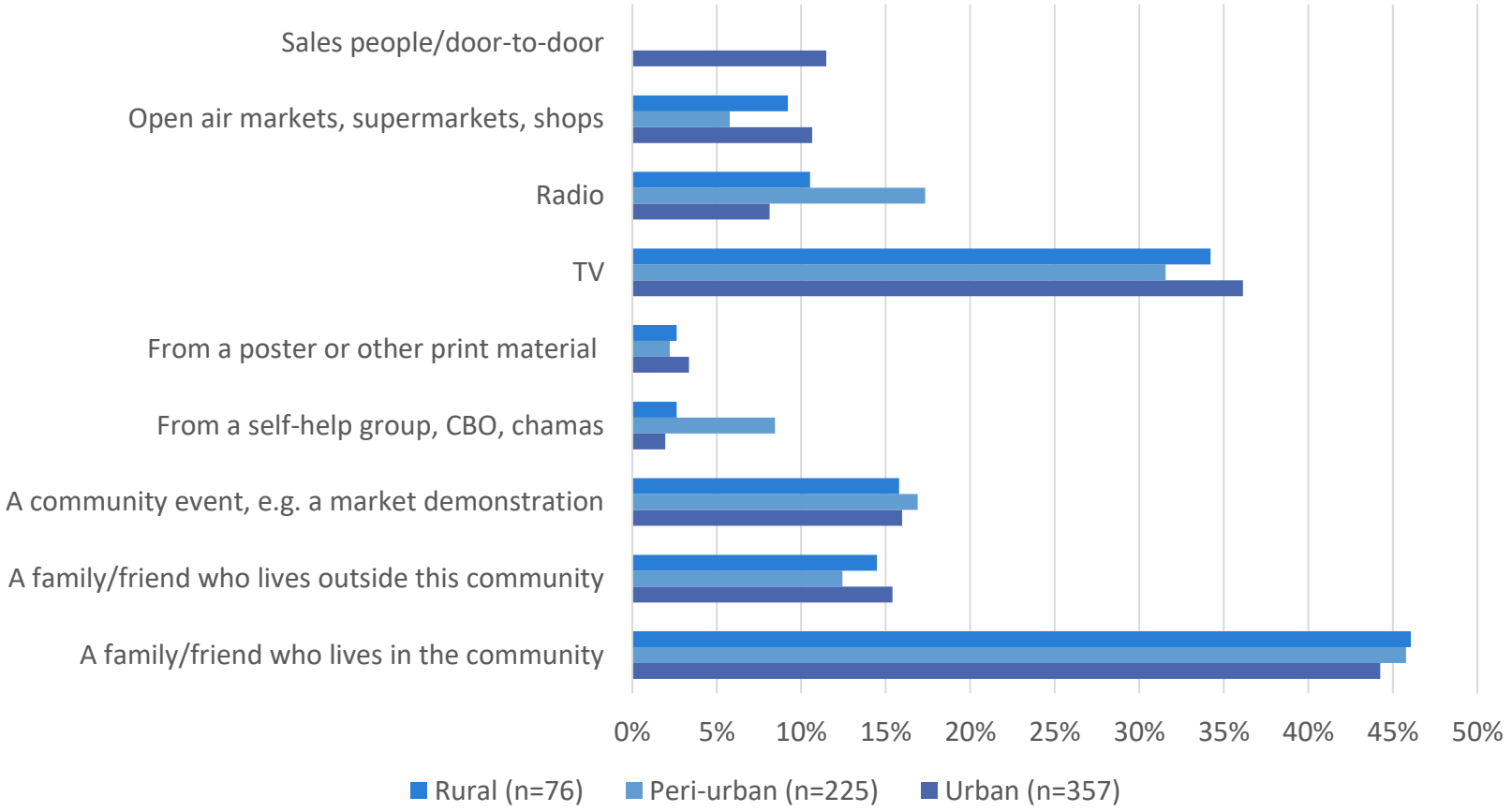
		Urban (n=496)	Peri-urban (n=342)	Rural (n=143)	Total (N=981)
Yes	Freq.	358	226	77	661
	%	72.18	66.08	53.85	67.38

		Male (n=118)	Female (n=863)
Yes	Freq.	62	599
	%	52.5	69.4

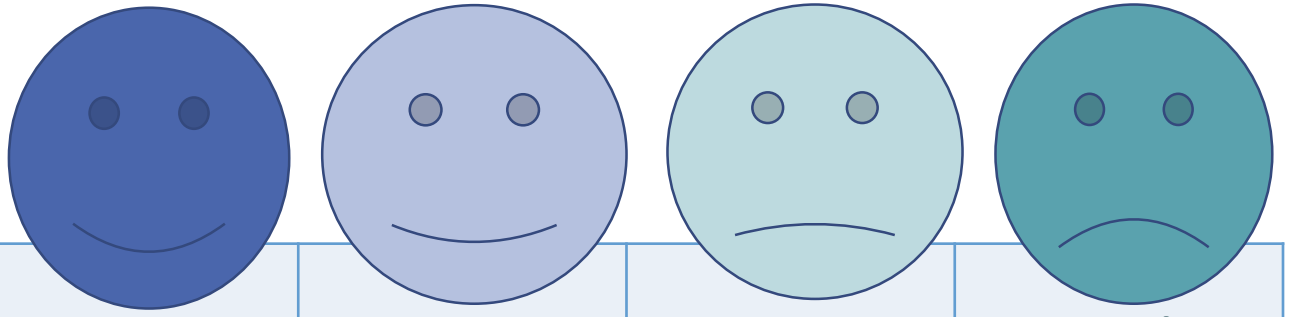


Sources of information on 'modern stoves'

How have you come to hear about or see this information?



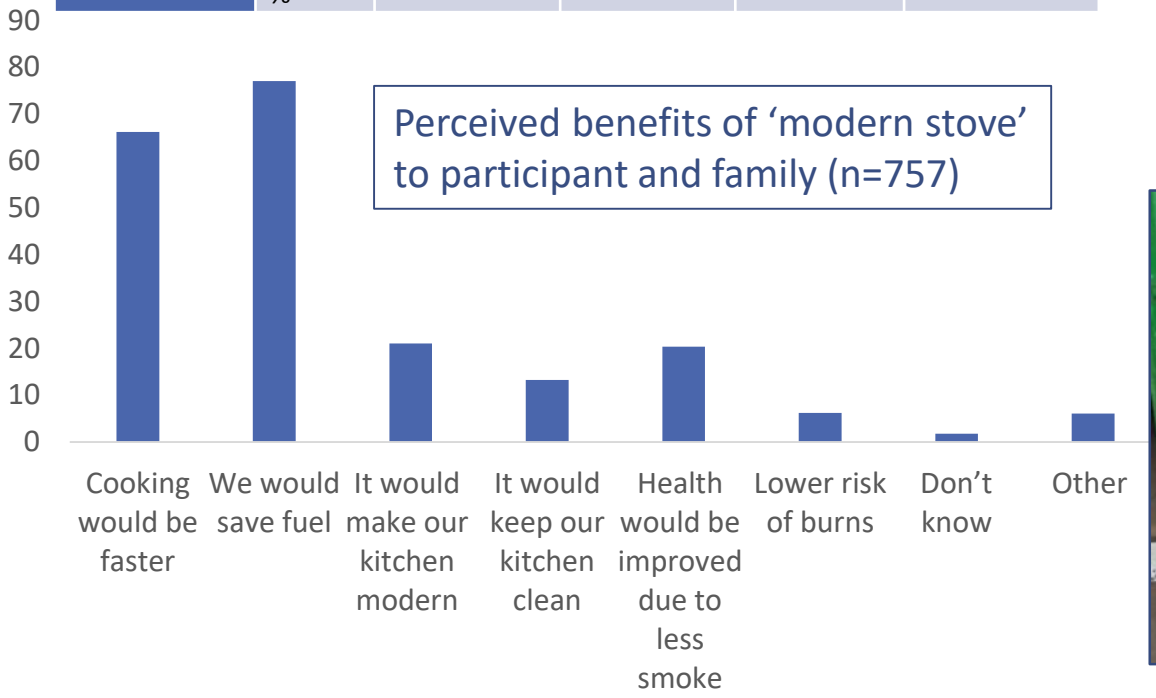
Perceptions of traditional and modern cookstoves (n=661)



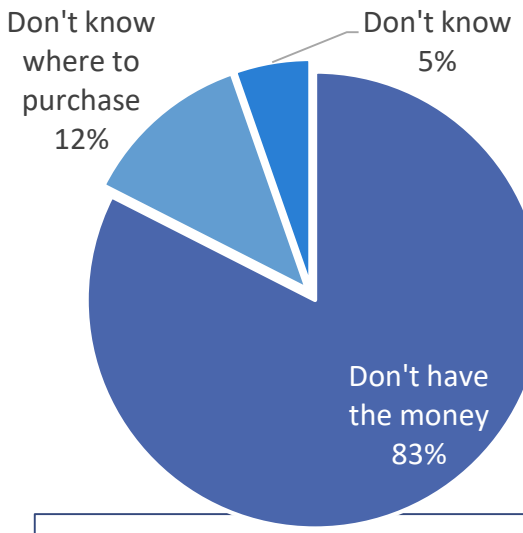
Strongly agree	Agree	Disagree	Strongly disagree
Traditional cooking stoves are bad for my health and that of my family			
27%	59%	8%	4%
The new cookstoves like these [visual aid A] use less fuel which saves you money and/or time.			
35%	58%	3%	1%
The new cookstoves like these [visual aid A] would make my kitchen more smart and modern.			
34%	61%	2%	1%

Perceptions and barriers: 'modern stoves'

		Urban (n=482)	Peri-urban (n=333)	Rural (n=143)	Total (N=958)
Do you think a stove like this would have any benefits for you and your family?					
Yes	Freq.	388	273	96	757
	%	80.5	82.0	67.1	79.0
No	Freq.	23	18	13	54
	%	14.7	12.6	23.8	15.3
Don't know	Freq.	71	42	34	147
	%	14.7	12.6	23.8	15.3

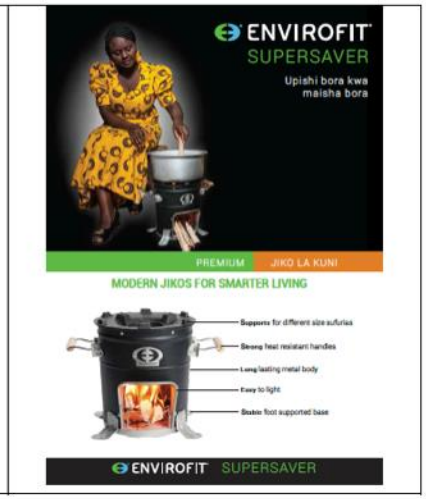


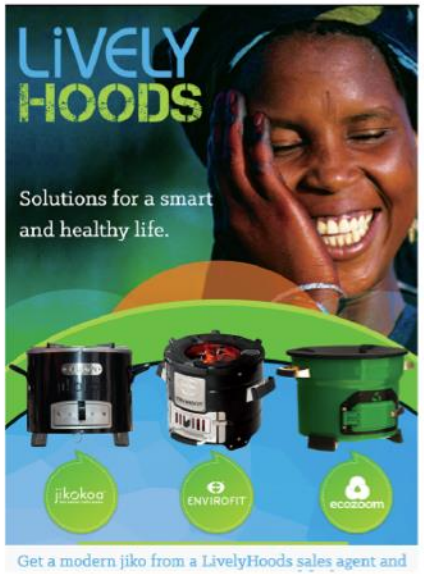
Perceived benefits of 'modern stove' to participant and family (n=757)



Perceived barriers of buying a modern stove:(n=973)

Exposure to promoted stove marketing





Burn, EcoZoom, and Envirofit were invited to share details of and materials from their marketing campaigns for the promoted stoves in the 2-3 months prior to the survey.

Materials from all recent stove-related BCC campaigns were also requested.

Samples of these materials can be seen on the left.

Exposure to the promoted stoves marketing

The decision-makers who had heard of stoves such as those shown in Visual Aid A (n=661) were then asked if they had seen a series of stove promotional materials.

Frequency of viewing promotional materials in visual aids : percent of total respondents aware of stoves (n=661)					
	Printed material A	Printed material B	Printed material C	Printed material D	TV Advert
Many times	2.9 (19)	2.0 (13)	2.3 (15)	46.5 (307)	51.7 (342)
Only once or twice	9.4 (62)	6.8 (45)	4.2 (28)	23.8 (157)	23.5 (155)
Never before	87.7 (579)	91.2 (602)	93.5 (617)	29.7 (196)	24.8 (164)

Due to confidentially agreements we are not able to present results that identify the brand or model of the stove.

Bangladesh

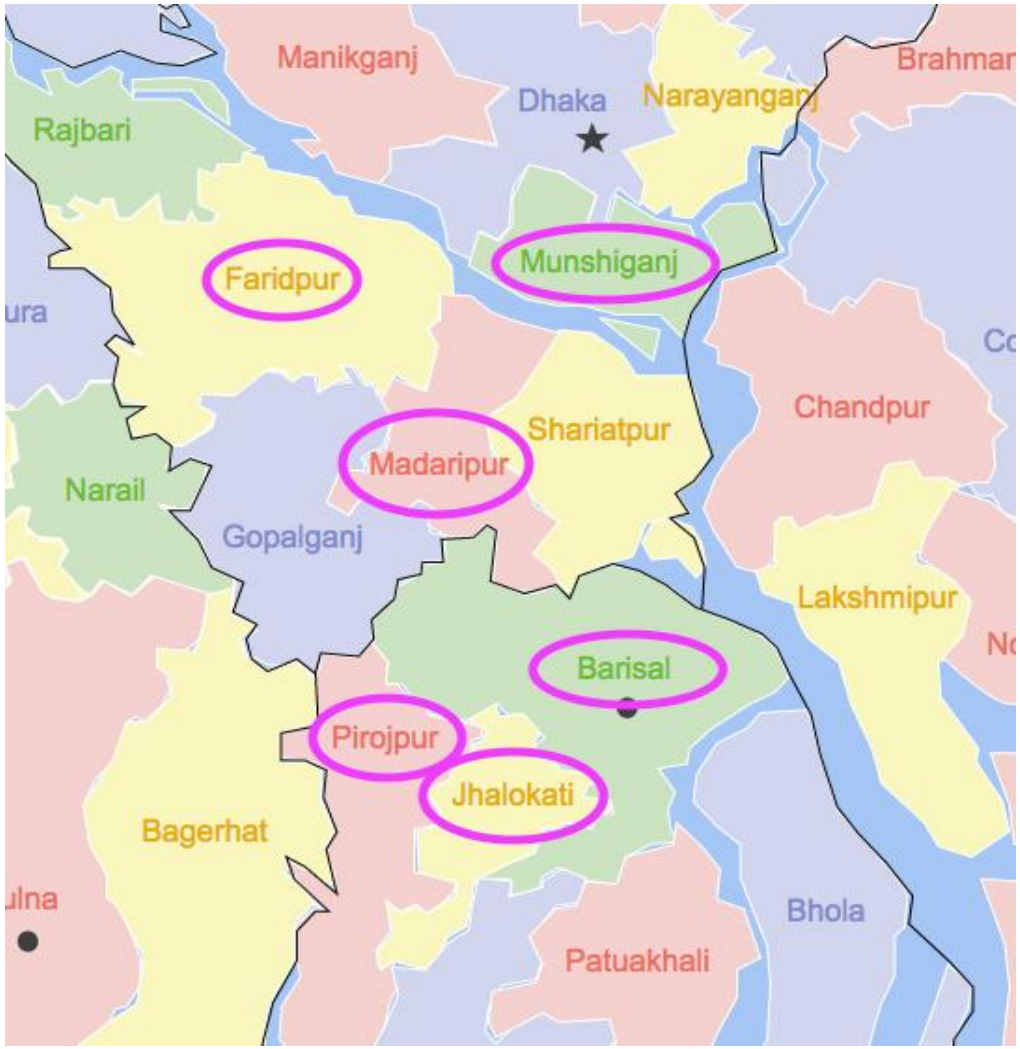
Baseline study design: Bangladesh

Sample selection was designed to reflect the target audiences of the BCC implementation program.

The figure shows the 6 districts targeted for BCC activities, located in the divisions of Dhaka and Barisal.

Within these districts, the BCC implementation program has focus (or "intensive") upazilas, where households receive both IPC and OOH activities (e.g. community film screenings and theatre, billboards, etc.), and secondary upazilas, where only OOH is deployed.

The districts of Madaripur, Faridpur, and Jhakokathi were selected to be representative of the full target population.



Baseline study design: Bangladesh

Based on feedback from an intensive site visit, two adjacent upazilas were then selected from each district -- one that will receive full BCC implementation (IPC and OOH) and one that will receive OOH information only (see table below).

Following advice from SMC, accessible peri-urban areas that had not been subject to sensitization though a community mapping exercise were identified: Bhanga, Rajoir and Rajapur.

2-3 similar peri-urban areas, were identified in the OOH-only upazila. All were within a 15 km radius from each upazila center.

Households were selected from these areas using a standard approach to avoid any bias or convenience sampling (procedure included in supplementary information).

Division	District	Upazila	Implementation
Dhaka	Faridpur	Bhanga	IPC and OOH
		Nagarkanda	OOH only
	Madaripur	Rajoir	IPC and OOH
		Kalkini	OOH only
Barisal	Jhakokathi	Rajapur	IPC and OOH
		Nalchity	OOH only

Defining and communicating groups of improved stoves

Sections of the survey referred to the metal cookstove promoted by the BCC campaign with the aim of assessing for levels of awareness and perceptions. Recognizing that there has also been a large scale promotion of other 'improved' cookstoves, such as the IDCOL stove and Bondhu Chula, the survey also aimed to explore the awareness and uptake of these stove types.

Rather than referring to these stoves using potentially leading terms such as 'improved' or 'modern', the field team briefly showed the participants visual aids (see below) to clarify the type of stove referred to in certain questions.

Visual Aid A

Visual Aid B

Study sample (n=792)

		Freq.	%
Division			
	Dhaka	539	68.06
	Barisal	253	31.94
District			
	Madaripur	271	34.26
	Faridpur	261	33
	Jhakokathi	259	32.74
Upazila (IPC and OOH)			
	Rajoir	189	23.86
	Bhanga	192	24.24
	Rajapur	178	22.47
Upazila (OOH only)			
	Kalkini	80	10.1
	Nagarkanda	71	8.96
	Nalchity	82	10.35

All selected households were in the semi-kuccha to semi-pucca range. Which for this study was defined as a house with walls made of thatch, bamboo, burnt brick or metal, tin or asbestos sheet,. The roof from burnt bricks, metal or asbestos sheets or concrete.

Study sample demographics

As per the selection criteria the majority (99%) of the main participants were married women between the ages of 20-35yrs who cooked at home more than 3 times per week. Their husband, who was between the ages of 25-40yrs were also interviewed if they were available and involved (either wholly or partially) in the decision making for the home.

Average household size for all those who eat an evening meal in the house 6.2 (SD 2.2). No difference seen between IPC and OOH upazilas and OOH-only (chi-square p=0.58)

Cooking patterns

Primary stove type (N=792)	Freq	%
One pot mud stove single combustion chamber	621	78.4
Two pot mud stove with single combustion chamber	160	20.2
Single or double pot Bondhu chulha (BC) with chimney.	8	1.01
Other	3	0.38

All % are column percentages unless otherwise stated

98% of the HH used a homemade mud stove for their primary cooking device.

As per selection criteria all participants purchased at least some of the HH cooking fuel and at the time of interview used no or a minimal amount of LPG (see slide 16 for detail).

37% (n=296) homes used an LPG stove as either their secondary or tertiary stove

The Bondhu Chula (BC) was the secondary or tertiary stove in 4 HH.

Top features liked about primary stove: mud stoves.

The key reported advantages of the mud stoves were that they could be made at home, the food tastes good when cooked on these devices, and they are easy to use.

	One pot mud stove ONE combustion chamber (N=610)	Two pot mud stove ONE combustion chamber (N=156)
The food cooked tastes good.	**74.6**	**88.5**
I can make it myself.	**57.5**	**66.0**
Easy to use	**40.3**	**41.0**
Easy to light	38.2	26.3
It uses the fuel I like to use	15.4	16.7
Easily available	9.3	9.0
Low cost to buy	8.0	4.5
Other	15.3	10.4

To aid clarity in the table above, only the % of total stove group have been presented. The frequencies are available in the supplementary information. The aspects liked about each stove type most frequently reported are highlighted green

Top features disliked about primary stove: mud stoves.

	One pot mud stove ONE combustion chamber (N=621)	Two pot mud stove ONE combustion chamber (N=160)
Too much smoke/soot	**75.0**	**75.6**
It breaks easily	**63.9**	**66.3**
It makes my eyes burn	**56.4**	**55.6**
Need to constantly tend	**51.4**	**77.5**
It makes me cough	**47.5**	**52.5**
Makes kitchen/utensils dirty	33.3	30.6
High risk of burns and scalds	27.7	38.8
Needs very dry or small pieces of wood	20.9	35.6
It makes the house too hot	17.2	23.1
Takes a lot of fuel	14.8	28.1
Is not portable	13.2	6.3
Difficult to light.	11.9	10.6
Other	4.4	7.5

The fact that the stoves produce too much smoke, break easily, cause eyes to burn and coughing and need constant tending were the most frequently reported disliked factors about the mud stoves.

To aid clarity of the table above, only the % of total stove group have been presented. The frequencies are available in the supplementary information. The aspects disliked about each stove type most frequently reported are highlighted orange.

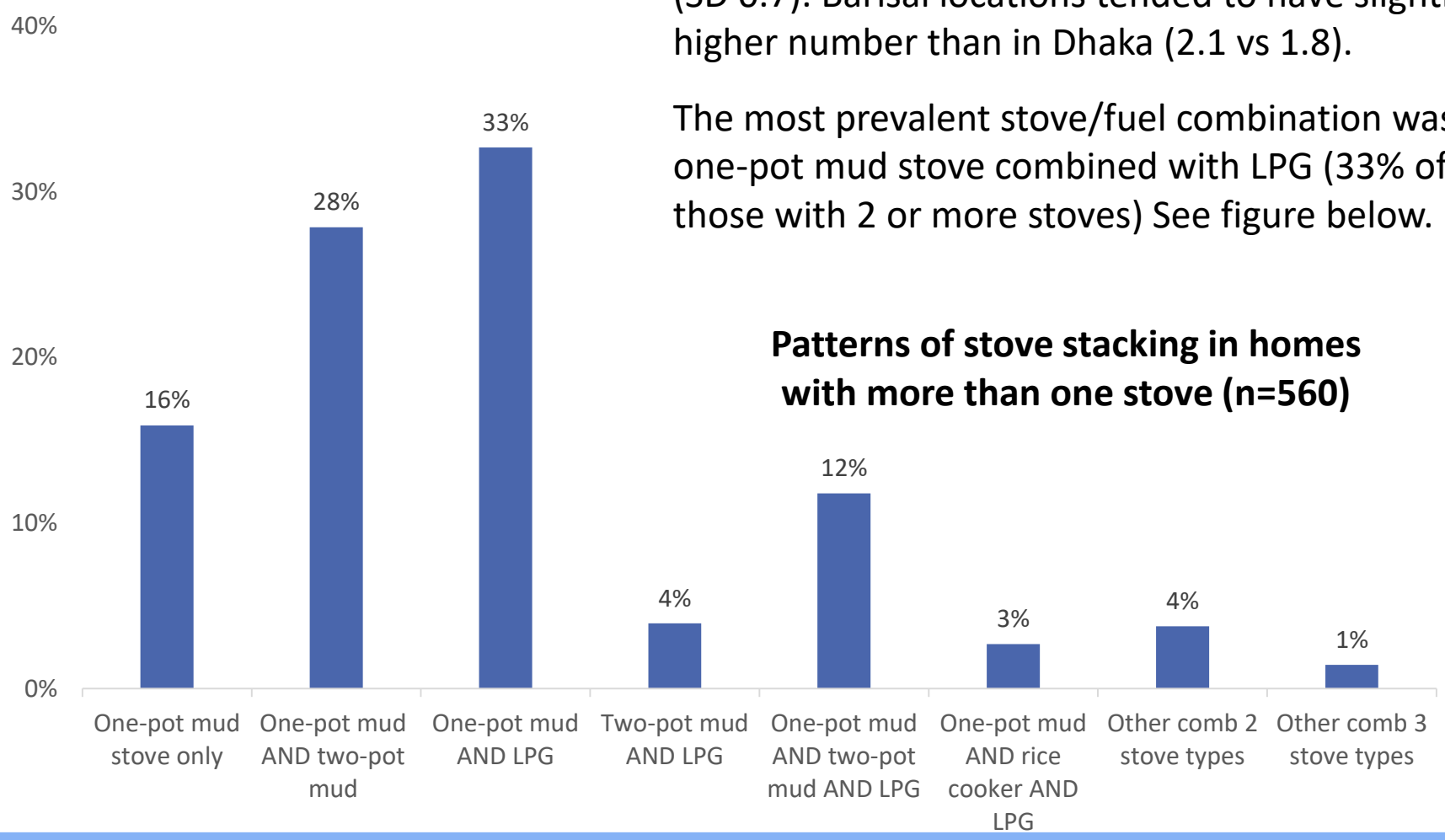
Top features liked and disliked about Bondhu Chula in homes using it as the primary stove (n=8).

Patterns of stove stacking

Ownership and use of more than one stove was found in 71% of all homes (n=560).

Average number of stoves in each home was 1.9 (SD 0.7). Barisal locations tended to have slightly higher number than in Dhaka (2.1 vs 1.8).

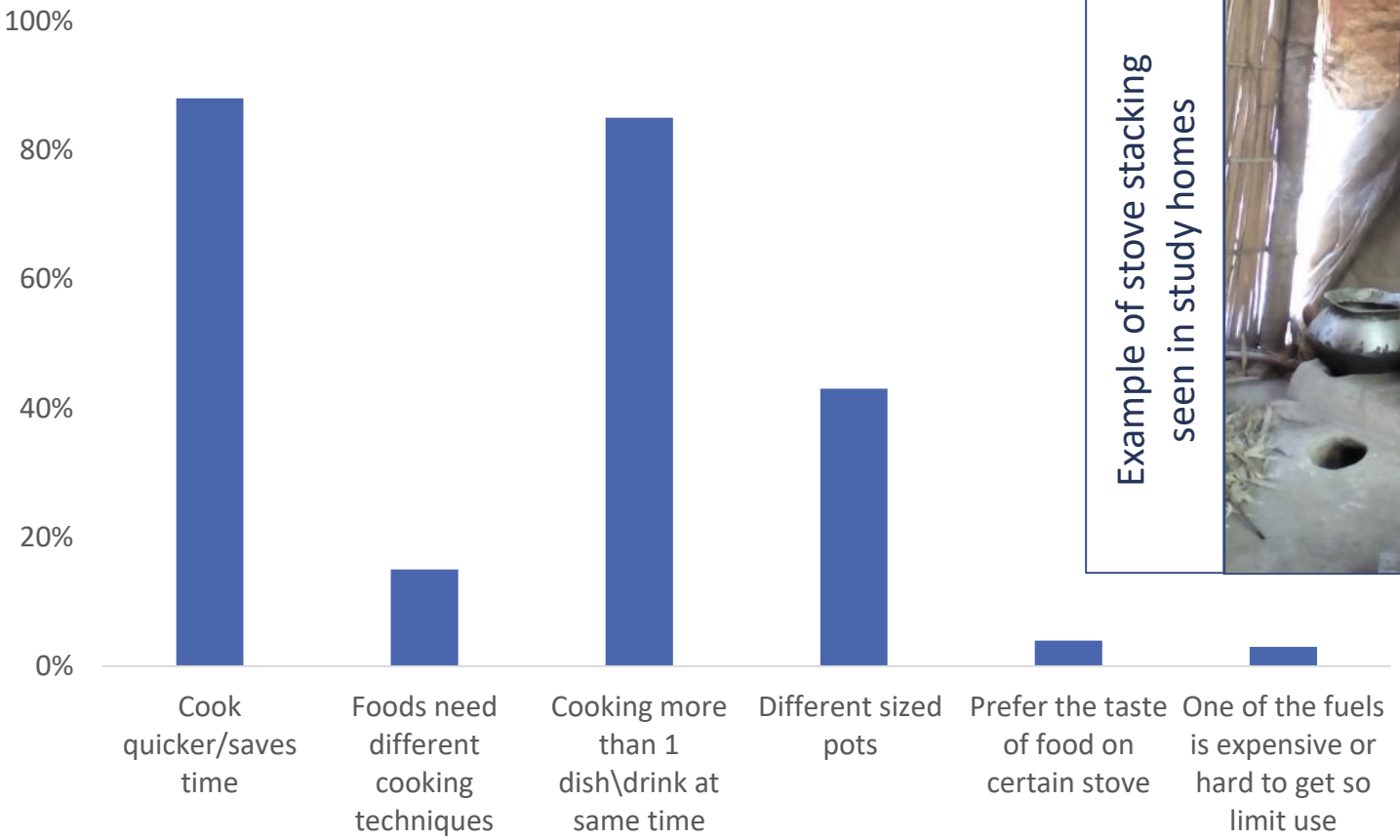
The most prevalent stove/fuel combination was the one-pot mud stove combined with LPG (33% of those with 2 or more stoves) See figure below.



Simultaneous stove use

51% (n=398) of HH with more than one stove reported using stoves simultaneously. Analysis showed no difference in simultaneous stove use between study locations.

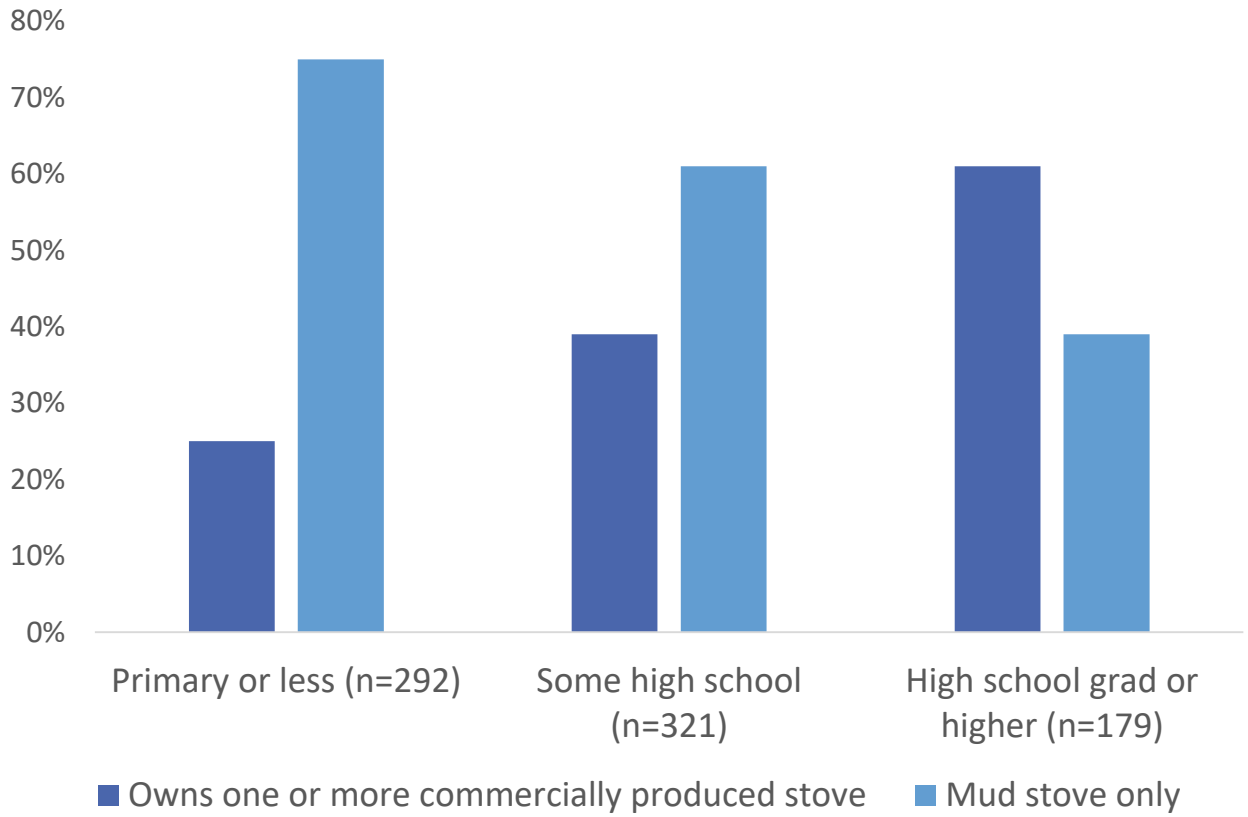
The most frequently reported reason for simultaneous use was to cook more quickly (see figure below).



Example of stove stacking seen in study homes

Ownership of commercially produced stoves

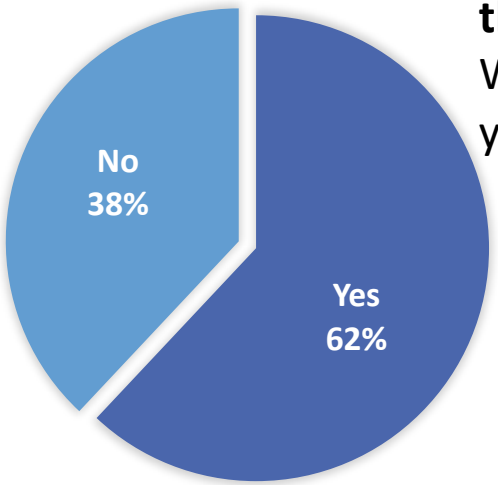
Ownership of commercially produced stoves, rather than mud stoves made at home, increased as the education level of the primary earner increased (Chi-square p-value <0.001(see figure below.



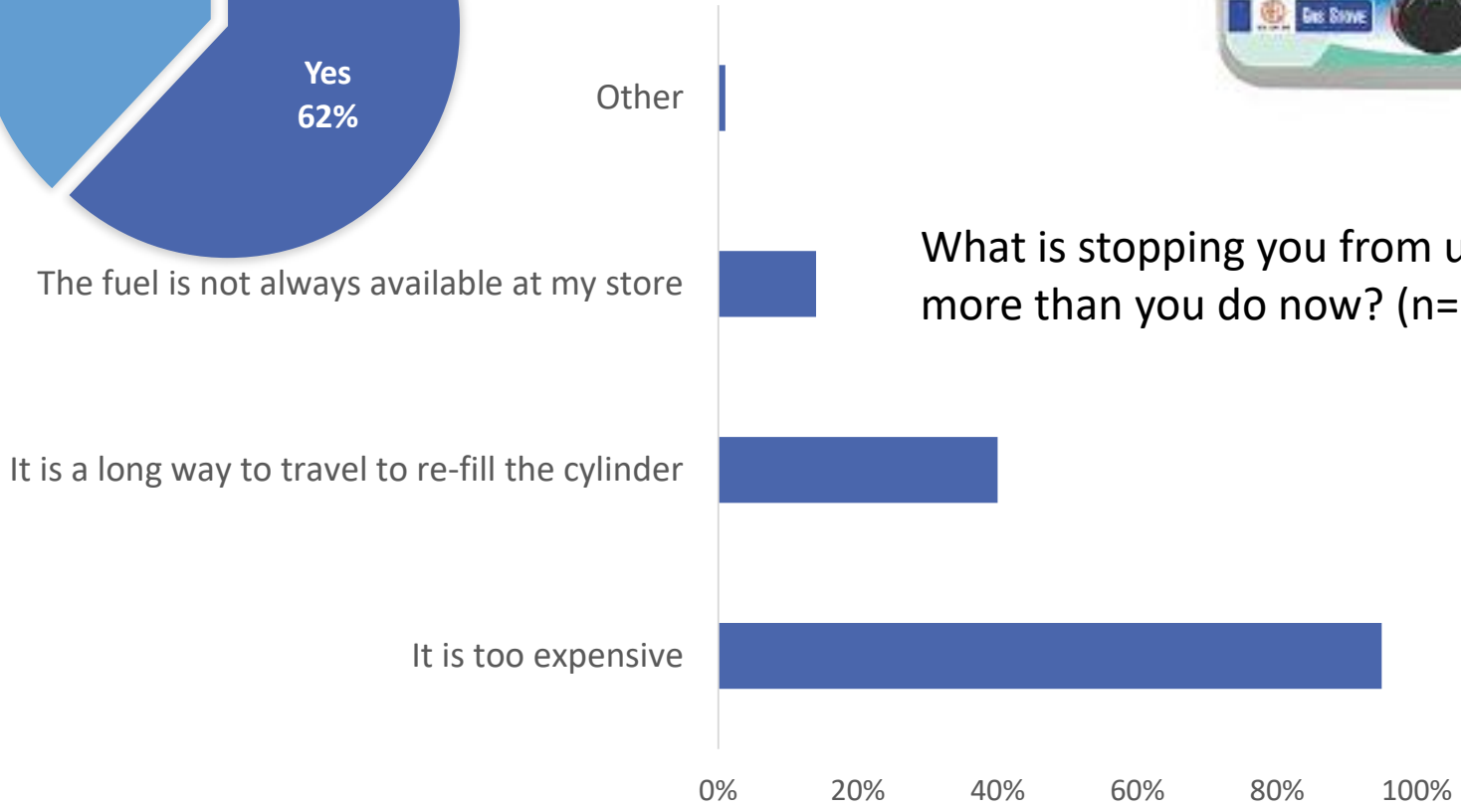
Commercially produced stoves include LPG, rice cooker, Bondhu Chulha

Aspiration to increase use of LPG

Asked to cooks currently using LPG as their secondary or tertiary fuel: Would you like to use LPG more than you do now? (n=296)



What is stopping you from using LPG more than you do now? (n=296)

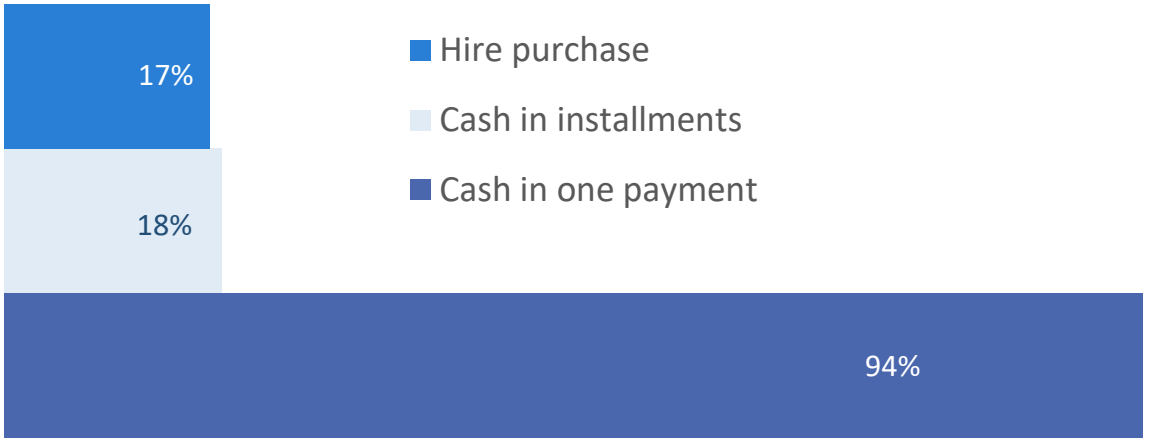


Decision-making for large household purchases

93% (n=736) of participants reported to make decisions concerning large household purchase (over 1800 BDT) with someone else. 95% of these made the decision with their spouse.

When asked to report the most frequently used source of information when choosing which product or brand to buy, 90% reported that is was a family/friend who either lives in (82%) or outside of (8%) the community. 7% reported their most frequently used source was the TV.

How would you normally pay for purchases of this value or more?



No difference between payment methods between study locations.

Media usage by decision-makers

TV radio consumption is relatively high across all locations (~ 70%). Exposure to media information, such as radio, internet, mobile sources is low across all areas.

Do you ever watch TV?

Yes

75% Male

69% Female

Chi-square p-value 0.08

Do you ever listen to the radio?

Yes

1% Male

0% Female

Do you have a mobile phone?

Yes

Smart phone

20% Male

19% Female

Non-smart phone

76% Male

77% Female

Chi-square p-value 0.87

Do you use social media?

Yes

8% Males

6% Females

Chi-square p-value 0.50

Do you ever use the internet either on a smart phone or computer?

Yes

8% Male

8% Female

Chi-square p-value 0.88

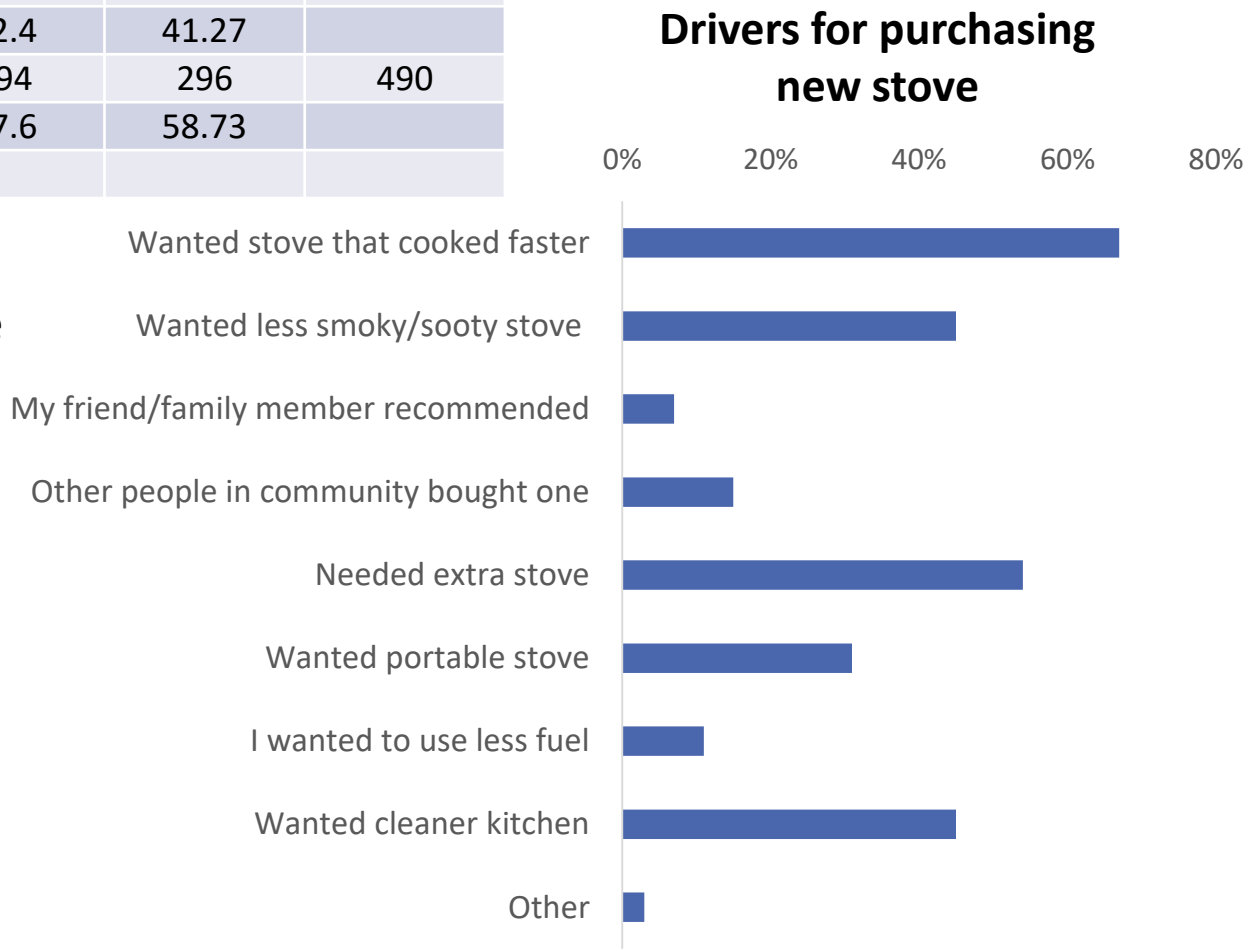
Purchase of household stoves

		Male (n=287)	Female (n=504)	Total (N=791)
Have you ever purchased a stove for your home?				
Yes	Freq.	93	208	301
	%	32.4	41.27	
No	Freq.	194	296	490
	%	67.6	58.73	
Chi-square p-value=0.01				

Average (mean) cost of the stoves bought was 5175 BDT (SD 2160.2) which equates to 60-65 USD

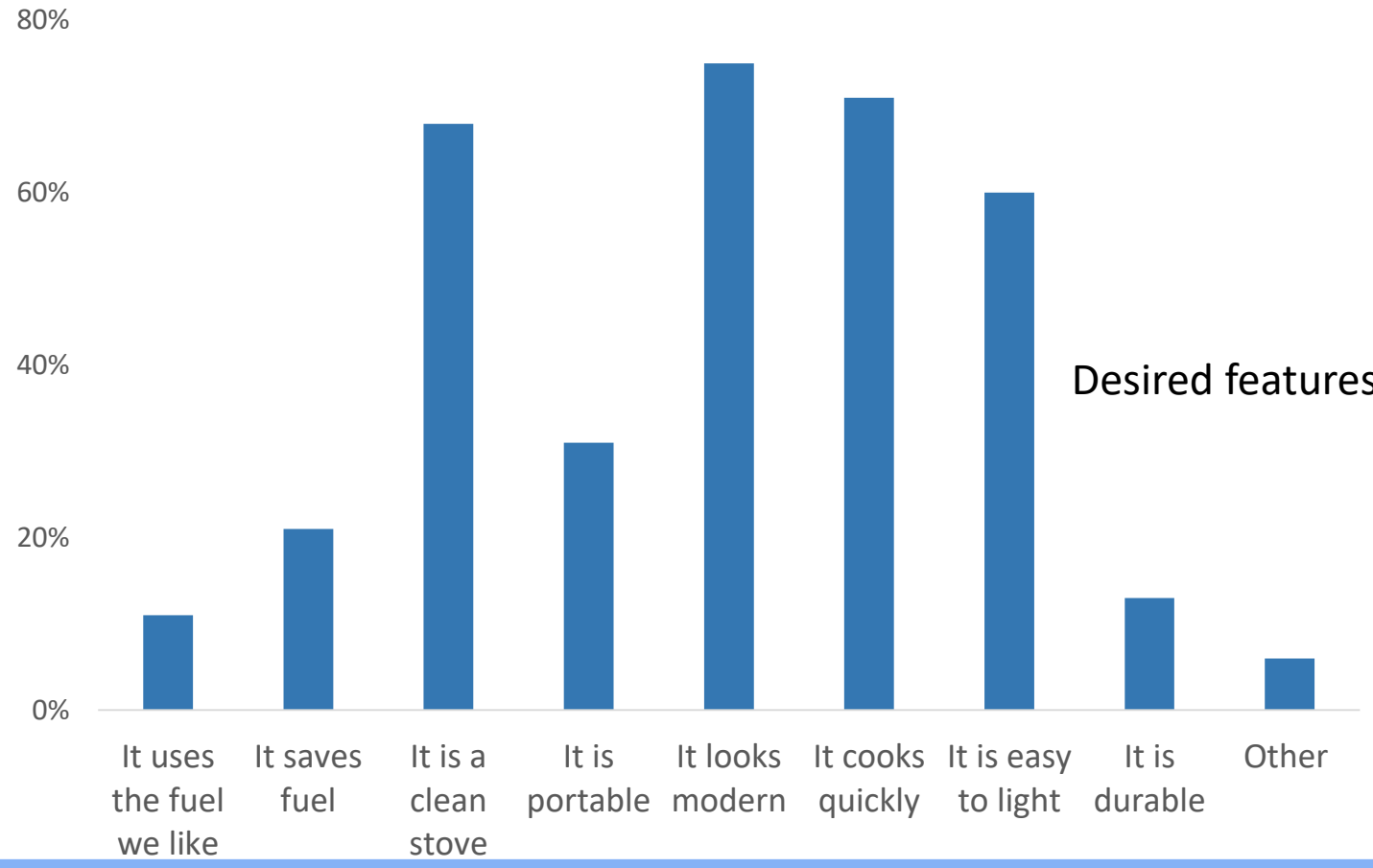
93% (n=280) of the last stove purchased by the household were LPG

97% were purchased using cash in one payment



Purchases of household stoves

As with other large household products, the main sources of information used when buying a new stove was a family/friend who lives in the community (80% n=240) and a family/friend who lives outside of the community (43% n=128)

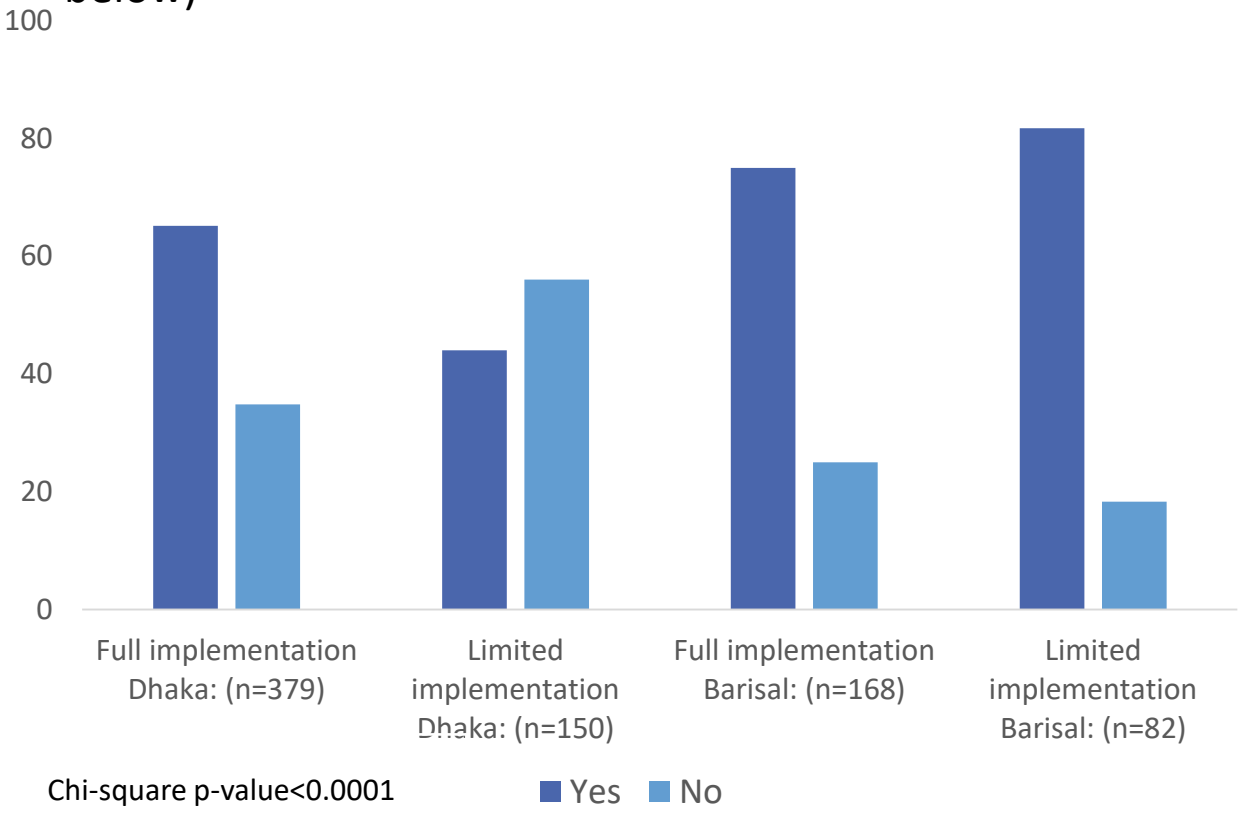


Desired features in a new stove.

Awareness of promoted and other improved coostoves

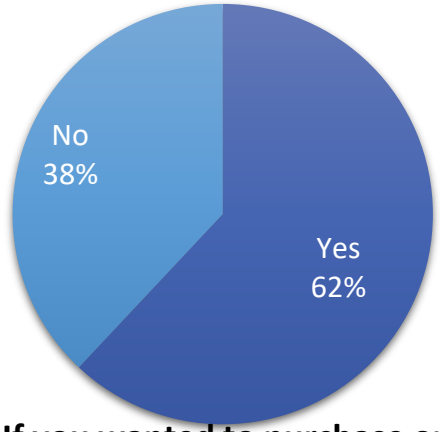
When shown Visual Aid A and asked 'Before this survey had you heard, seen or been told any information about cookstoves such as these?' only 3 people had seen or heard of the stoves in visual Aid A.

In response to the same question for Visual Aid B 65% (n=514) said yes (see figure below)

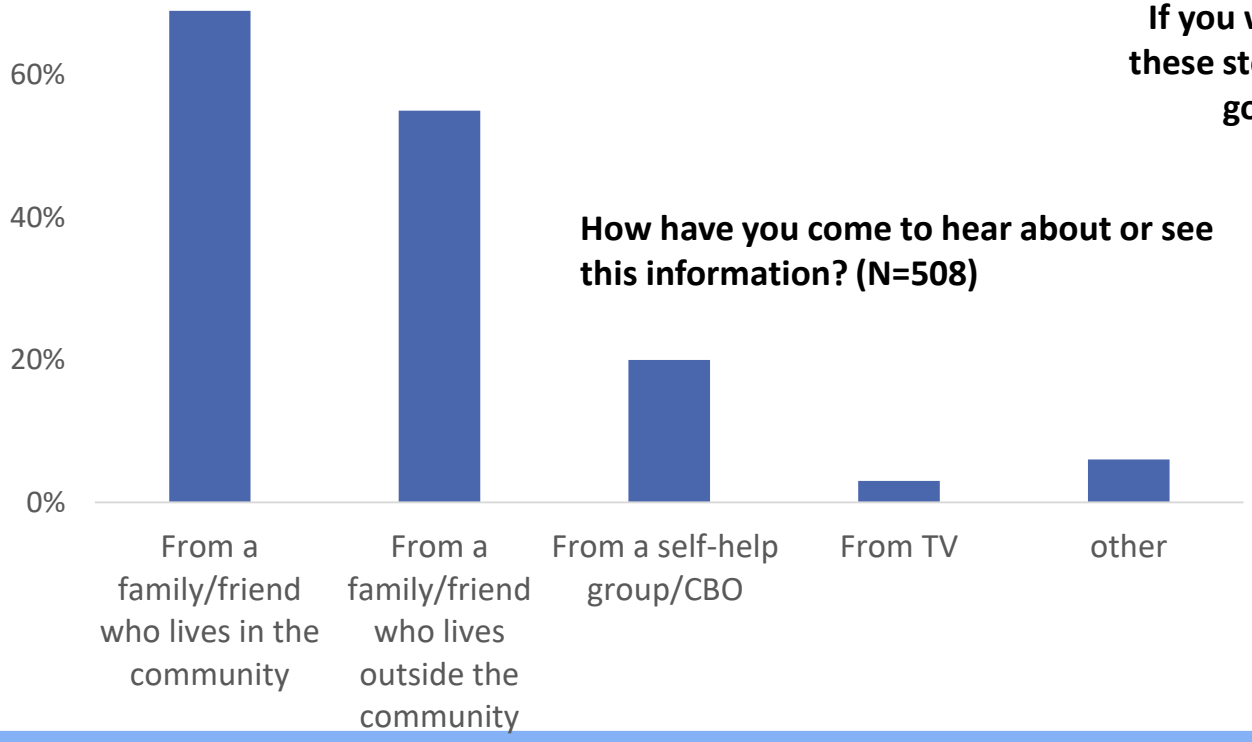


Awareness of coostoves in visual aid B

Can you name any stoves like these that you have you heard about? (N=514)	Freq.	%
Bondhu chulha single pot with chimney	353	68.7
Bondhu chulha double pot with chimney	333	64.8
IDCOL Stove: single pot portable	16	3.1
Other, don't know	13	2.5



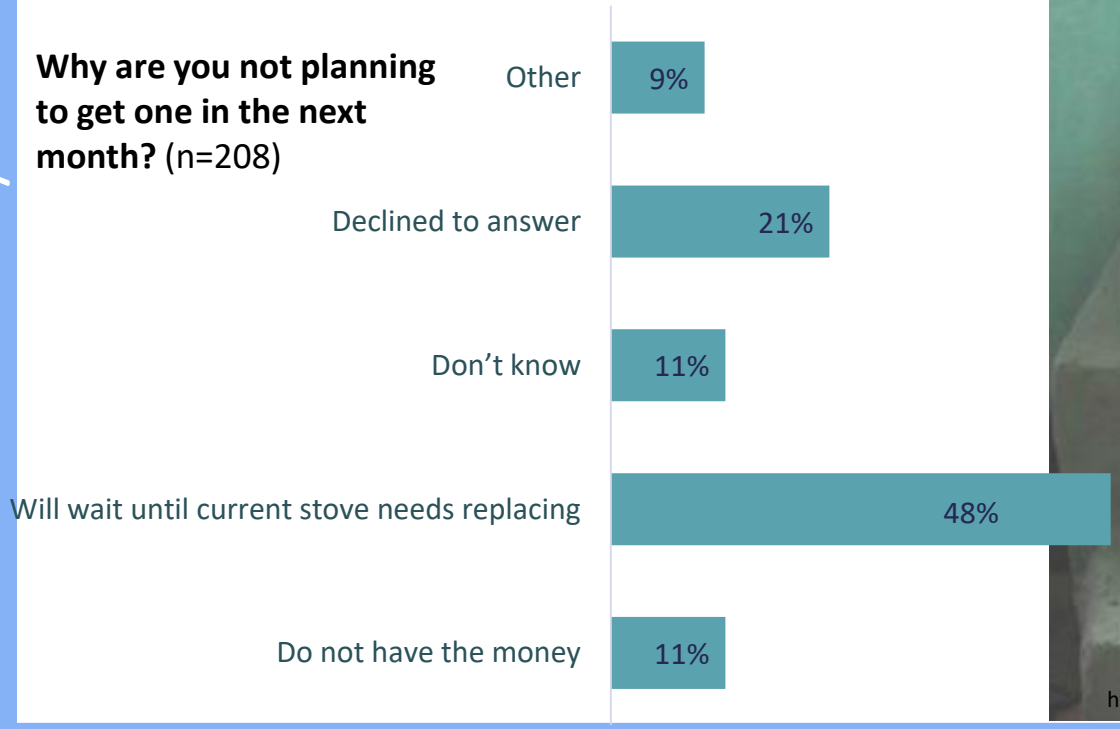
If you wanted to purchase one of these stoves do you know where to go to buy one? (N=507)

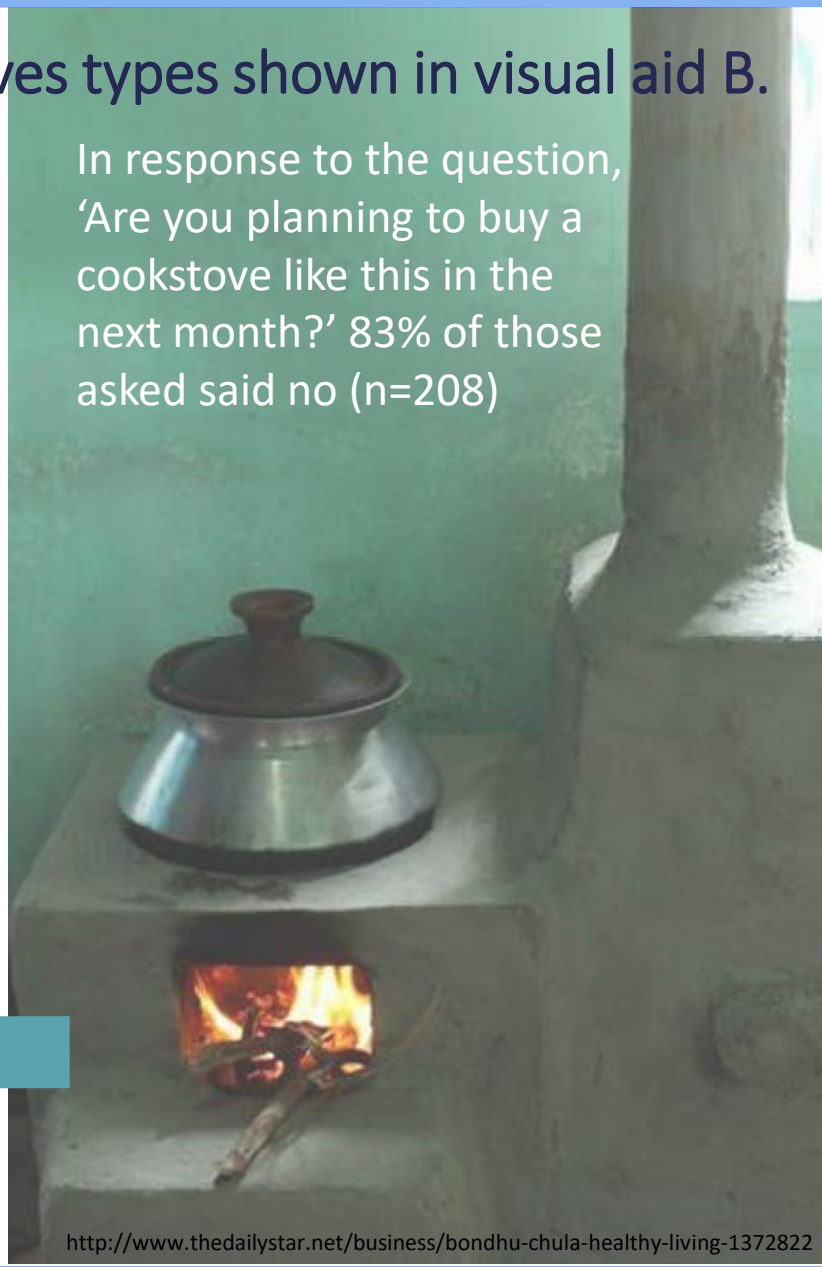


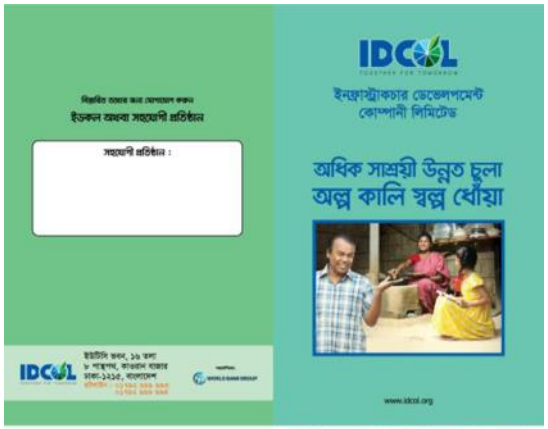
How have you come to hear about or see this information? (N=508)

Access to and intention to purchase stoves types shown in visual aid B.

Where could you purchase one of these stoves? (N=322)		
Upazila marketplaces	239	74.2
Union marketplaces	90	28.0
Door to door sales	12	3.7
Community sales agents	137	42.5
Other	3	0.9

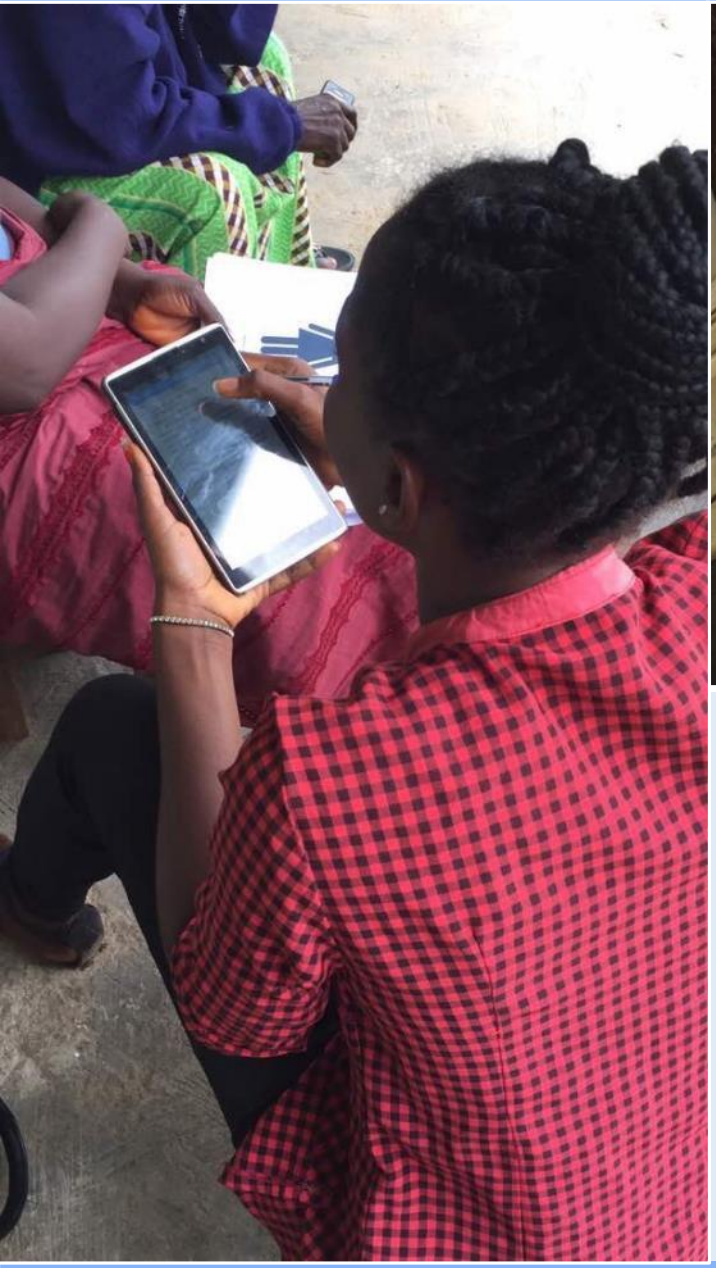






Exposure to cookstove marketing & BCC campaigns

Participants were shown a series of materials from other BCC and stove marketing campaigns to assess baseline awareness and recall. All marketing products shown had been seen by 5% or less of the participants. The materials most frequently seen were the IDCOL and Bondhu Chula marketing materials



Nigeria

Baseline study design: Nigeria

- Based on the BCC implementation target population, both peri-urban and urban areas were selected from the Lagos State and Abuja city. The aim was to have 70% urban/30% peri-urban in Abuja city and 45% urban and 55% peri-urban in Lagos state to represent the BCC audience.
- The desired socio-economic profile of the sample was low to middle income, 70% of households (HH) in SEC C2 and 30% in SEC D in keeping with the BCC target audience.
- Households were drawn from areas that will receive both IPC and radio/social media outreach as well as from matched radio/social media-only areas.
- Households were selected from these areas using a standard approach to avoid any bias or convenience sampling (procedure included in supplementary information).

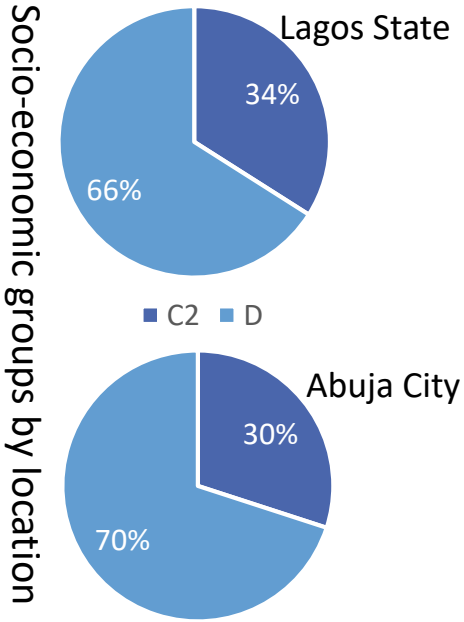
Baseline study design: Selection criteria

- The selection criteria identified woman between 18-40 who cooked at home at least 3 times per week using kerosene, wood, or charcoal with LPG 3 times per week or less.
- As the survey progressed, it was noted that the use of radio was very low in some areas. Given that radio is to be a major channel for the McCann/Africare BCC campaign, an eligibility requirement was added: HH had to have listened to the radio in the 7 days prior to the survey.
- To ensure the HH exposed to the BCC are able to fuel switch if they want to, HH were only included in the 'radio only' areas if their residential landlord allowed the use of LPG. As the IPC will involve residential landlords in discussions about any issues they may have with LPG, HH in the IPC area were included regardless of their current permission to use LPG.

Baseline study design: Nigeria

Lagos State		Urban	Peri-urban	Total (N=704)
IPC and radio area	Freq.	189	170	359
	%	53%	49%	51.0%
Radio only area	Freq.	168	177	345
	%	47%	51%	49.0%
Total	Freq.	357	347	
	%	51%	49%	

Abuja City		Urban	Peri-urban	Total (N=186)
IPC and radio area	Freq.	68	25	93
	%	51%	47%	50.0%
Radio only area	Freq.	65	28	93
	%	49%	53%	50.0%
Total	Freq.	133	53	
	%	71%	29%	

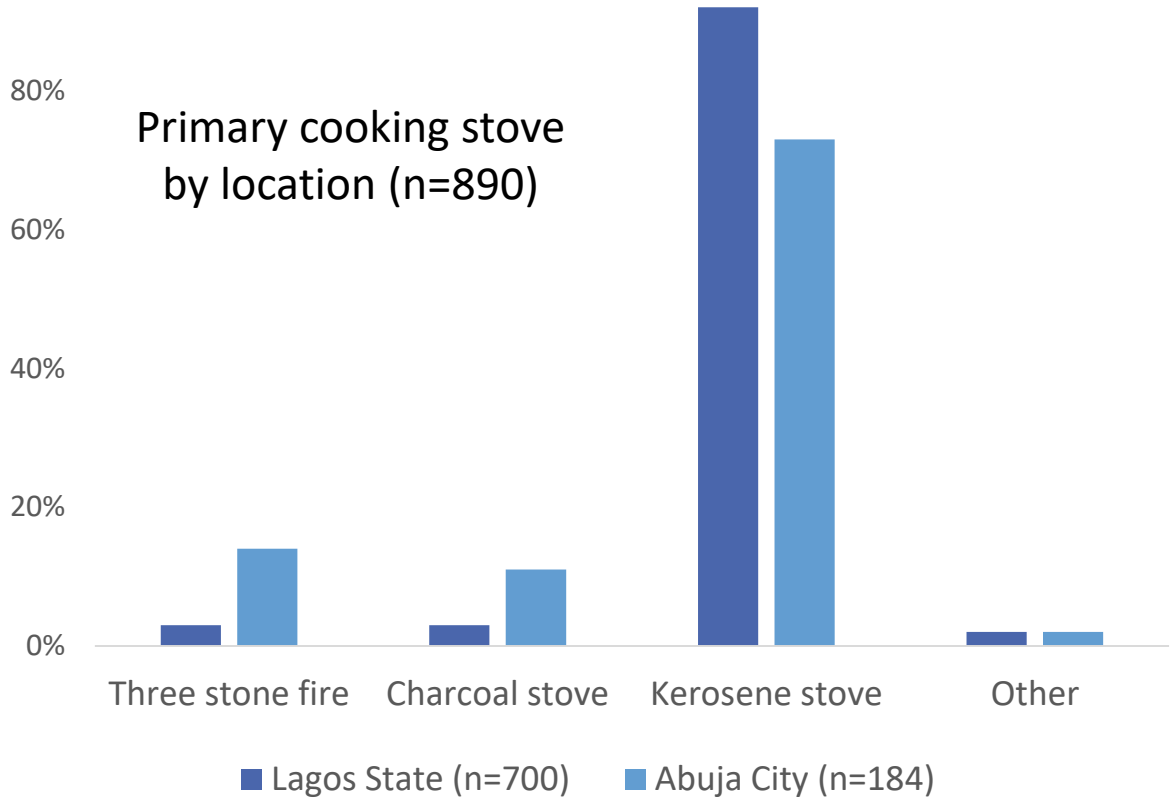


Demographics of sample

Household size	Urban (n=540)	Peri-urban (n=396)	Total (N=886)
Total people eating an evening meal in the household (excl. infants)			
Mean	5.4	5.2	5.3
Std Dev	2.8	2.6	2.7

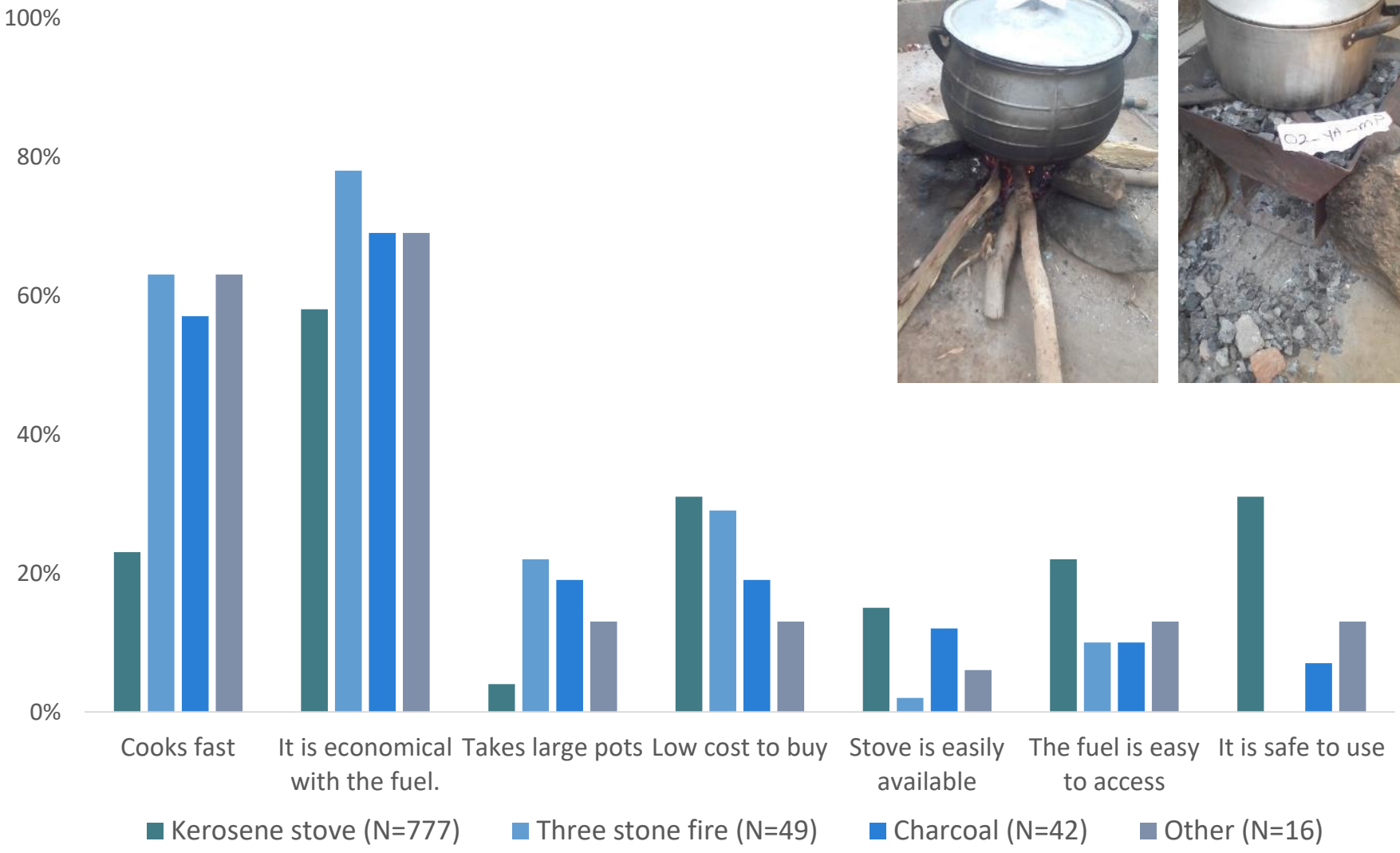
Educational status of primary wage earner		SEC D (n=594)	SEC C2 (n=296)	Total (n=886)
Did not complete high school	Freq.	255	92	347
	%	42.93	31.08	
Completed High school and some post-secondary	Freq.	268	97	365
	%	45.12	32.77	
Completed post-secondary or higher	Freq.	71	107	178
	%	11.95	36.15	
Chi-square p-value<0.0001				

Stove use patterns

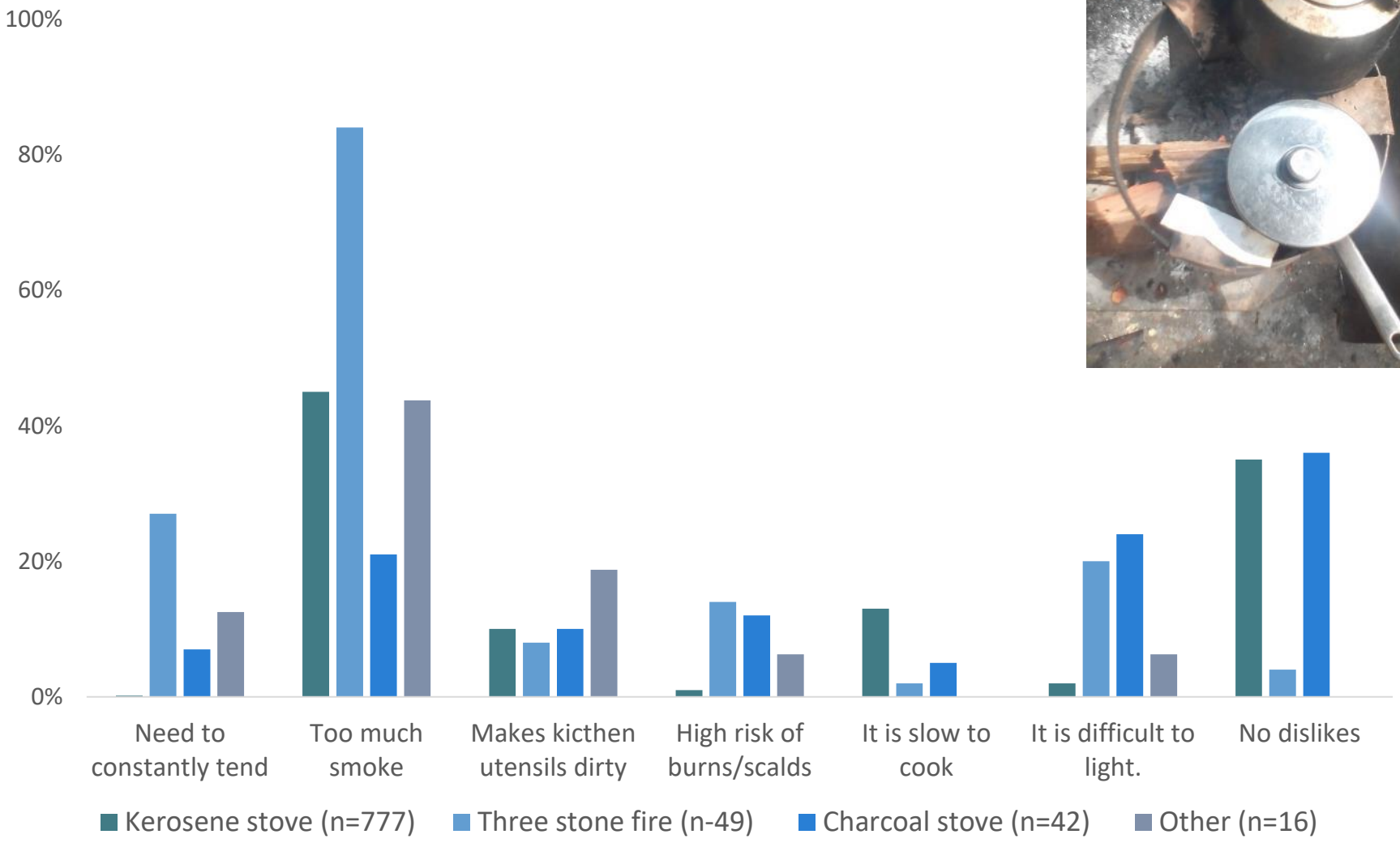


- There was no difference in patterns of primary stove type between urban and peri-urban locations.
- Most stoves under the heading 'other' were the tripod stove.
- Based on reported stove use in the month prior to the interview 12% (n=104) of HH used LPG as a secondary or tertiary cooking fuel.

Top features liked about primary stove



Top features disliked about primary stove

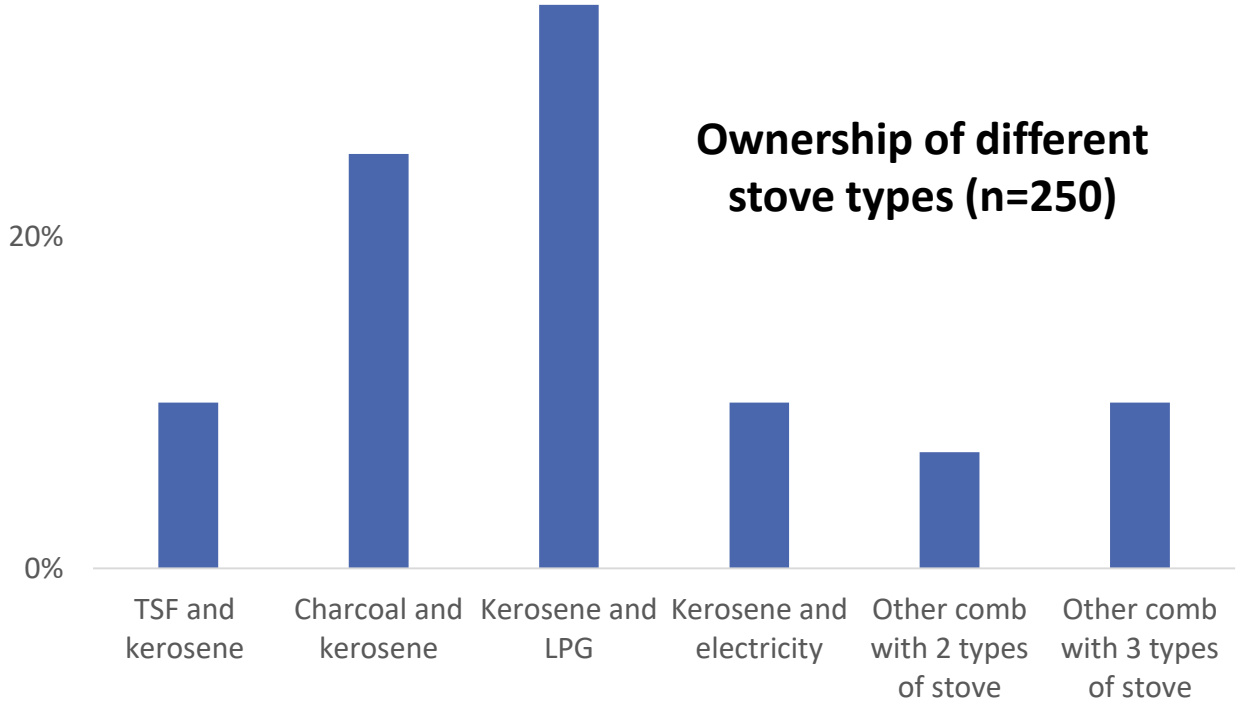


Patterns of stove stacking

Ownership and use of more than one stove was found in 36% of homes (n=325). 23% of these HH (n=750 used 2-3 stoves of the same type, mainly multiple kerosene stoves.

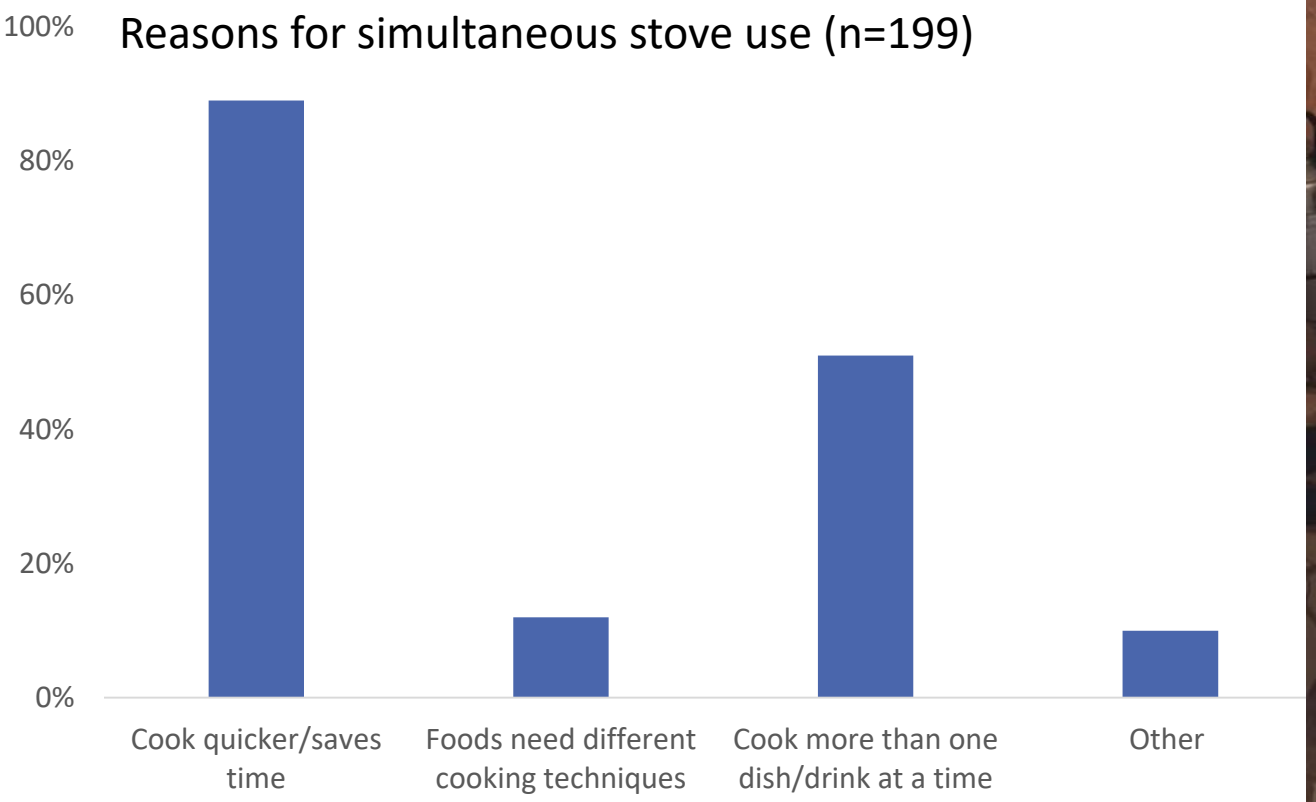
The average number of stoves in each home was 1.5 (SD 0.7). Urban locations tended to have slightly higher number than peri-urban (1.6 vs 1.3).

The table below shows the patterns of stove use in HH with more than one TYPE of stove.



Simultaneous stove use

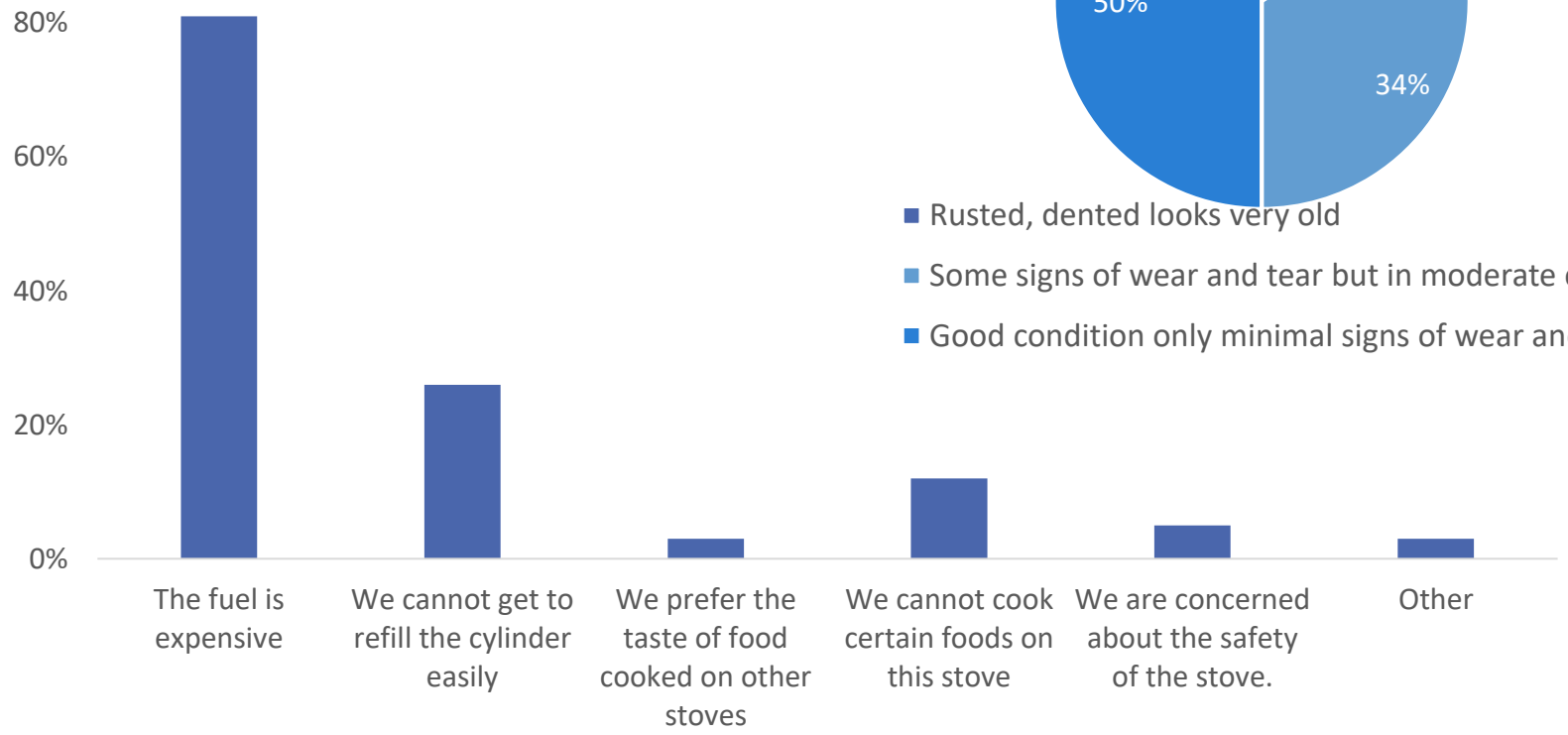
61% (n=199) of HH with more than one stove reported using stoves simultaneously. Analysis showed no difference in simultaneous stove use between urban and per-urban areas.



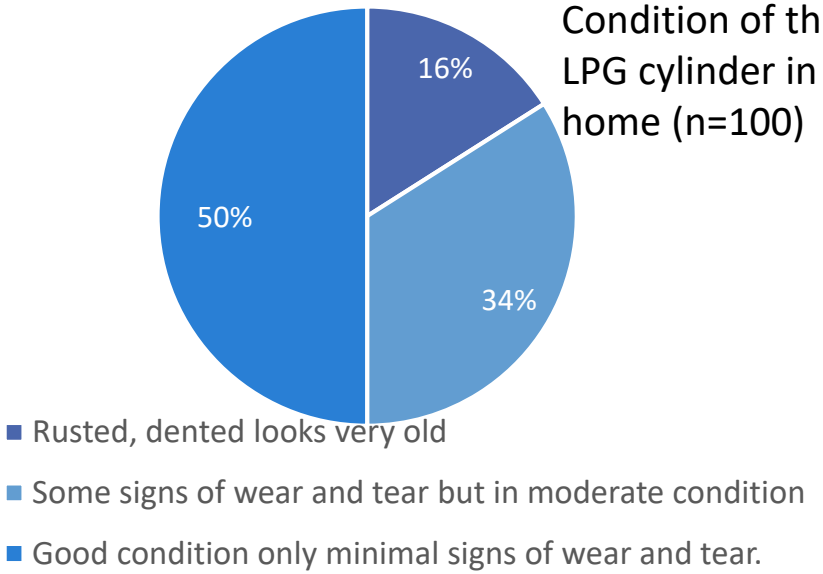
Households using LPG

Cooks who had used LPG were more likely to have achieved a higher level of education (Chi-square p-value=0.008) and to be in a higher socio-economic class (Chi-square p-value<0.0001).

Barriers to increasing LPG use among LPG-owning households? (N=101)



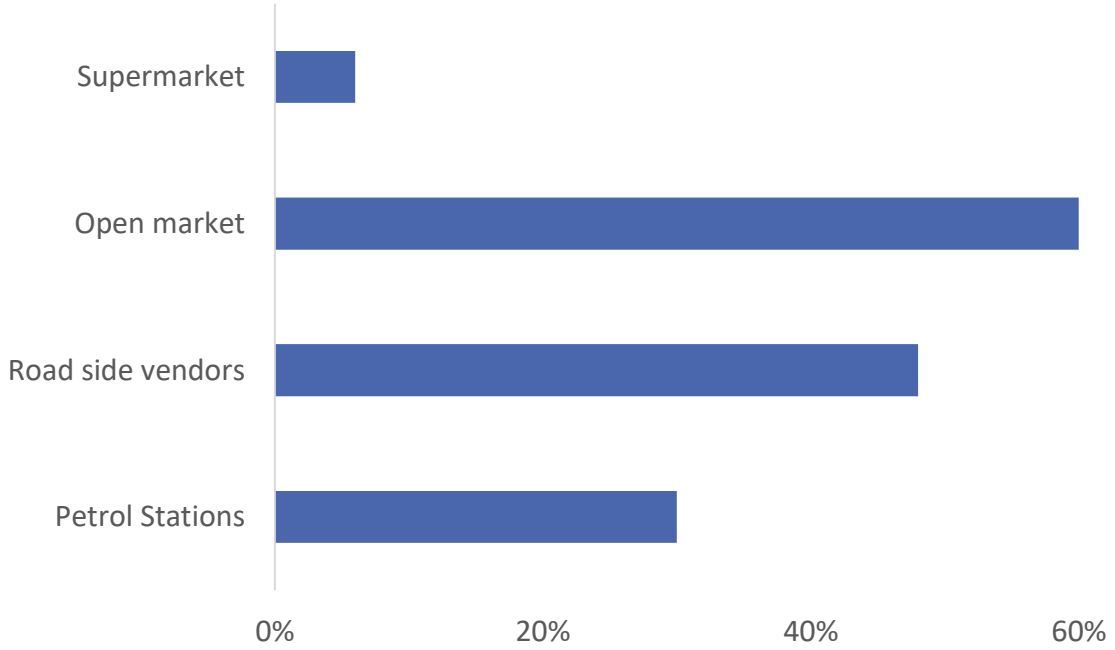
Condition of the LPG cylinder in the home (n=100)



Knowledge of and access to LPG

98% (n=874) were aware of gas cookers and LPG fuel before the survey.

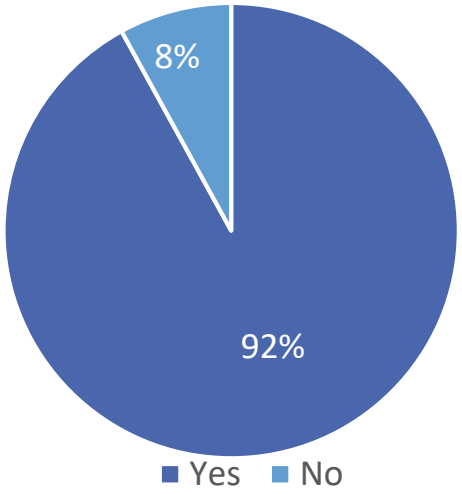
Most participants reported that their knowledge came from family members either from within the community (83% n=721) or from outside (43% n=375). 7% (n=68) reported to have heard the information from a market demonstration.



Only 4% of those not currently using LPG (n=31 of 786) did not know where to purchase an LPG stove. The figure on the left shows the locations the remaining participants reported that LPG stoves could be purchased. The average (mean) distance to these locations was 157metres (SD 268).

Aspirations to LPG in homes not currently using

Would you like to use LPG for your cooking? (N=786)

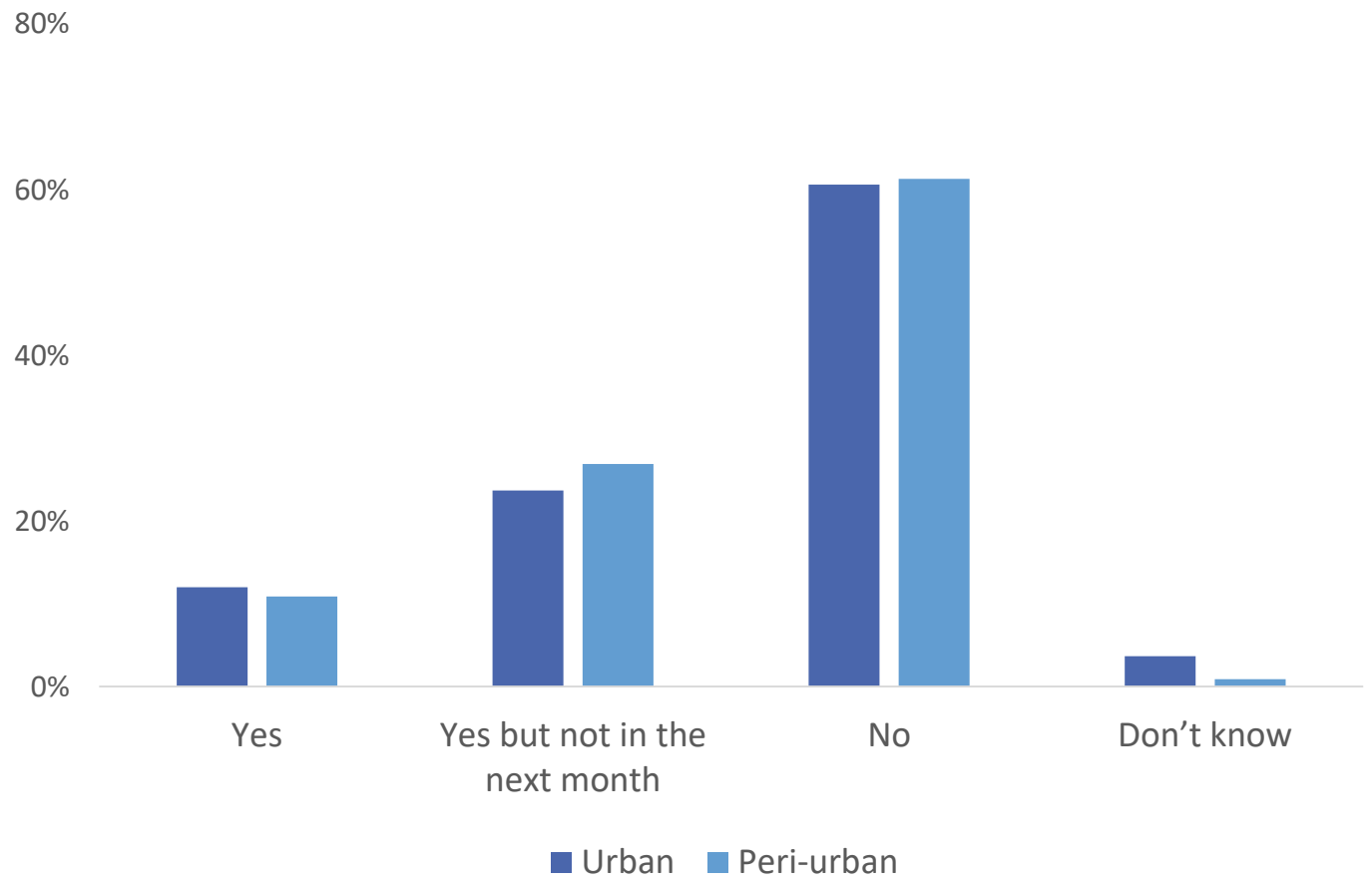


When asked, "what is stopping you from using LPG for your cooking?" (N=720)

- 82% (n=587) stated that they did not have the money;
- 16% (n=113) said they could not afford the fuel; and
- 7% (n=49) reported that is was because of safety fears, particularly relate to having young children near the stove.

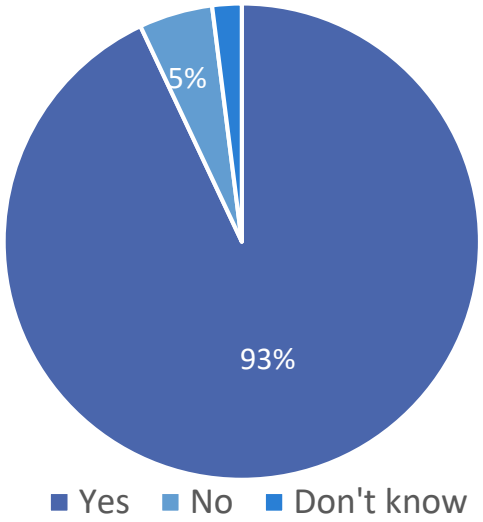
Aspirations to LPG in homes not currently using

All homes currently without an LPG stove but reported to be aware of them were asked 'Are you planning on buying a LPG stove in the next month? '. The results are shown below.

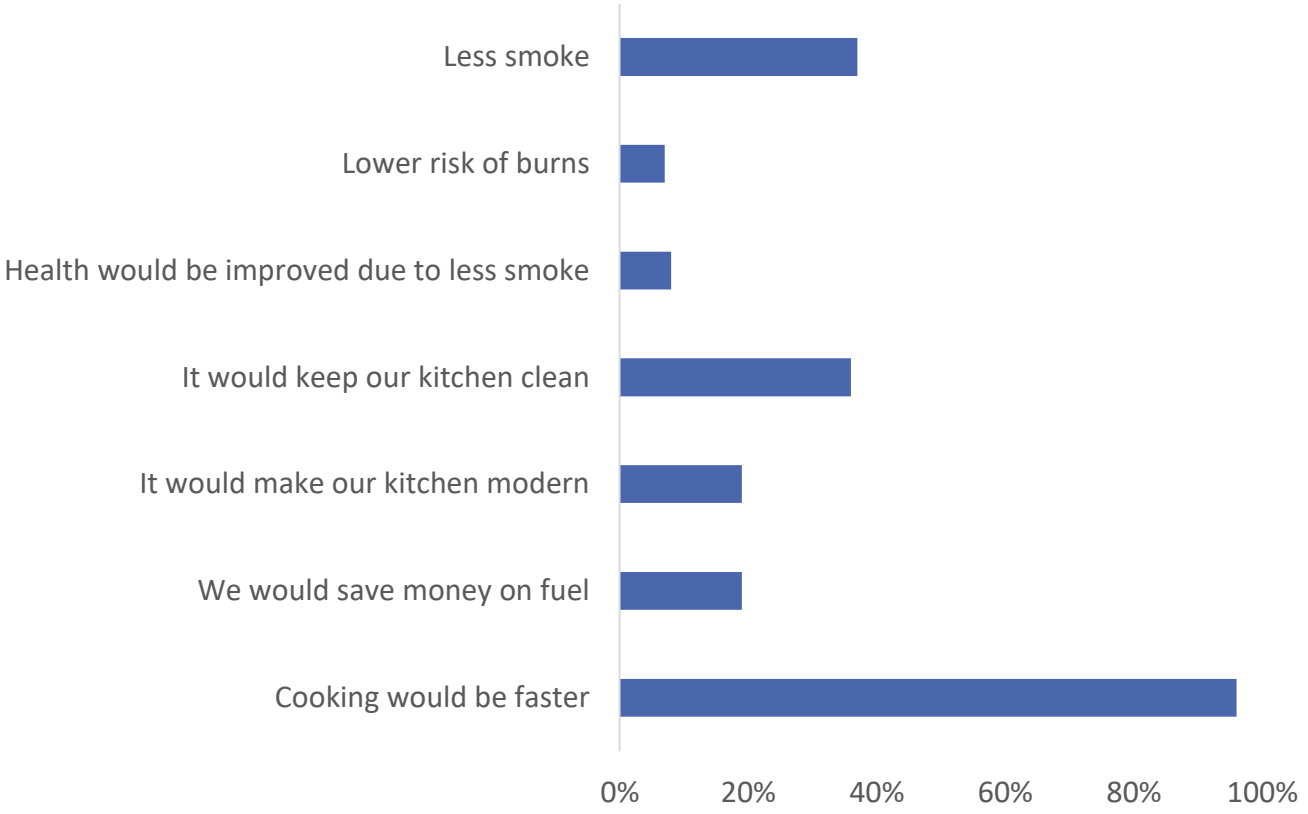


Perceptions of LPG in non-using homes

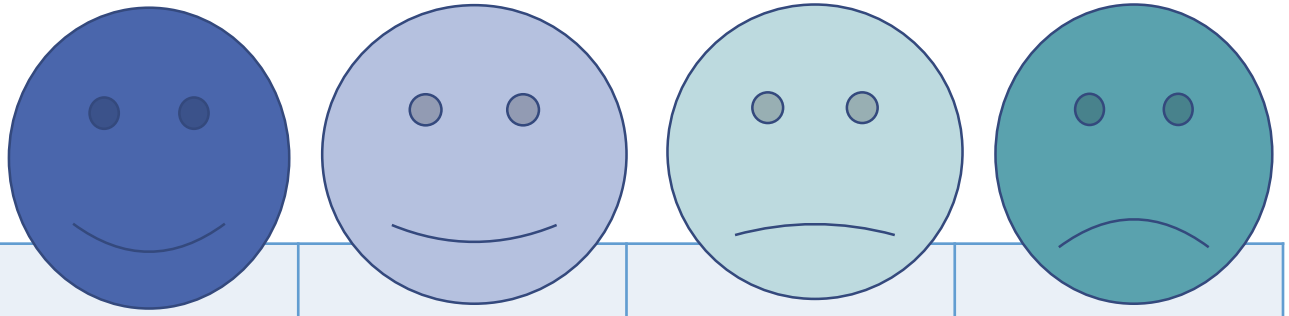
Do you think using an LPG stove would have any benefits for you and your family? (N=785)



What benefits do you think LPG would have for you and your family? (N=725)

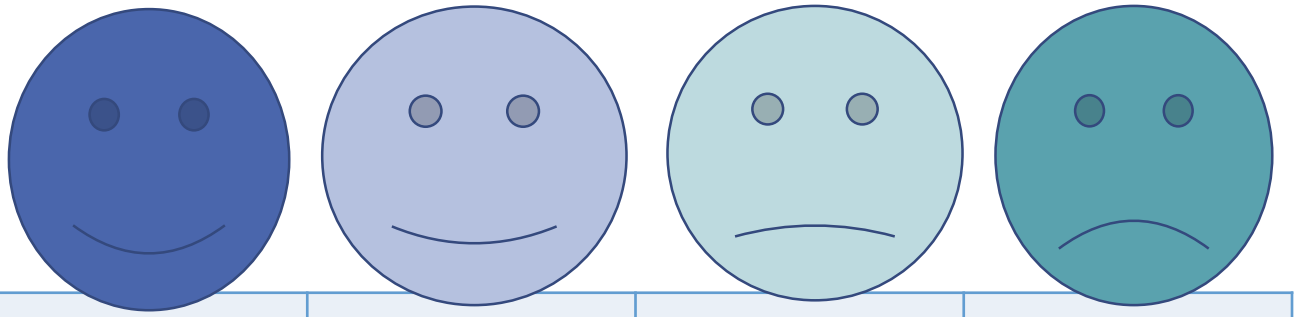


Perceptions of LPG use in all homes (n=890)



Strongly agree	Agree	Disagree	Strongly disagree
Traditional cooking stoves are bad for my health and that of my family			
24%	53%	20%	2%
Most people think that cooking with LPG is good for their family			
32%	60%	6%	1%
Most people think that cooking with LPG is a sign of higher social status			
28%	44%	22%	5%
My friends think that I should cook with LPG			
24%	50%	18%	5%

Perceptions of LPG use in all homes (n=890)



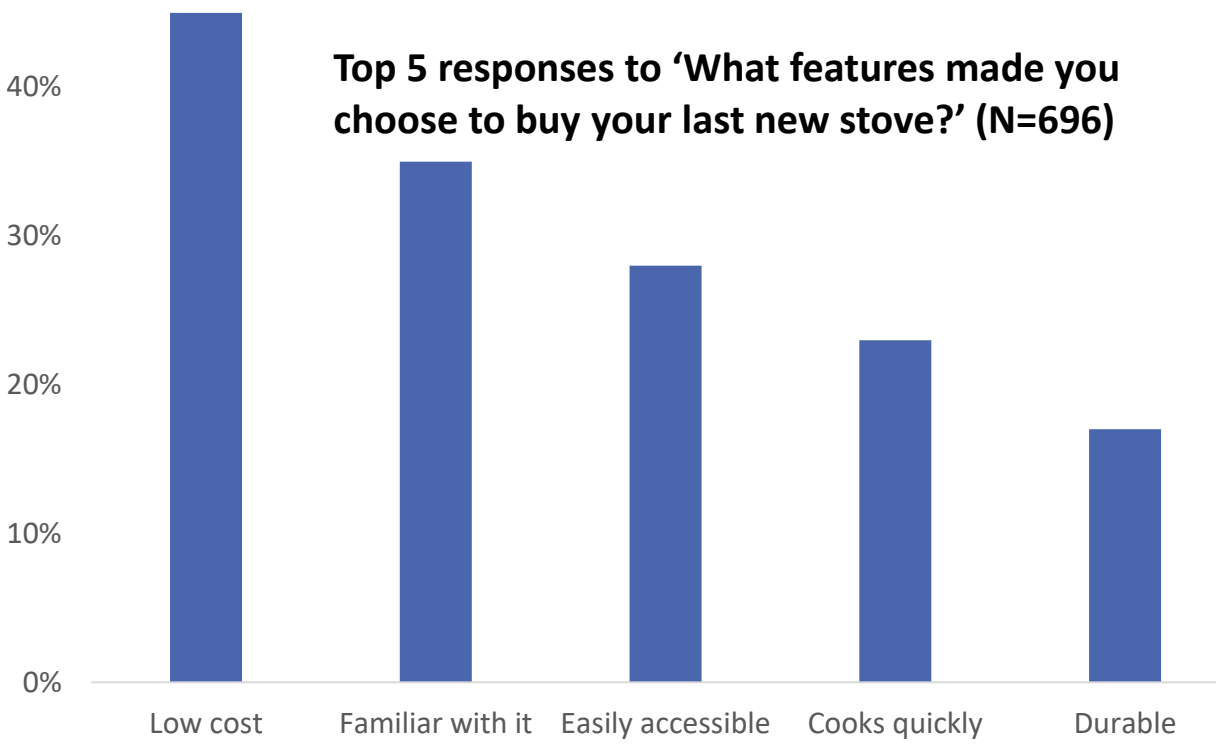
Strongly agree	Agree	Disagree	Strongly disagree
Most people think that cooking with LPG is safe			
16%	62%	17%	3%
LPG cookstoves are a 'clean way to cook'			
38%	60%	1%	0%
I can afford to cook with LPG			
15%	50%	24%	10%

Decision-making for large household purchases

- 51% (n=425) of female participants made decisions concerning large household purchase (over 7000 Naira) by themselves.
- When decisions were made with someone else, 91% of these were made with their spouse.
- When asked to report the most frequently used source of information when choosing which product or brand to buy, 86% reported that is was a family/friend who either lives in (77%) or outside of (8%) the community. 5% reported their most frequently used source was an event, i.e. a market demonstration held in the community.
- 99% of all homes reported that they usually pay for items of this value or more with one cash payment.

Drivers for choice of new stove

As with the purchase of other large household items, the main source of information when buying a new stove was a family/friend who lives in the community (61% n=425). 27% (n=191) reported that they buy the same stove that they have used for years, implying that they did not need to source information.



Note: We believe that more than 696 participants have purchased as stove in the past, and feel that this low % is due to a misunderstanding that led some participants to think the question was referring only to kerosene stoves.

Media usage by decision makers

Do you ever watch TV?

Yes

97% Urban

94% Peri-urban

Chi-square p-value 0.03

Do you ever listen to the radio?

Yes

58% Urban

59% Peri-urban

Note this was a screening criteria applied during the study and so does not reflect the natural pattern in the communities.

Do you have a mobile phone?

Yes

Smart phone

40% Urban

21% Peri-urban

Non-smart phone

55% Urban

75% Peri-urban

Chi-square p-value <0.001

Do you use social media?

Yes

35% Urban

20% Peri-urban

Chi-square p-value <0.001

Do you ever use the internet either on a smart phone or computer?

Yes

31% Urban

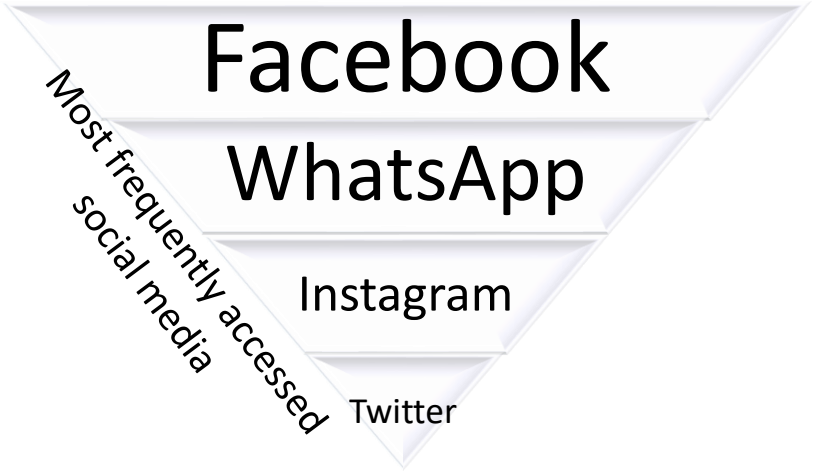
19% Peri-urban

Chi-square p-value <0.001

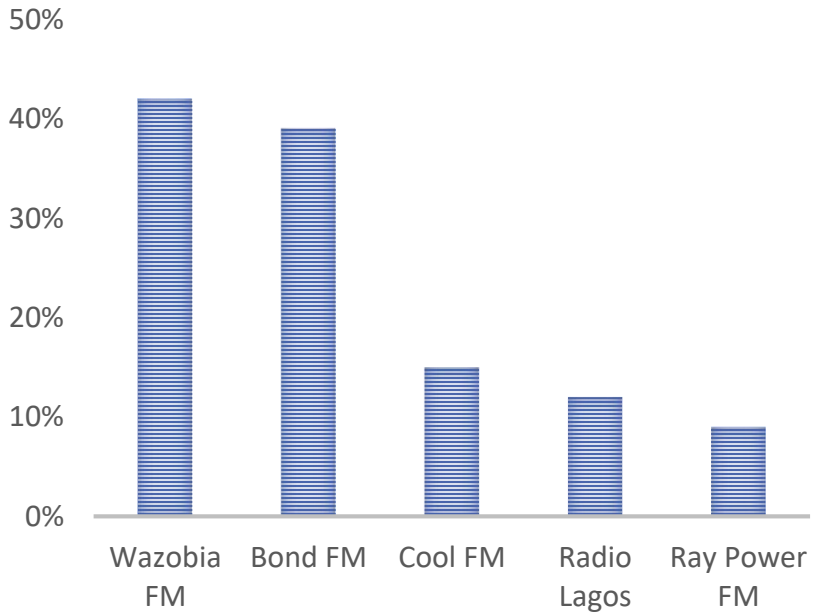
Use of intended BCC channels: radio and social media

66% of households in the areas expected to receive BCC via radio and social media only, access either the radio and/or social media (63% Lagos State, 78% Abuja City).

65% male vs 26% female decision-makers access social media.



Most listened to radio channels: % of those reporting to listen to radio (n=519)



Exposure to cookstove marketing & BCC campaigns

Participants were shown a series of materials from other recent/ current BCC and LPG stove and fuel marketing campaigns to assess baseline awareness and recall (see below). Only 8% (n=67) of the people aware of LPG before the survey (n=830) could recall seeing the 'Cooking shouldn't kill' materials and 3% (n=23) recognized the 'LPG for cleaner and greener environment' materials.

BCC evaluation team

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Field team

List of Abbreviations

Abbreviation	Meaning
BC	Bondhu Chula
BCC	Behavior change communications
HH	Household
IDCOL	Infrastructure Development Company Limited
IPC	Inter-personal communications
LPG	Liquid petroleum gas
LSM	Living standards measure
OOH	Out of house
PPS	Probability proportional to size
PS Kenya	Population Services Kenya
SEC	Socio-economic classification
SMC	Social Marketing Corporation
TSF	Three stone fire