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Jitegemee (rely on yourself): A cross-sectional study on acceptability of and design considerations for a personal savings intervention to reduce HIV risk among female sex workers in Siaya County, Kenya.

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***Jitegemee* (rely on yourself): A cross-sectional study on acceptability of and design considerations for a personal savings intervention to reduce HIV risk among female sex workers in Siaya County, Kenya.**

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ABSTRACT

Objectives: The primary objective was to assess acceptability of a savings intervention in which female sex workers (FSW) will save part of their earnings and call back when faced with a financial need that could compel them to engage in HIV risk behaviours. The secondary objective was to collect information that would inform the design of the intervention.

Design: A cross-sectional survey. Participants were asked about their earnings, saving and spending behaviours, and strategies to generate money to save.

Setting: Kisumu and Siaya Counties in western Kenya.

Participants: FSW aged ≥ 18 years, self-identifying as sex workers, living in Kisumu or Siaya County, and willing and competent to provide written informed consent for study participation.

Outcome measures: The primary outcome was the proportion of participants who reported willingness to accept the *Jitegemee* intervention when made available, and the secondary outcome was the intervention design components recommended by participants.

Results: We enrolled 369 FSW, 88% aged 18-39 years, 78% unmarried, 94% cared for ≥ 1 child(ren), and 78% were household heads. Over half (52.1%) had been in sex trade for ≤ 4 years, with 62.3% reporting < 10 clients the previous month. *Jitegemee* was highly acceptable, at 94.8%; however, participants suggested inclusion of additional components: financial literacy, including saving, spending and loans management (74.8%), forming saving buddies (37.5%) and goal-setting (24.1%). Those who did not care for children were 4.86 times more likely to save (adjusted Odds Ratio (aOR)=4.86, $p=0.18$), non- household heads were less likely to save (aOR=0.57, $p=0.28$), and those in the sex trade for 1-4years and 5-9years were > 4 times more likely to save than those < 1 year (aOR=4.49, $p=0.01$ and aOR=5.22, $p=0.01$, respectively).

Conclusions: *Jitegemee* intervention was highly acceptable; however, several recommendations to improve the design were suggested to make it more appealing and potentially effective.

Strengths and Limitations of this study

- Female sex workers (FSW), as end users of the *Jitegemee* intervention, participated in designing the study, including development of the questionnaire, which ensured the study was appropriate and responsive to their needs.
- Enrolling FSW from different sex worker typologies (street-based, brothel-based, home-based, entertainment venue-based, and beach-based) expands the generalizability of the results to FSW in other settings in Kenya.
- Relying on acceptability of a proposed intervention to predict actual uptake when the intervention becomes available may be misleading.
- Factors such as earnings, savings, loans and expenditure which are important to the intervention were collected through self-report, thus prone to social desirability bias.

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INTRODUCTION

Despite sex work being illegal in most sub-Saharan African (SSA) countries, including Kenya, some women resort to the practice as an alternative source of income when they cannot find other opportunities [1-5]. Sex work gives them financial independence and the ability to improve their economic status [6, 7]. Besides this, social factors such as dysfunctional families, lack of education, peer pressure, seeking sexual pleasure, and homelessness compel young women to join sex work [2, 3]. These economic and social factors do not only drive women to sex work, but make them financially dependent on their male clients and less able to negotiate condom use [8]. This underscores their vulnerability to sexually transmitted infections, unintended pregnancies and complications from unsafe abortions, stigma and discrimination, violence, and drug and alcohol addiction [9, 10].

In Kenya, the first phase of a size estimation activity in 2018 estimated the population of FSW at 167,940 [11]. The report also estimated the HIV prevalence among FSW at 29.3%, compared to 6.6% among women in the general population [12]. FSW's risk of HIV infection is greatly influenced by social, legal and structural factors [13, 14]. Multiple sexual partnership, gender-based violence and rape, no/low capacity to insist on condom use, sex while intoxicated and justice systems that criminalize sex work contribute to the elevated risk of HIV among FSW [13, 15-17]. These risk factors have been associated with economic disempowerment of FSW, limiting their ability to say no to unsafe sex or to higher pay that comes with it [18-20], or to exit sex work even when they want to [21].

Multiple interventions have been implemented to lower the risk of HIV among FSW while they are still engaged in sex work, but most of them have narrowly focused on sexual risk behaviours despite the recognized importance of economic factors as drivers of HIV risk among this sub-population [4]. A systematic review of interventions to reduce the risk of HIV among FSW globally showed that none of the 26 studies selected addressed economic security as an intervention to reduce HIV risk [22]. Another systematic review on sex work interventions in SSA also found no economic empowerment

component among the interventions assessed in the 25 selected studies [23]. The few interventions that focus on economic empowerment are often geared towards 'rehabilitation' of sex workers [2, 3 24], and are premised on the assumption that economic hardship drives women into sex work, therefore providing alternative source of income would draw them away from the sex trade [25] rather than keep them safe within sex work.

Promoting FSW economic empowerment may provide structural protection from HIV [8, 26]. A study in Uganda found that when FSW have access to more capital and invest to start earning additional income outside of sex work, they are likely to be empowered and improve their economic status, thereby reducing their STI/HIV risk [27]. Another study in Tanzania on savings among FSW showed that savings provided a financial safety net for FSW because it accorded financial security, improved their ability to negotiate safe sex and enabled them to be selective about clients [28]. In Kenya, a study on precautionary savings intervention among vulnerable women including FSW found that reductions in reported transactional sex and symptoms of sexually transmitted infections were associated with improved savings [29].

For women who may wish to quit sex work, financial insecurity is often a major deterrent [9, 30, 31]. A study among FSW in Thailand showed that just one in 42 sex workers interviewed had never quit sex work, 60% had gone through one or more quit-re-entry-quit cycles, while 38% quit and never returned [21]. Therefore, interventions aimed at empowering FSW to reduce their HIV risk after leaving sex work need to address their economic insecurity [9, 21, 28, 32]. Strategies for increasing economic security of FSW can include microfinance, vocational training and income generating activities, cooperative banking, and savings and money management [28, 33]. Our primary objective was to assess the acceptability and design considerations of a savings plan known as *Jitegemee* (rely on yourself) in which FSW will be encouraged to save part of their earnings to fall back on when faced

with an immediate financial need that may compel them to engage in unsafe sex during sex work, or to return to sex work after quitting.

For peer review only

METHODS

We conducted a cross-sectional study on acceptability and feasibility of the Jitegemee (rely on yourself) intervention to support FSW to improve their financial security and consequently reduce their risk to HIV during or post-sex work. We have used the STROBE cross sectional reporting guidelines [34] to prepare this paper. To be eligible, women had to be ≥ 18 years; report exchanging sex for money, services, goods or favours in the previous 30 days; resident of or receiving HIV prevention or treatment services in Kisumu or Siaya county; and willing and competent to provide written informed consent for study participation. We trained peer educators, who were themselves FSW, to recruit participants. Since there was no known study on estimated acceptance rate for economic empowerment program among FSWs at the start of the study, we assumed the statistical optimal option of 50% acceptance rate to arrive as a sample size of 370 participants for the survey.

To obtain views from different typologies of FSW (brothel-based, street-based, home-based, venue-based, and beach-based) in the two counties and minimize bias while improving on generalizability of the results, we allocated approximate slots as follows: 55 home-based (30 in Kisumu and 25 in Siaya), 50 brothel-based (30 in Kisumu and 20 in Siaya), 115 entertainment venue-based (75 in Kisumu and 40 in Siaya), 90 street-based (50 in Kisumu and 40 in Siaya), and 65 beach-based (25 in Kisumu and 40 in Siaya). The allocations were roughly based on the proportion of sex workers in each typology in each county, estimated from our program data of more than 10 years' experience working with FSW in the two counties.

During mobilization, potential participants chose if they preferred to be interviewed at the research site, at their venue (e.g., brothel) or some other safe place. Trilingual (English, Kiswahili and Dholuo) Research Assistants trained on the protocol, data collection tools and ethics explained the study, administered a consent in the preferred language, screened for eligibility and conducted the interview with consented and eligible FSW. The questions explored where FSW typically meet sex partners, their

risk-taking behaviours, their earnings, savings, loaning and spending behaviours, their investment goals and assets owned, sources of income, health-seeking behaviours, including HIV testing history, views on and possible concerns over the *Jitegemee* intervention, preferred intervention components, and alternative economic activities. While under development, the protocol and questionnaire were reviewed by five FSW peer educators who gave useful comments that were incorporated into the final version. Data were collected between February and April, 2022. The primary outcome was the proportion accepting the intervention while secondary outcomes were proportion expressing concerns over the interventions and recommendations of the components to include in the design to make it more effective.

The *Jitegemee* intervention was described to participants before being asked questions on their views about it. It was explained to them that this intervention will be anchored on the belief that FSW are capable of saving part of their earnings to reach a certain level of economic security that allows them to say no to unsafe sex. For those who would wish to quit sex work, the savings would accord them stable alternative livelihood post-sex work so that they do not return to the sex trade. The intervention would involve asking FSW their preferred path to economic independence during or after sex work, how they can save towards their goals and how long it would take to reach those goals, then support them to set realistic goals and timelines, and to work towards achieving them. A key feature of the *Jitegemee* intervention that ensures sustainability is that participants would be supported to use their own earnings to finance their saving goals.

Data were collected manually, entered by trained data staff in a password-protected, excel-based database, and 30% randomly selected and reviewed for accuracy and completeness of entry by a senior data officer for purposes of external quality assurance. The officer also run statistical scripts to check out-of-range values and performed data inconsistency checks.

Data were analysed descriptively to describe the study population in terms of their earning, spending and saving practices. We also used descriptive statistics to evaluate the acceptability of the *Jitegemee* intervention, Chi square statistics to determine the association between sociodemographic characteristics of clients and both their saving and spending levels, and logistic regression to determine how various client characteristics influenced saving ability.

Ethical consideration

The study was conducted between February and April 2022 after obtaining approval from Maseno University Ethics Review Committee (MUERC 1033/21). All participants provided written informed consent prior to taking part in study activities. The public were not involved in the design, conduct, reporting, or dissemination plans of the study.

RESULTS

We screened 373 FSW and enrolled 369 in the study. Our results indicate that majority of FSW (40.8%, n=151) reported the need for a steady source of income as the main reason for joining sex work. Nearly one-quarter (23.8%, n=88) and about one-fifth (19.7%, n=78) cited increased family responsibility (assuming breadwinner's role due to being single or lacking financial support from spouse) and being widowed or separated from spouse (19.7%, n=78), as circumstances that drove them to sex work. Peer pressure (6.8%, n=25) and poverty (4.9%, n=18) were the least mentioned factors.

A majority of FSW enrolled (88%) were aged 18-39 years, 78% were unmarried, 94% cared for ≥ 1 child(ren), 47% and 32.9% lived with 2-3 and 4-5 persons, respectively, and 78% were the head of their households (Table 1). School attendance was relatively low, with slightly over half (54.8%) reporting primary level. Over half (52.1%) had been in the sex trade for ≤ 4 years, one-third for 5-9 years and 15% for over 10 years. Majority (86.2%) reported sex work as the main source of income with about two-thirds (62.3%) reporting < 10 clients the previous month, 20.9% reported 10-30 clients and 16.8% reported > 30 clients.

Reported earning was varied, with a little over one-fifth reporting under Kenya Shillings (KES) 5,000 in the previous month (1US\$ \approx KES118), 27.4% earned KES 5,000-10,000, 26.1% earned KES 10,001-20,000, and 24.5% earned KES $> 20,000$. Monthly expenditure was categorized into four levels: lower level (below KES 10,000 per month), lower middle level (KES 10,000-29,999), upper middle level (KES 30,000-99,999) and high level (above KES 99,999).

Table 1. Socio economic and demographic characteristics of participants

Characteristics		n	%
Age at enrolment	18-24	63	17.1
	25-29	107	29.0
	30-34	82	22.2
	35-39	73	19.8
	≥40	44	11.9
Married/living as married	Yes	81	22.0
	No	288	78.0
Taking care of a child(ren)	Yes	347	94.0
	No	22	6.0
Total people living in household	Alone	47	13.5
	2-3 persons	163	47.0
	4-5 persons	114	32.9
	6-10 persons	23	6.6
Head of your household	Yes	287	78.2
	No	80	21.8
Highest schooling	Primary	199	54.8
	Secondary	144	39.7
	Tertiary	20	5.5
Duration in sex work	<1 yr	51	15.3
	1-4 yrs	123	36.8
	5-9 yrs	110	32.9
	≥10 yrs	50	15.0
Number of different sexual partners last month	<10 Clients	230	62.3
	10-30 Clients	77	20.9
	>30 Clients	62	16.8
Main source of income	Transactional Sex	318	86.2
	Others	51	13.8
Total income last one month	≤5000	81	22.0
	5001 - 10000	101	27.4
	10001 - 20000	96	26.1
	20001 - 30000	54	14.7
	>30000	36	9.8
Total spending in a month	Low Level	57	15.4
	Lower Middle Level	192	52.0
	Upper Middle Level	115	31.2
	High Level	5	1.4
Total saving at time of interview	No Savings	186	excluded
	≤ 5000	64	35.0
	5001-10000	31	16.9
	10001-50000	74	40.4
	>50000	14	7.7

Most of the participants (83.2%) were in lower and upper middle expenditure brackets while one-third reported having below KES 5,000 in saving at the interview date and 48.1% had over 10,000 in savings. Participants reported saving their money mostly in banks (62.5%) and mobile money system (27.7%); table banking and Saving and Credit Cooperative Societies were minimally preferred, at 5.7% and 1.1%, respectively.

Fig. 1 shows very high acceptability of the *Jitegemee* intervention, at 94.8%; however, participants made several recommendations for improvements to make *Jitegemee* more acceptable and feasible, with the top three being: adding a component of financial literacy, including loans management (74.8%); forming saving buddies and cross-learning from each other about challenges, best practices and success stories (37.5%); and goal-setting (24.1%). A few participants (8.4%, n=31) expressed ethical concerns over the intervention, viewing it as a veiled attempt to force sex workers out of their trade (n=13), that the intervention is an indirect disapproval of sex work (n=11), and that there is a hidden intention to use sex workers as cash cow or to take their saved money and disappear (n=6).

Participants cited various activities to generate additional cash to save if they participate in *Jitegemee*, which included soliciting for more customers (37.1%); charging their clients more (15.5%); practicing higher-paying sex, specifically unprotected sex (4.3%) and anal sex (0.3%); working longer hours (20.6%); reducing current spending (28.2%); and starting other income sources besides sex work (60.7%). We post-classified these activities into 3 levels of risk (high, medium and low; multiple responses were allowed). Unprotected sex and anal sex were classified as high risk (17 responses); seeking more clients, working long hours and charging more were classified as medium risk, because we did not ask whether the sex would be protected or not (270 responses); and seeking alternative income sources and reducing spending were classified as low risk (328 responses).

Other findings show that FSW in Siaya which is mostly rural, earned significantly less ($\chi^2=30.88$, $p<0.001$) compared to those in Kisumu, a more urban setting. Specifically, 65.2% FSW in Siaya and 37.2% in Kisumu earned <KES 10,000, and 34.8% in Siaya and 62.8% in Kisumu earned >KES 10,000. Similarly, participants in Kisumu saved significantly more than those in Siaya ($\chi^2=14.66$, $p=0.002$), with 38.8% in Siaya and 56.1% in Kisumu saving above KES 10,000. When we explored whether participants spent more than they earned – an indication of need for financial management training – we found no significant difference between the two counties ($\chi^2=2.80$, $p=0.10$), with only 15.7% in Kisumu and 9.7% in Siaya spending more than they earned.

Table 2. Association of participants’ socio-demographic characteristics with savings ability and spending

		Saving < 5000	Saving >5000	(χ^2)	Spending ≤Earning	Spend > Earning	(χ^2)
		n (%)	n (%)	p-value	n (%)	n (%)	p-value
Age at enrolment	18-24	8 (12.5)	15 (12.6)	(2.07)	12 (25.5)	48 (15.4)	(5.09)
	25-29	19 (29.7)	39 (32.8)	0.723	16 (34.0)	90 (28.8)	0.278
	30-34	14 (21.9)	23 (19.3)		9 (19.1)	71 (22.8)	
	35-39	17 (26.6)	24 (20.2)		7 (14.9)	64 (20.5)	
	≥40	6 (9.4)	18 (15.1)		3 (6.4)	39 (12.5)	
Married/living as married	Yes	20 (31.3)	24 (20.2)	(2.80)	6 (12.8)	72 (23.1)	(2.55)
	No	44 (68.8)	95 (79.8)	0.094	41 (87.2)	240 (76.9)	0.110
Taking care of child(ren)	Yes	62 (96.9)	110 (92.4)	(1.45)	41 (87.2)	296 (94.9)	(4.14)
	No	2 (3.1)	9 (7.6)	0.228	6 (12.8)	16 (5.1)	0.042
Head of household	Yes	45 (70.3)	100 (85.5)	(5.97)	40 (87.0)	239 (76.8)	(2.40)
	No	19 (29.7)	17 (14.5)	0.015	6 (13.0)	72 (23.2)	0.122
Duration in sex work	<1 yr	14 (25.0)	13 (11.7)	(5.34)	12 (27.9)	38 (13.4)	(7.44)
	1-4 yrs	16 (28.6)	40 (36.0)	0.148	14 (32.6)	108 (38.2)	0.059
	5-9 yrs	17 (30.4)	42 (37.8)		14 (32.6)	92 (32.5)	
	≥10 yrs	9 (16.1)	16 (14.4)		3 (7.0)	45 (15.9)	
Number of different sexual partners last month	<10 Clients	51 (79.7)	67 (56.3)	(10.03)	22 (46.8)	204 (65.4)	(16.70)
	10-30 Clients	7 (10.9)	25 (21.0)	0.007	8 (17.0)	68 (21.8)	0.000
	>30 Clients	6 (9.4)	27 (22.7)		17 (36.2)	40 (12.8)	
Main income source	Transactional Sex	52 (81.3)	99 (83.2)	(0.11)	45 (95.7)	265 (84.9)	(4.05)
	Others	12 (18.8)	20 (16.8)	0.741	2 (4.3)	47 (15.1)	0.044
Total income last one month	≥5000	12 (19.0)	10 (8.4)	(13.93)	1 (2.1)	78 (25.1)	(68.83)
	5001 - 10000	22 (34.9)	25 (21.0)	0.001	4 (8.5)	94 (30.2)	0.000
	10001 - 20000	21 (33.3)	33 (27.7)		10 (21.3)	83 (26.7)	
	20001 - 30000	6 (9.5)	30 (25.2)		14 (29.8)	38 (12.2)	
	>3000	2 (3.2)	21 (17.6)		18 (38.3)	18 (5.8)	

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There was a significant association between selected participants background and their saving and spending behaviours (Table 2). For example, saving and being head of household ($\chi^2=5.97$, $p=0.015$), number of different sexual partners in the last one month ($\chi^2=10.03$, $p=0.007$) and the total income earned in the last one month ($\chi^2=13.93$, $p=0.001$) were all significantly associated. Additionally, there was a significant association between spending more than earning and having children under one's care ($\chi^2=4.14$, $p=0.042$), number of different sexual partners ($\chi^2=16.70$, $p<0.001$) and the total income earned in the last one month ($\chi^2=68.83$, $p<0.001$). Age at enrolment ($p=0.723$), marital status ($p=0.094$), having children under their care ($p=0.228$), duration of sex work ($p=0.148$), and main income source ($p=0.741$) were not significantly associated with saving. Similarly, age at enrolment ($p=0.278$), marital status ($p=0.110$), being head of household ($p=0.122$) and duration of sex work ($p=0.059$) were not significantly associated with spending more than earning.

Table3. Logistic regression of socio-demographic characteristic with participants’ saving ability

Characteristics		Unadjusted OR	P-Value	Adjusted OR*	P-Value	CI
Age at enrolment	18-24	Ref				
	25-29	1.09	0.86			
	30-34	0.88	0.81			
	35-39	0.75	0.60			
	≥40	1.60	0.47			
Married/living as married	Yes	Ref				
	No	1.80	0.10			
Taking care of child(ren)	Yes	Ref		Ref		
	No	2.54	0.24	4.86	0.18	0.47 - 50.02
Total people living in household	Alone	Ref				
	2-3 persons	0.74	0.55			
	4-5 persons	0.84	0.75			
	6-10 persons	1.24	0.79			
Head of household	Yes	Ref		Ref		
	No	0.40	0.02	0.57	0.28	0.20 - 1.60
Highest schooling completed	Never completed	Ref				
	Secondary					
	Secondary and above	1.27	0.55			
Duration in sex work	<1 yr	Ref		Ref		
	1-4 yrs	2.69	0.04	4.49	0.01	1.25 - 14.09
	5-9 yrs	2.66	0.04	5.22	0.01	1.35 - 15.70
	≥10 yrs	1.91	0.25	2.80	0.15	0.59 - 10.63
Number of different sexual partners in the last month	<10 Clients	Ref		Ref		
	10-30 Clients	2.72	0.03	1.58	0.48	0.44 - 5.77
	>30 Clients	3.43	0.01	1.74	0.51	0.34 - 8.97
Main source of Income	Transactional Sex	Ref		Ref		
	Others	0.88	0.74	1.40	0.54	0.47 - 4.18
Total income in the last one month	<5000	Ref		Ref		
	5001 - 10000	1.36	0.55	1.91	0.32	0.56 - 6.47
	10001 - 20000	1.89	0.22	1.09	0.92	0.32 - 3.68
	20001 - 30000	6.00	0.00	8.41	0.00	1.81 - 39.17
	>30000	12.60	0.00	28.37	0.00	3.04 - 264.69
Spend More	Yes	Ref		Ref		
	No	0.89	0.80	5.58	0.02	1.34 - 23.08
Where meet sex clients	Entertainment					
	Joint	Ref				
	Brothel	2.82	0.20	2.95	0.28	0.42 - 20.96
	Home	0.61	0.25	1.00	0.99	0.33 - 3.08
	Street	2.47	0.13	1.20	0.83	0.24 - 5.92
	Beach	0.41	0.05	0.85	0.79	0.27 - 2.70
	Others	0.35	0.20	0.49	0.45	0.74 - 3.18

Note: * Missing values for Adjusted OR – we started with a full model and adjusted by removing other factors based on their performance so what is missing has been removed from the final model

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Using logistic regression, we estimated the effect of various socio-economic status of participants on their ability to save more than KES 5,000. Based on unadjusted Odds Ratio (uOR), various age groups had different saving behaviours, with age groups 25-29 (uOR=1.09, p=0.86) and above 40+years (uOR=1.60, p=0.47) having better saving trend than the reference age 18-24 years. Similarly, being unmarried, having no child under their care, living in house with >6 persons, having above secondary education, being in the sex trade for more than a year, reporting more than 10 clients in a month, and reporting income higher than KES 5,000 were predictors of better savers with odds greater than reference category (Table 3). In the adjusted model, those who did not care for children were almost 4.9 times more likely to save than those caring for children (adjusted Odds Ratio (aOR)=4.86, p=0.18), those who were not head of household were 0.57 times less likely to save than household heads (aOR=0.57, p=0.28), those in the sex trade for 1-4 years and 5-9 years were 4.5-5 times likely to save than those <1 year (aOR=4.49, p=0.01 and aOR=5.22, p=0.01, respectively). Finally, those with over 30 clients in the last month were 1.7 times more likely to save than those with less than ten clients (aOR=1.74, p=0.51), and those earning over KES 30,000 were 28.37 times more likely to save than those with less than KES 5,000 (aOR=28.37, p<0.01).

Examining the typologies of sex work in the two counties, brothel- and street-based FSW had the highest proportion of savers above KES 5,000 while 46.7% of beach-based and 42.9% in other (undefined) locations saved above KES 5,000. Those operating in brothels were 2.95 times more likely to save than those operating at entertainment venues (aOR=2.95, p=0.28). Home-based FSW were equally likely to save as those based at entertainment venues (aOR=1.00, p=0.99) while street-based were 1.2 times more likely to save than those based at entertainment venues (aOR=1.20, p=0.83); all associations with p-value of ≥ 0.05 were insignificant.

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Most of the FSW (89.8%) said they would consider quitting sex work after they have educated their children and other dependents, acquired some assets, especially land and house, or have started a viable business for sustenance. Majority (74%) said quitting sex work in the foreseeable future would be difficult due to increased financial burden against lack of stable alternative source of income while others (11%) reported being comfortable with sex work since it is an easy and fast way of making money that did not require financial capital or that they were addicted to sex work so quitting was not an option (9%). A total of 275 FSW (75%) have thought of leaving sex work at some point but felt they were not ready, and 56% know someone who had quit sex work and returned.

We also asked for spending lines and classified them into two categories – essential or basic needs and non-essential or non-basic needs – to identify areas from where savings can be obtained by adjusting the amounts spent. Essential expenditures included: a) food, rent and utilities, medical, transport, house maintenance, cleaning supplies and communication (44.6% of total expenditure), and b) school expenses were tuition, uniforms, stationery and other general expenses (21.2%). Non-essential expenditures were: a) personal and home beautification (furniture, beddings, kitchen equipment, shoes, clothing, beauty products) and job-related alcohol, accounting for 26.5%, and b) social support (weddings, funerals, donations, gifts), accounting for 7.7% of earnings.

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DISCUSSION

Our study assessed the acceptability of a savings intervention to reduce female sex workers' risk of HIV during and post-sex work. The findings show very high acceptability of the intervention, at 94.8%. All the FSW reported to be earning majorly from sex work with about half already reporting some savings, mostly in banks and mobile money platforms, table banking, and saving and credit societies. Similar pilot studies with FSW have proved feasible in Asia. Findings from pilot studies in Chennai, India and Ulaanbaatar, Mongolia, have showed the feasibility of combining a savings-led or microfinance intervention with HIV sexual risk reduction programs for FSW [35, 36]. A study in Tanzania on table banking or rotating pay-out (known as *Michezo*, equivalent to *Chama* in Kenya) proved to be acceptable and fostered a sense of empowerment among FSW [28]. In Kenya, the Global Network of Sex Work Projects demonstrated the success of combining saving-led or micro-financing and HIV prevention intervention where FSW contribute monthly and receive a share of profits from invested income on an annual basis [2].

While 2.3% of those who found the intervention acceptable had no suggestion for modification, the majority recommended several components to include in the intervention design: literacy on saving and loans management, forming saving buddy groups and cross-learning of challenges and success stories among participants, goal setting, flexibility in amounts to save, and integrity in managing the savings. Similar recommendations have been made in studies that have reported financial literacy as a critical component of successful savings-led or micro-lending interventions targeting FSW [33, 37]. It has been suggested that more attention should be paid on financial literacy and business development training [33], incorporating more regular goal-setting activities [36], and continuous education on the importance of savings, banking services, budgeting (especially household budget) and debt management [38].

Despite expressing their acceptability of a savings-led intervention and suggesting some recommendations that would make it more impactful, 8% of the participants expressed concerns over such interventions, perceiving it as a tacit strategy to force women out of sex work, a veiled

1 disapproval of sex work, or a scheme for economic abuse by the study team. Trust issues have also
2 undermined interest in savings managed by peers and may have prompted the recommendation
3 of integrity in savings management. Therefore, meaningfully engaging sex workers to elect their
4 leaders, instituting a trusted oversight body, and supporting them to develop a robust financial
5 governance system can encourage FSW to save.
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15 About one-quarter of our participants were saving on mobile money platforms which makes it
16 easier to withdraw cash in emergency situations. The majority of the participants (62.5%) reported
17 saving in banks, which is contrary to what other studies in Kenya and other parts of Africa have
18 reported. In Kenya, studies show minimal saving in banks [39] while outside Kenya, only 5% were
19 saving in banks in Cote d'Ivoire [4] and 8% in Tanzania [28]. We believe that our findings may
20 reflect social desirability bias where participants may have told us what they assumed was the more
21 'respected' way of saving. While a savings intervention would need to take advantage of the two
22 saving channels that are already popular with FSW, it would be important to confirm in other
23 studies the reported preference for bank-based saving. The findings however remain relevant for
24 an intervention such as *Jitegemee* where funds that would be needed more urgently would be saved
25 in mobile money platforms for ease of call back while those that are being saved for long-term
26 plans such as starting a business, buying property, or building a home kept in banks.
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44 Our findings show that about two-thirds of the FSW's expenditure were on household essentials
45 and school-related expenses while one-third was on non-essentials including personal and home
46 beautification, and support to social events. Further exploration of participants' expenditure
47 against earning revealed about 16% of participants in Kisumu and 10% in Siaya were spending
48 more than their earning and relied on loans from table banking groups (commonly known as
49 *Chama*), friends and family to bridge the gaps, putting them at more debt. This finding is not unique
50 to our study. Results from a study in Abidjan, Cote d'Ivoire, showed that about 30% of FSW
51 reported expenditures that exceeded their income and that nearly all FSW who were observed
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1 reported borrowing money regularly to manage their expenses, especially during slow periods [4].
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4 Other studies have shown that FSW who report having debt or other economic hardships have
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6 been more likely to indicate greater exposure to sources of STI infection [30, 40]. For an
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8 intervention like *Jitegemee*, examining what FSW spend on provides an opportunity to explore what
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10 could be cut, postponed, adjusted down or cheaper options sought in order to release some
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12 earnings to dedicate towards savings. Therefore, supporting FSW to manage their spending on
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14 non-essentials is important for an effective savings-led HIV intervention. As noted in our study,
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16 the push to increase savings is likely to be counter-productive, as it may lead to risky sexual
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18 practices that pay more. Some of our participants cited various ways of generating additional cash
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20 to bridge their income gaps in order to save, including soliciting for more clients, working longer
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22 hours and charging their clients more for unprotected sex. Risk reduction education should
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24 therefore be embedded within FSW economic empowerment interventions.
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28 While the immediate goal of the *Jitegemee* intervention is to make FSW have savings for instant cash
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30 call-back whenever needed instead of engaging in risky sex, a long term aim is to prepare and
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32 enable those who want to quit sex work to fulfil their financial obligations such as educating their
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34 children, owning a house or property or investing in a business. For long-term outcome,
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36 entrepreneurship or business skills training has been shown to help FSW achieve financial goals
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38 that can eventually replace sex work [4, 41].
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43 In conclusion, our study has demonstrated that an intervention to support FSW save part of their
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45 income for use in emergent needs instead of resorting to risky sex is highly acceptable. However,
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47 participants made valuable recommendations on components that need to be added to make the
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49 intervention more appealing. Although only 8% of the participants recommended sexual and
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51 reproductive health education, including information on HIV prevention and treatment to the
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53 intervention would be important because a large proportion of participants cited increasing riskier
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55 behaviors in order to earn more as ways of generating additional income to save. These findings
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have informed a savings interventions study currently being developed by our team to reduce the risk of HIV among FSW in western Kenya.

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Contributor statements: KA and HT designed the study; JA, OO and SCO collected the data; NO and TO contributed to the study design and analysed the data; KA, JA, GNW, JO, MO and BA substantially contributed to the writing of the paper; all authors critically reviewed and approved the final manuscript. KA is the guarantor responsible for the overall content of the paper.

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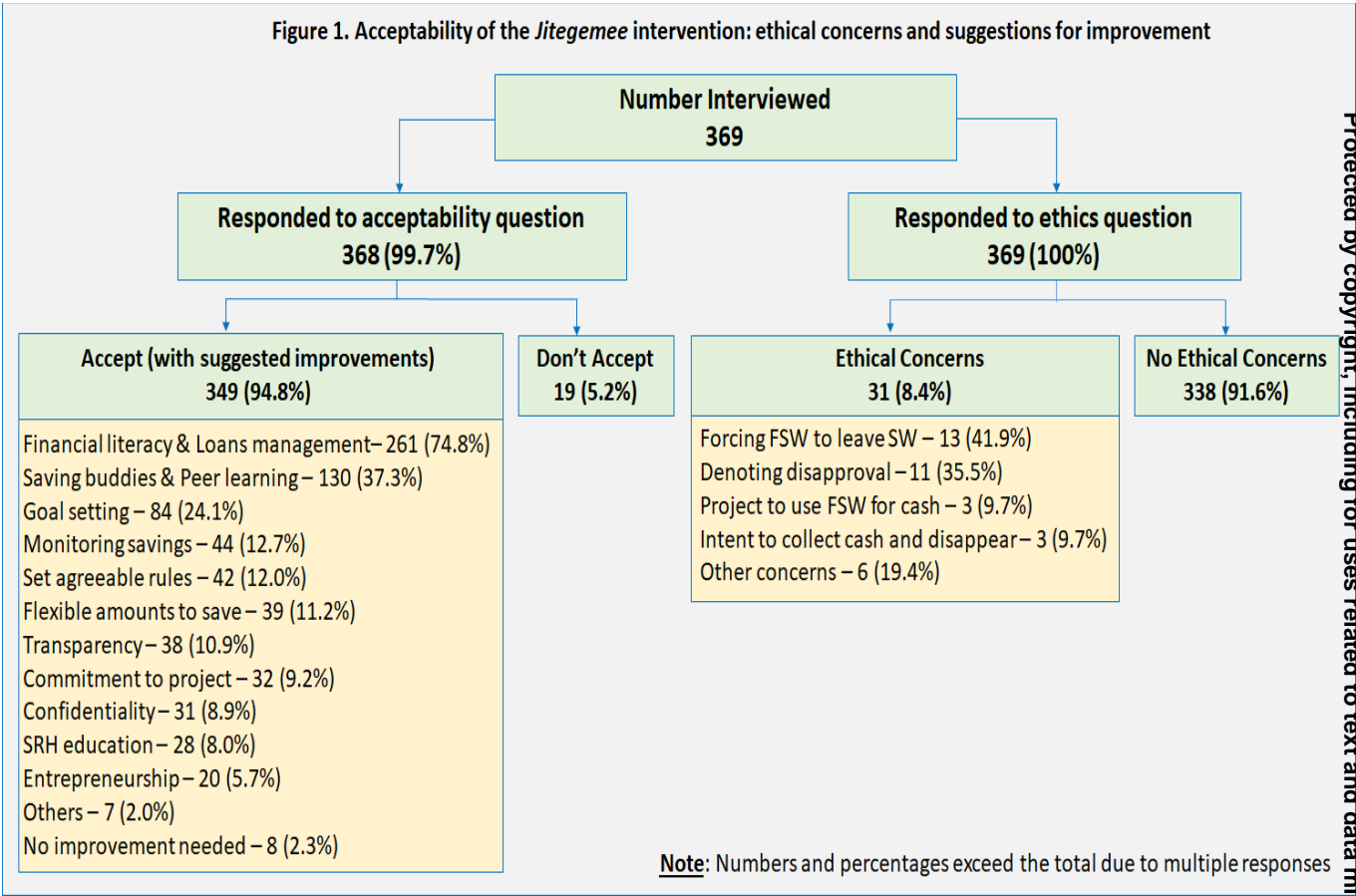
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Title: Facilitating pathways to economic independence could reduce HIV risk among female sex workers in Kisumu and Siaya Counties, Kenya – Acceptability and feasibility of Jitegemee intervention

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Abstract:

Background: Female sex workers (FSWs) are disproportionately infected with HIV because of engaging in risky sexual behaviours, including having multiple sexual partnerships, engaging in unprotected sex and anal sex because male clients pay more, and the heightened risk of acquiring ulcerating sexually transmitted infections which provide an entry for HIV infection. We believe that if FSWs are supported to save part of their earnings to build a small reserve for use when the sex work business is not doing well, when they want to say no to unsafe sex, or when they want to plan for their future post sex work. The intervention is called Jitegemee (rely on yourself, to denote that FSW would use their own money to build their resource).The purpose of this proposal is to conduct a formative study is to assess acceptability and feasibility of the Jitegemee Intervention among FSWs.

Objectives: The objectives of the formative study include determining if Jitegemee intervention would be acceptable and feasible, if FSW would have ethical concerns over the intervention, the types of economic activities that FWS would prefer to engage in during or post-sex work, and identifying effective delivery approaches for the intervention.

Design: We will use mixed methods approach, comprising of approximately 20 focus group discussions and quantitative survey with up to 400 FSW in Kisumu and Siaya Counties. Questions will focus on risk-taking behaviours of FSWs, savings and loaning behaviours, assets owned, investment goals, and plans for life post sex work. The results will be used to make a decision on whether to the Jitegemee intervention would be acceptable and feasible.

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Background: In Kenya, HIV prevalence is generalized among the adult population; however, key populations, including female sex workers (FSW) are disproportionately affected due to their heightened risk of HIV acquisition and transmission [1-2]. By 2018, high HIV prevalence of 29.3%, 18.2% and 18.3% was reported among FSW, men who have sex with men and people who inject drugs, respectively, compared to the national adult prevalence of 4.9% [3-5]]. The Modes of Transmission Survey in Kenya reported that FSW account for 14% of HIV transmission nationally [6-7]].

KPs program continuously access a combination of HIV prevention, diagnosis, care and treatment services that are implemented through either Drop-in-Centers (DiCEs) or integrated within government health facilities (DiCEs are facilities dedicated to provision of KP-friendly HIV prevention, care and treatment services). These services include uptake of, engagement in and adherence to optimal, high quality HIV prevention and risk-reduction interventions for those that are HIV negative, such as HIV testing and counselling, STI screening and treatment, TB screening and referral to treatment, sexual reproductive health services (family planning, post-abortion care services, cervical cancer screening, and emergency contraception), post-exposure prophylaxis (PEP), pre-exposure prophylaxis (PrEP), substance-abuse assessment and treatment, psycho-social support, and services to mitigate sexual violence [8-9]. For HIV positive KP, HIV care and treatment services geared towards viral load suppression and 'prevention with positive interventions' to reduce HIV transmission between sex partners and increase the well-being of KP living with HIV are provided [8-9].

Peer education approach to HIV prevention programming among KP is widely acknowledged as an effective intervention [10-11]. In this approach, KP nominate their peers [known as peer educators (PE)] to support the delivery of HIV interventions, specifically health education, condoms and lubricants distribution, and referral for clinical and other services at the DiCEs. Peer educators are trained and engaged in activities aimed at increasing knowledge, changing behaviour and attitude, improving protective skills such as condom negotiation/use and increasing access to HIV prevention and other reproductive health services through small group or one-on-one interpersonal interactions [11]. Additionally, PE are involved in the physical follow up of peers enrolled at the DiCEs to remind them of their clinic appointments.

Despite the relative success of peer education approach, FSW diagnosed HIV infections remain high, especially in major cities such as Nairobi, Mombasa and Kisumu [12]. One of the reasons FSW remain at disproportionate risk of HIV compared to the general population is the low rate of condom use [13-14] and having multiple sexual partners [15], being under the influence of drugs or alcohol during sex work [16] and the strict legal environment, including laws, enforcement practices, and justice systems that criminalize sex work [17]. These risk factors have been associated with economic disempowerment of FWS, the majority of whom are unable to say no to unprotected sex and/or the higher pay that comes with it. We propose a formative study to obtain information that will inform the design and development of an intervention – known as Jitegemee (Kiswahili for: Rely on Yourself) – aimed at making FWS able to cope with emergency needs while in sex work, and to afford basic needs when they exit sex work. The unique feature of the intervention is that the FSW will set their own goals and timelines, and use their own money to achieve the goals; the role of the study staff will be to support them as they work towards their goals.

Objectives: The objectives of the formative phase of Jitegemee Intervention are to:

1. Determine if Jitegemee intervention would be acceptable to FSW in Kisumu and Siaya Counties
2. Find out if FSW would have ethical concerns over the Jitegemee intervention
3. Establish the types of economic activities that FWS would prefer to engage in during or post-sex work in order to become financially stable
4. Identify the most effective delivery approaches for the Jitegemee intervention that are acceptable to FSW

Research questions: Based on the above objectives, the formative study will answer the following questions:

1. Would Jitegemee intervention be acceptable among FSW in Kisumu and Siaya Counties?
2. What ethical issues would FSW have with Jitegemee intervention?
3. What pathways to economic independence do FSW who want to engage in alternative sources of income prefer?
4. What would be the preferred delivery approaches for the Jitegemee intervention?

Eligibility: To be eligible, participants will (be):

1. Female
2. Age ≥ 18 years
3. Self-identify as a sex worker (exchanges sex for money, goods, services or favours)
4. A resident in or receiving HIV services in Kisumu or Siaya Counties
5. Willing to give written consent for participation in the study
6. (For qualitative interview only) Not have participated in the quantitative interview

Study site: This formative study will take place in Kisumu and Siaya Counties of Kenya.

Study population: The study will include women who self-report being a sex worker and meeting all the eligibility criteria listed above.

Sample size considerations:

Qualitative interviews: This will entail focus group discussions (FGDs and we expect to reach saturation (the point at which we are not learning anything substantially new with additional sessions) at approximately 20 sessions. Transcriptions will be done as soon as possible after each FGD session and a designated staff will be scanning through the transcripts as they come to guide on when views are starting to be repeated and the study leadership (PI, Co-Investigators and Study Coordinator) will make a decision of when to stop.

Quantitative interviews: The following is sample size calculations and associated assumptions:

Assumptions

1. Key question is the question on acceptability of the intervention.
2. Previous acceptability levels is unknown and can be estimated as 50%.
3. Total key population in the study area is less than 10,000 individuals as reported in KP estimates report by NASCOP [18].
4. The key population will be distributed proportional to size per geographical areas.

Sample size Calculation:

The geographical distribution of female sex workers across the two counties varies with an estimated total of 9,178 FSWs of whom 5,151 and 4,027 are found in Kisumu and Siaya counties, respectively. No known study at the moment has estimated the acceptance rate for self-empowerment program among FSWs hence we will assume the statistical optimal option of 50% acceptance rate. Sample size for the survey to determine intervention acceptance level is calculated using the formula which is recommended for $N < 10,000$ with 50% acceptance rate as follows:

$$n = \{CI^2 * (pq)\} / \text{Precision}$$

$$= z^2 pq / d^2,$$

We use a finite Population Correction factor as follows

$$n_f = n / (1 + n/N)$$

where:

n = desired sample size when the population is more than 10,000

n_f = the desired sample size when the population is less than 10,000

N = the estimate of the actual target population

z = standard normal deviate at the required confidence level

d = the marginal error allowed or degree of accuracy desired (in our case 95% confidence limit, thus marginal error allowed, $d=0.05$).

p = the proportion of the target population or the estimated characteristics being measured

(The intervention acceptance rate is assumed to be 50% $\Rightarrow p=0.5$) implying $q = 1 - p = 1 - 0.5 = 0.5$

$$n = z^2 pq / d^2$$

$$= (1.96)^2 (0.5)(0.5) / 0.05^2$$

$$= 385$$

Finite population correction

$$n_f = n / [1 + (n/N)]$$

$$= 385 / (1 + (385/9,178))$$

$$= 369.5$$

$$\sim 370$$

The sample calculated implies we require a minimum of 370 and will be distributed to the two counties proportional to population size as follows:

Table 1: Sample size distribution per county

	FSW
Kisumu	208
Siaya	162
Total	370

The study will therefore target a minimum sample of 370 FSWs from the two counties distributed as per table 1 above. However, because the assumptions may not be depictive of those who will accept, we will increase the sample size to a maximum of 400 participants in case acceptability is lower than the estimated 50%.

Recruitment: IRDO has offered HIV prevention, care and treatment services to KPs, including FSW, in Kisumu and Siaya counties since 2009 and 2011, respectively. We have therefore built networks in the two counties which we will use to mobilize participants for the study. Specifically, we will ask peer educators (PEs) in the Drop-in Centers in the two countries to refer potential participants to the study. We will ensure that different typologies of FSW (entertainment joint-based, street-based, brothel-based and home-based) are represented; this will be achieved by working with FSW in each typology as recruiters.

Study design: We will use a mixed methods, cross-sectional design comprising of both quantitative and qualitative approaches to collect one-off formative data on the acceptability and feasibility of implementing the Jitegemee intervention to support FWS on reducing their risk to HIV during sex work or preparing them for life post-sex work.

Study procedures

Jitegemee intervention: Jitegemee is premised on the belief that if supported, FWS are capable of coming up with and executing plans for stable alternative livelihood post-sex work; those not planning to quit sex work within the next 5 years would be supported to attain a level of economic security that allows them to reduce their risk of HIV. The intervention would involve asking each FSW their preferred path to economic independence during or after sex work, how they can save towards their goal and how long it would take to reach those goals, then support them to set realistic goals and timelines, and to work towards achieving them. A key feature of Jitegemee is that participants will use their own money to finance their goals, and the role of study will be to support them to do so. This proposal focuses on the formative phase of the planned Jitegemee study, and will assess its acceptability and feasibility.

Quantitative data: We will administer a questionnaire to up to 400 FSW to elicit information on socio-demographic profile (age, education, marital status, number of children, etc), period in sex work, type of sex work (home based, brothel based, entertainment joint based, street based, etc), whether they have plans to achieve economic independence post-sex work and the timelines for and steps towards achieving those plans. We will explain the planned intervention and find out if it would be acceptable to FSW, explore delivery approaches that would be preferable to FSW, and obtain information on ethical concerns that would be anticipated with an intervention to support FWS prepare for departure

from sex work. The interview will last for approximately one and a half hours and will be conducted in participants preferred language (English, Kiswahili or Dholuo) by trained and experienced tri-lingual research assistants. The questionnaire was reviewed by five female sex workers working in another study implemented by our team, and gave useful comments that were incorporated into the submitted version; additionally, we practiced interviewing with them and timed it hence we are confident it will not take more than one and a half hours.

Qualitative data: We will conduct approximately 20 focus group discussions (FGDs) with of 6-10 FSW (altogether 120-200 individuals) who have not participated in the quantitative interview. The discussions will explore more in depth whether FSW have plans to quit sex work one day, whether they have set timelines, what they anticipate doing post-sex work, if they have started/planned to start preparing for this period and if so, what the plans are/would be, and the preferred strategies to deliver the intervention. And if the intervention would be acceptable, feasible and ethical. Each session will last for approximately one and a half hours and will be conducted in participants preferred language (English, Kiswahili or Dholuo) by trained and experienced tri-lingual qualitative research assistants.

Data safety and management: We will use paper-based questionnaire. All consented participants will be assigned a unique ID to be used on all quantitative data while those participating in the FGD will be assigned serial numbers to identify the respondents to attribute the contributions to. The signed consent forms will be kept under lock and key, in a designated cabinet accessible only to IRDO's internal research monitor, PI and Maseno University Ethics Committee. Completed questionnaires will be handed over to the data clerk to enter in a password-protected, excel-based database (quantitative) or Microsoft Word (qualitative), with access to de-identified data limited only to the data officers, study coordinator, principal investigator and data analysts. For purposes of data and consent review, we will keep a link log (master list with participants' names). All study staff will sign confidentiality agreement that requires them to keep in strict confidence any information collected from participants.

Data Quality and Management:

Quantitative:

Paper-based questionnaire data will be keyed into an electronic database system daily as the field data collection proceeds. The data base will be password protected and accessible to the data officers and PI only. The data will be keyed in by designated officers while performing visual examination of the forms to ensure data completeness. A data manager will run statistical scripts to check out of range and perform data inconsistency checks daily on what has been keyed in. Problems of out of range or inconsistent data will be referred to the field data collection team for field checks and resolution. Data entry will be completed within two weeks after completion of data collection for each participant; those with pending data completeness and consistency issues will be addressed by the third week after the end of data collection for each participant. An SOP will be developed to guide and standardize these processes. Paper-based data tools (screening form, questionnaire, and background information of FGD participants) will be destroyed two years after the end of the study or when the main paper is published, whichever is earlier. Destruction will be done by shredding then burning performed by the data officer and witnessed by the PI and research monitor; the process will be documented and filed. Electronic database will be deleted after five

years following study closure or when all quantitative papers have been published, whichever is earlier. The deletion will be done by the internal research monitor, witnessed by the PI; the process will be documented and filed.

Qualitative: We will develop SOPs to guide: 1) the preparation and conducting of FGD, 2) note-taking, and 3) transcription of audio-recorded data. The FGDs will be facilitated by trained and experienced tri-lingual research assistants (RA) with at least 3 years' experience moderating FGDs. The facilitators will be trained on ethics and study protocol, and taken through intense practice with the guides to become competent. Each FGD moderator will be paired with a note-taker who will write summaries of the discussions and capture memorable quotes and non-verbal observations during the discussions. The FGD session will be audio-recorded using digital recorders. For quality output, the session will be conducted in quiet locations with minimal distractions or interruptions. For each session two digital recorders will be used in case one malfunctions. The audio-data will be transcribed in English with translation done concurrently with transcription by the RA who took notes. Each transcript will be reviewed by the RA who moderated the session who will check (proofread) the transcription against the audio-recording and the summary notes and revise the transcript file accordingly. Paper-based transcripts will be destroyed after publication of the main qualitative paper or two years after the end of the study, whichever is earlier. The destruction will be done by the internal monitor through shredding then burning, and witnessed by the PI; the process will be documented and filed. Electronic transcripts will be destroyed three years after the end of the study, or when all qualitative papers have been published, whichever is earlier. Deletion will be done by the internal monitor and witnessed by the PI; the process will be documented and filed.

Data analysis

Qualitative: The transcripts will be de-identified before sharing through a secure data transfer platform with the data analysis team. Thematic Content Analysis (TCA) will be applied for analysis of data (Guest, 2011). The analysis team will conduct an initial review of the data to develop a coding structure based on the theoretical framework and the focus group discussion themes/questions. The analysis team will apply the codes to that textual data in NVivo 10 (QSR International, Melbourne, Australia), a qualitative data storage and retrieval program or Dedoose software (Socio-Cultural Research Consultants, LLC, Los Angeles, CA), a web application for managing, analyzing, and presenting qualitative and mixed-method research data. The team will review the 'difficult to code' segments and resolve interpretive differences through discussion and consensus-building to ensure inter-coder reliability. Coding reports will be generated for individual codes and reviewed by two analysts for emergent content-based codes. This will form the emergent coding framework which will then applied to the relevant coding report. Once all content within the coding report is coded, coding matrices will be created to visualize the data and identify important themes related to the research questions. Findings will be described and displayed in matrices and diagrams.

Quantitative:

All analyses will be performed using STATA® version 13. We will analyse the proportion of respondents by selected background characteristics with regard to acceptability of the intervention. To statistically test the significant associations between two categorical variables, Chi-Square Test or Fisher's Exact Test will be used while logistic regression will be used to determine direction and strength of selected associations with binary outcome (acceptance of the intervention). Student's t-

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test will be used for comparison of the means of continuous variables. For comparison of ordinal or continuous variables not meeting parametric assumptions, the Mann-Whitney U-Test will be used. Because many comparisons will be made at $\alpha = 0.05$, only p-values less than 0.05 will be reported as statistically significant.

Results dissemination: We will disseminate the results first to study participants, then to the Ministry of Health in Kisumu and Siaya counties, and finally in local and international conferences and as academic manuscripts in peer-reviewed journals.

Ethical considerations:

The study will be conducted in compliance with the protocol and in accordance with International Conference of Harmonization and Good Clinical Practices (ICH-GCP). As a minimum ethical requirement, all staff involved in consenting and collection, analysis and access to participant information will complete the human subject's protection training and sign IRDO's confidentiality agreement forms.

IRB approval

Before initiating the study, the protocol and consent forms must be approved in writing by the Maseno University Ethics Review Committee (MUERC). No amendment to the protocol or informed consent forms will be implemented without prior ethics committee approval. Any violations of the protocol will be reported directly to the principal investigators. Protocol violations will be reported in writing to MUERC in accordance with their policy.

Informed consent

Written consent to participate in the study will be obtained from all participants before data collection. All informed consent forms will be translated into local languages (e.g. Dholuo and Kiswahili) and participants after being informed of all aspects of the study in her preferred language will be allowed to make an informed choice to either participate or not. Participation is voluntary and therefore participants must be informed that they could withdraw from the study at any time. The participant will be informed that data will be collected through interviews or group discussions and this is documented in the consent form that is participant will sign two copies, one for the study file and one for her to take home.

A consenting SOP will be developed and will clearly explain how to obtain consent for both literate and illiterate participants, i.e., an impartial witness will be required for any participant who is illiterate (unable to read and/or write) or semi-literate (reads/writes with difficulty) as assessed by the study staff. The witness will be identified by the participant or if unable to do so, she will be supported by the study staff who must ensure the witness is not affiliated to the study in any way. The witness will be present during the presentation of the consent and for any discussion to clarify the study. Documentation of the presence of a witness will be achieved through their signature on the informed consent document. The witness will also write the name of the participant and date in her pace. Illiterate participants will indicate their consent via left thumb print on the informed consent form signature section.

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Informed consents will be kept under lock and key, accessible only to the PI and the research monitor. The consents will be destroyed five year after the end of the study. Destruction will be done by the internal monitor and witnessed by the PI; the process will be documented and filed.

QA/QC procedures

The Internal Research Monitor will do 100% consent verification to ensure consent was obtained properly for all participants enrolled in the study.

Potential Risks

Some participants may feel uneasy when answering sensitive questions and therefore staff who will be involved in data collection will be trained on how to ask sensitive questions. Participants also will be informed that they do not have to answer any question that may make them uneasy.

There is also the risk of breach of confidentiality especially in the discussion groups and therefore participants will be advised not to use themselves as example and thus revealing their secrets in public but instead give opinions without revealing their secret experiences. Additionally, participants will be assigned a number which they will use in place of their names. Finally, participants will be asked to not share with anyone outside the group identities of any participant or what participants said during the discussion.

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Jitegemee (rely on yourself): A cross-sectional study on acceptability, feasibility and design considerations for a personal savings intervention to reduce HIV risk among female sex workers in Siaya County, Kenya

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Jitegemee (rely on yourself): A cross-sectional study on acceptability, feasibility and design considerations for a personal savings intervention to reduce HIV risk among female sex workers in Siaya County, Kenya.

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ABSTRACT

Objectives: The primary objective was to assess the acceptability of a savings intervention in which female sex workers (FSW) would save part of their earnings and call back (withdraw) when faced with a financial need that could force them into HIV risk practices. The secondary objectives were to assess its feasibility, concerns and design considerations.

Design: A cross-sectional survey. Participants were asked for views on the intervention, their earnings, saving and spending practices, and suggestions for the intervention package.

Setting: Kisumu and Siaya Counties, Kenya.

Participants: FSW aged ≥18 years, self-identifying as sex workers, and living in Kisumu or Siaya County.

Outcome measures: The primary outcome was the proportion of participants who believed the *Jitegemee* intervention would be acceptable to FSW in Kenya. The secondary outcomes were the proportion who: could generate money to save (assessed from income, spending and loaning practices), reported potential challenges with the intervention, and suggested components to inform the intervention package.

Results: We enrolled 369 FSW, 88% aged 18-39 years, 78% unmarried, 94% cared for ≥1 child(ren), and 78% were household heads. Over half (52.1%) had been in sex trade for ≤4 years, with 62.3% reporting <10 clients the previous month. *Jitegemee* was highly acceptable, at 94.8%; however, participants suggested adding: financial literacy, including saving, spending and loans management (74.8%), forming saving groups (37.5%) and goal-setting (24.1%). Those who did not care for children were 4.86 times more likely to save (adjusted Odds Ratio (aOR)=4.86, p=0.18), non- household heads were less likely to save (aOR=0.57, p=0.28), and those in the sex

trade for 1-4years and 5-9years were 4-5 times more likely to save than those <1 year (aOR=4.49, p=0.01 and aOR=5.22, p=0.01, respectively).

Conclusions: *Jitegemee* intervention was highly acceptable; however, several recommendations were suggested to make the design more appealing and potentially effective.

Strengths and Limitations of this study

- Female sex workers (FSW), as end users of the *Jitegemee* intervention, participated in designing the study, including development of the questionnaire, which ensured the study was appropriate and responsive to their needs.
- Enrolling FSW from different sex worker typologies (street-based, brothel-based, home-based, entertainment venue-based, and beach-based) expands the generalizability of the results to FSW in other settings in Kenya.
- Relying on acceptability of a proposed intervention to predict actual uptake when the intervention becomes available may overstate the true acceptability.
- Given that participants were not asked for reasons for their choice of what to include in the intervention, we may not know why they made the choices they did.
- Factors such as earnings, savings, loans and expenditure which are important to the intervention were collected through self-report, thus prone to social desirability and recall biases.

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INTRODUCTION

Despite sex work being illegal in most sub-Saharan African (SSA) countries, including Kenya, some women resort to the practice as an alternative source of income when they cannot find other opportunities [1-5]. Sex work gives them financial independence and the ability to improve their economic status [6, 7]. Besides this, social factors such as dysfunctional families, lack of education, peer pressure, seeking sexual pleasure, and homelessness compel young women to join sex work [2, 3]. These economic and social factors do not only drive women to sex work, but make them financially dependent on their male clients and less able to negotiate condom use [8]. This underscores their vulnerability to sexually transmitted infections including HIV, unintended pregnancies and complications from unsafe abortions, stigma and discrimination, violence, and drug and alcohol addiction [9, 10].

In Kenya, the first phase of a size estimation activity in 2018 estimated the population of FSW at 167,940 [11]. The report also estimated the HIV prevalence among FSW at 29.3%, compared to 6.6% among women in the general population [12]. FSW's risk of HIV infection is greatly influenced by social, legal and structural factors [13, 14]. Multiple sexual partnership, gender-based violence and rape, no/low capacity to insist on condom use, sex while intoxicated and justice systems that criminalize sex work contribute to the elevated risk of HIV among FSW [13, 15-17]. These risk factors have been associated with economic disempowerment of FSW, limiting their ability to say no to unsafe sex or to higher pay that comes with it [18-20], or to exit sex work even when they want to [21].

Multiple interventions have been implemented to lower the risk of HIV among FSW while they are still engaged in sex work, but most of them have narrowly focused on sexual risk behaviours

despite the recognized importance of economic factors as drivers of HIV risk among this sub-population [4]. A systematic review of interventions to reduce the risk of HIV among FSW globally showed that none of the 26 studies selected addressed economic security as an intervention to reduce HIV risk [22]. Another systematic review on sex work interventions in SSA also found no economic empowerment component among the interventions assessed in the 25 selected studies [23]. The few interventions that focus on economic empowerment are often geared towards 'rehabilitation' of sex workers [2, 3 24], and are premised on the assumption that economic hardship drives women into sex work, therefore providing alternative source of income would draw them away from the sex trade [25] rather than keep them safe within sex work.

Promoting FSW economic empowerment may provide structural protection from HIV [8, 26]. A study in Uganda found that when FSW have access to more capital and invest to start earning additional income outside of sex work, they are likely to be empowered and improve their economic status, thereby reducing their STI/HIV risk [27]. Another study in Tanzania on savings among FSW showed that savings provided a financial safety net for FSW because it accorded financial security, improved their ability to negotiate safe sex and enabled them to be selective about clients [28]. In Kenya, a study on precautionary savings intervention among vulnerable women including FSW found that reductions in reported transactional sex and symptoms of sexually transmitted infections were associated with improved savings [29].

For women who may wish to quit sex work, financial insecurity is often a major deterrent [9, 30, 31]. A study among FSW in Thailand showed that just one in 42 sex workers interviewed had never quit sex work, 60% had gone through one or more quit-re-entry-quit cycles, while 38% quit and never returned [21]. Therefore, interventions aimed at empowering FSW to reduce their HIV

1 risk after leaving sex work need to address their economic insecurity [9, 21, 28, 32]. Strategies
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3 for increasing economic security of FSW can include microfinance, vocational training and income
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5 generating activities, cooperative banking, and savings and money management [28, 33]. Our key
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7 objectives were to assess the acceptability, feasibility, concerns and design considerations of a
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9 savings intervention known as *Jitegemee* (rely on yourself) in which FSW would be encouraged
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11 to save part of their earnings to fall back on when faced with an immediate financial need that
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13 may compel them to engage in unsafe sex during sex work, or to return to sex work after quitting.
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METHODS

Study Design

We conducted a cross-sectional study on acceptability, feasibility and design considerations of the Jitegemee (rely on yourself) intervention to support FSW to improve their financial security and consequently reduce their risk to HIV during or post-sex work. While under development, the protocol and questionnaire were reviewed by five FSW peer educators who gave comments that were incorporated into the final versions. We have used the STROBE cross sectional reporting guidelines [34] to prepare this paper.

Eligibility and Sample Size Considerations

To be eligible, women had to be ≥ 18 years; report exchanging sex for money, services, goods or favours in the previous 30 days; resident of or receiving HIV prevention or treatment services in Kisumu or Siaya county; and willing and competent to provide written informed consent for study participation. Since there was no known study on estimated acceptance rate for economic empowerment program among FSWs at the start of the study, we assumed the statistical optimal option of 50% acceptance rate to arrive as a sample size of 370 participants for the survey.

To obtain views from different typologies of FSW (brothel-based, street-based, home-based, venue-based, and beach-based) in the two counties and minimize bias while improving on generalizability of the results, we allocated approximate slots as follows: 55 home-based (30 in Kisumu and 25 in Siaya), 50 brothel-based (30 in Kisumu and 20 in Siaya), 115 entertainment venue-based (75 in Kisumu and 40 in Siaya), 90 street-based (50 in Kisumu and 40 in Siaya), and 65 beach-based (25 in Kisumu and 40 in Siaya). The allocations were roughly based on the

proportion of sex workers in each typology in each county, estimated from our program data of more than 10 years' experience working with FSW in the two counties.

Data Collection

We trained peer educators, who were themselves FSW, to recruit participants. During recruitment, potential participants chose if they preferred to be interviewed at the research site, at their venue (e.g., brothel) or some other safe place. Trilingual (English, Kiswahili and Dholuo) Research Assistants trained on the protocol, data collection tools and ethics explained the study, administered a consent in the preferred language, screened for eligibility and conducted the interview with consented and eligible FSW. The questions explored whether the intervention would be acceptable to FSW, where FSW typically met sex partners, their risk-taking behaviours, their earnings, savings, loaning and spending behaviours, their investment goals and assets owned, sources of income, health-seeking behaviours, including HIV testing history, views on and possible concerns over the *Jitegemee* intervention, preferred intervention components, and alternative economic activities. Participants were also asked for activities FSW would engage in to generate income towards saving. Data were collected between February and April, 2022. The primary outcome was on acceptability (the proportion accepting the intervention) while secondary outcomes were on feasibility (the proportion who demonstrated ability to generate money to save, assessed from their income, spending and loaning practices), concerns (the proportion who reported potential challenges with the intervention), and design considerations (the proportion who mentioned different components to include when designing the intervention package to make it more attractive to FSW).

The *Jitegemee* intervention was described to participants (Table 1) before they were asked questions on their views about it. It was explained to them that this intervention will be anchored on the belief that FSW are capable of saving part of their earnings to reach a certain level of economic security that allows them to say no to unsafe sex. For those who would wish to quit sex work, the savings would accord them stable alternative livelihood post-sex work so that they do not return to the sex trade. The intervention would involve asking FSW their preferred path to economic independence during or after sex work, how they can save towards their goals and how long it would take to reach those goals, then support them to set realistic goals and timelines, and to work towards achieving them. A key feature of the *Jitegemee* intervention that ensures sustainability is that participants would be supported to use their own earnings to finance their saving goals.

The question on acceptability (Is it – Jitegemee Intervention – something that FSW in Kenya can accept?) had Yes/No/Maybe/Don't Know response options, with follow on question (What should such an intervention comprise of to be acceptable to FSW?) asked to those who responded Yes or May to the acceptability question. For questions on potential challenges and components of the intervention package, a list of response options was prepared with information obtained from literature review and peer educators of FSW. However, the research assistants did not read out the options for participants to select from; rather, participants were asked, unprompted, what they would like to see included in the *Jitegemee* intervention and any ethical concerns they and other sex workers might have about the intervention. The research assistants matched the responses given to the options provided in the list; responses that did not match the listed

options were recorded under 'Other, Specify' and later post-coded by the study team (see supplemental material 1 for questionnaire used).

Data Analysis

Data were collected manually through paper-based forms, entered by trained data staff in a password-protected, excel-based database, and 30% randomly selected and reviewed for accuracy and completeness of entry by a senior data officer for purposes of external quality assurance. The officer also ran statistical scripts to check out-of-range values and performed data inconsistency checks.

Data were analysed descriptively to describe the study population in terms of their earning, spending, saving and loaning practices. We also used descriptive statistics to evaluate the acceptability of the *Jitegemee* intervention, Chi square statistics to determine the association between sociodemographic characteristics of participants and both their saving and spending levels, and logistic regression to determine how various participant characteristics influenced saving ability.

Ethical Consideration

The study was conducted between February and April 2022 after obtaining approval from Maseno University Ethics Review Committee (MUERC 1033/21). All participants provided written informed consent prior to taking part in study activities.

Patient and Public Involvement Statement

We involved peer educators of female sex workers (FSW) to review the questionnaire and the proposed intervention design components to be presented to participants. A peer educator (PE) for FSW is herself a sex worker who is recognized as a leader and a role model by her peers who elect her to lead them. Once elected, a PE is trained on sexually transmitted infections and HIV to equip her with knowledge and skills to support her peers on behaviour change; PE also delivers condoms and lubricants to their peers at their places of work or residence [35].

RESULTS

We screened 373 FSW and enrolled 369 in the study. Our results indicate that a majority of FSW (40.8%, n=151) reported the need for a steady source of income as the main reason for joining sex work. Nearly one-quarter (23.8%, n=88) and about one-fifth (19.7%, n=78) cited increased family responsibility (assuming breadwinner’s role due to being single or lacking financial support from spouse) and being widowed or separated from spouse (19.7%, n=78), as circumstances that drove them to sex work. Peer pressure (6.8%, n=25) and poverty (4.9%, n=18) were the least mentioned factors.

A majority of FSW enrolled (88%) were aged 18-39 years, 78% were unmarried, 94% cared for ≥1 child(ren), 47% and 32.9% lived with 2-3 and 4-5 persons, respectively, and 78% were the head of their households (Table 2). Highest level of schooling was relatively low, with slightly over half (54.8%) reporting primary level. Over half (52.1%) had been in the sex trade for ≤4 years, one-third for 5-9 years and 15% for over 10 years. A majority (86.2%) reported sex work as the main source of income with about two-thirds (62.3%) reporting <10 different male clients the previous month, 20.9% reported 10-30 different clients and 16.8% reported >30 different clients.

Reported earning was varied, with a little over one-fifth reporting under Kenya Shillings (KES) 5,000 in the previous month (1US\$≈KES118), 27.4% earned KES 5,000-10,000, 26.1% earned KES 10,001-20,000, and 24.5% earned KES >20,000. Monthly expenditure was categorized into four levels: lower level (below KES 10,000 per month), lower middle level (KES 10,000-29,999), upper middle level (KES 30,000-99,999) and high level (≥KES 100,000).

Table 2. Socio economic and demographic characteristics of participants

Characteristics		n	%
Age at enrolment	18-24	63	17.1
	25-29	107	29.0
	30-34	82	22.2
	35-39	73	19.8
	≥40	44	11.9
Married/living as married	Yes	81	22.0
	No	288	78.0
Taking care of a child(ren)	Yes	347	94.0
	No	22	6.0
Total people living in household	Alone	47	13.5
	2-3 persons	163	47.0
	4-5 persons	114	32.9
	6-10 persons	23	6.6
Head of your household	Yes	287	78.2
	No	80	21.8
Highest level of schooling	Primary	199	54.8
	Secondary	144	39.7
	Tertiary	20	5.5
Duration in sex work	<1 year	51	15.3
	1-4 years	123	36.8
	5-9 years	110	32.9
	≥10 years	50	15.0
Number of different sexual partners last month	<10 Clients	230	62.3
	10-30 Clients	77	20.9
	>30 Clients	62	16.8
Main source of income	Transactional Sex	318	86.2
	Others	51	13.8
Total income last one month	≤5000	81	22.0
	5001 - 10000	101	27.4
	10001 - 20000	96	26.1
	20001 - 30000	54	14.7
	>30000	36	9.8
Total spending in a month	Low Level	57	15.4
	Lower Middle Level	192	52.0
	Upper Middle Level	115	31.2
	High Level	5	1.4
Total saving at time of interview	No Savings	186	excluded
	≤ 5000	64	35.0

5001-10000	31	16.9
10001-50000	74	40.4
>50000	14	7.7

Most of the participants (83.2%) were in lower- and upper-middle expenditure brackets while 48.1% had over KES.10,000 in savings and one-third had saved below KES.5,000. Participants reported saving their money mostly in banks (62.5%) and mobile money system (27.7%); table banking (Chama – a group-based saving strategy) and Saving and Credit Cooperative Societies were minimally preferred, at 5.7% and 1.1%, respectively.

Fig. 1 shows very high acceptability of the *Jitegemee* intervention by FSW, at 94.8%; however, participants made several recommendations for improvements to make *Jitegemee* more acceptable and feasible, with the top three being: adding a component of financial literacy, including loans management (74.8%); forming saving buddies and cross-learning from each other about challenges, best practices and success stories (37.5%); and goal-setting (24.1%). A few participants (8.4%, n=31) expressed ethical concerns over the intervention, viewing it as a veiled attempt to force sex workers out of their trade (n=13), that the intervention is an indirect disapproval of sex work (n=11), and that there is a hidden intention to use sex workers as cash cow or to take their saved money and disappear (n=6).

Participants cited various activities to generate additional cash to save if they participate in *Jitegemee*, which included (multiple responses allowed): starting other income activities besides sex work (60.7%); soliciting for more customers (37.1%); reducing current spending (28.2%); working longer hours (20.6%); charging their clients more (15.5%); practicing higher-paying sex, specifically unprotected sex (4.3%) and anal sex (0.3%). We post-classified these activities into 3

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2 levels of risk (high, medium and low; multiple responses were allowed): unprotected sex and anal
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4 sex were classified as high risk (17 responses); seeking more clients, working long hours and
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6 charging more were classified as medium risk, because we did not ask whether the sex would be
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8 protected or not (270 responses); and seeking alternative income sources and reducing spending
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10 were classified as low risk (328 responses).
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17 Other findings show that FSW in Siaya which is mostly rural, earned significantly less ($\chi^2=30.88$,
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19 $p<0.001$) compared to those in Kisumu, a more urban therefore better economically endowed
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21 setting. Specifically, 65.2% FSW in Siaya and 37.2% in Kisumu earned <KES 10,000, and 34.8% in
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23 Siaya and 62.8% in Kisumu earned >KES 10,000. Similarly, participants in Kisumu saved
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25 significantly more than those in Siaya ($\chi^2=14.66$, $p=0.002$), with 38.8% in Siaya and 56.1% in
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27 Kisumu saving above KES 10,000. When we explored whether participants spent more than they
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29 earned, we found no significant difference between the two counties ($\chi^2=2.80$, $p=0.10$), with only
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31 15.7% in Kisumu and 9.7% in Siaya spending more than they earned.
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Table 3. Association of participants’ socio-demographic characteristics with savings ability and spending

		Saving < 5000 n (%)	Saving >5000 n (%)	(χ^2) p-value	Spending ≤Earning n (%)	Spend > Earning n (%)	(χ^2) p-value
Age at enrolment	18-24	8 (12.5)	15 (12.6)	(2.07)	12 (25.5)	18 (15.4)	(5.09)
	25-29	19 (29.7)	39 (32.8)	0.723	16 (34.0)	90 (28.8)	0.278
	30-34	14 (21.9)	23 (19.3)		9 (19.1)	71 (22.8)	
	35-39	17 (26.6)	24 (20.2)		7 (14.9)	64 (20.5)	
	≥40	6 (9.4)	18 (15.1)		3 (6.4)	39 (12.5)	
Married/living as married	Yes	20 (31.3)	24 (20.2)	(2.80)	6 (12.8)	72 (23.1)	(2.55)
	No	44 (68.8)	95 (79.8)	0.094	41 (87.2)	240 (76.9)	0.110
Taking care of child(ren)	Yes	62 (96.9)	110 (92.4)	(1.45)	41 (87.2)	96 (94.9)	(4.14)
	No	2 (3.1)	9 (7.6)	0.228	6 (12.8)	16 (5.1)	0.042
Head of household	Yes	45 (70.3)	100 (85.5)	(5.97)	40 (87.0)	39 (76.8)	(2.40)
	No	19 (29.7)	17 (14.5)	0.015	6 (13.0)	72 (23.2)	0.122
Duration in sex work	<1 yr	14 (25.0)	13 (11.7)	(5.34)	12 (27.9)	38 (13.4)	(7.44)
	1-4 yrs	16 (28.6)	40 (36.0)	0.148	14 (32.6)	108 (38.2)	0.059
	5-9 yrs	17 (30.4)	42 (37.8)		14 (32.6)	92 (32.5)	
	≥10 yrs	9 (16.1)	16 (14.4)		3 (7.0)	45 (15.9)	
Number of different sexual partners last month	<10 Clients	51 (79.7)	67 (56.3)	(10.03)	22 (46.8)	104 (65.4)	(16.70)
	10-30 Clients	7 (10.9)	25 (21.0)	0.007	8 (17.0)	68 (21.8)	0.000
	>30 Clients	6 (9.4)	27 (22.7)		17 (36.2)	40 (12.8)	
Main income source	Transactional						
	Sex	52 (81.3)	99 (83.2)	(0.11)	45 (95.7)	155 (84.9)	(4.05)
	Others	12 (18.8)	20 (16.8)	0.741	2 (4.3)	47 (15.1)	0.044
Total income last one month	≥5000	12 (19.0)	10 (8.4)	(13.93)	1 (2.1)	78 (25.1)	(68.83)
	5001 - 10000	22 (34.9)	25 (21.0)	0.001	4 (8.5)	94 (30.2)	0.000
	10001 - 20000	21 (33.3)	33 (27.7)		10 (21.3)	83 (26.7)	
	20001 - 30000	6 (9.5)	30 (25.2)		14 (29.8)	38 (12.2)	
	>30000	2 (3.2)	21 (17.6)		18 (38.3)	18 (5.8)	

To determine if there would be need to segment the audience when implementing the intervention and/or to tweak the content to address the factors that would inhibit saving, we determined if participant characteristics influenced saving ability. There was a significant association between selected participants background and their saving and spending behaviours (Table 3). For example, saving and being head of household ($\chi^2=5.97$, $p=0.015$), number of different sexual partners in the last one month ($\chi^2=10.03$, $p=0.007$) and the total income earned in the last one month ($\chi^2=13.93$, $p=0.001$) were all significantly associated. Additionally, there was a significant association between spending more than earning and having children under one's care ($\chi^2=4.14$, $p=0.042$), number of different sexual partners ($\chi^2=16.70$, $p<0.001$) and the total income earned in the last one month ($\chi^2=68.83$, $p<0.001$). Age at enrolment ($p=0.723$), marital status ($p=0.094$), having children under their care ($p=0.228$), duration of sex work ($p=0.148$), and main income source ($p=0.741$) were not significantly associated with saving. Similarly, age at enrolment ($p=0.278$), marital status ($p=0.110$), being head of household ($p=0.122$) and duration of sex work ($p=0.059$) were not significantly associated with spending more than earning.

Table 4. Logistic regression of socio-demographic characteristic with participants’ saving ability

Characteristics		Unadjusted OR	P-Value	Adjusted OR*	P-Value	CI
Age at enrolment	18-24	Ref				
	25-29	1.09	0.86			
	30-34	0.88	0.81			
	35-39	0.75	0.60			
	≥40	1.60	0.47			
Married/living as married	Yes	Ref				
	No	1.80	0.10			
Taking care of child(ren)	Yes	Ref		Ref		
	No	2.54	0.24	4.86	0.18	0.47 - 50.02
Total people living in household	Alone	Ref				
	2-3 persons	0.74	0.55			
	4-5 persons	0.84	0.75			
	6-10 persons	1.24	0.79			
Head of household	Yes	Ref		Ref		
	No	0.40	0.02	0.57	0.28	0.20 - 1.60
Highest level of schooling	Never completed	Ref				
	Secondary and above	1.27	0.55			
Duration in sex work	<1 yr	Ref		Ref		
	1-4 yrs	2.69	0.04	4.49	0.01	1.25 - 14.09
	5-9 yrs	2.66	0.04	5.22	0.01	1.35 - 15.70
	≥10 yrs	1.91	0.25	2.80	0.15	0.59 - 10.63
Number of different sexual partners in the last month	<10 Clients	Ref		Ref		
	10-30 Clients	2.72	0.03	1.58	0.48	0.44 - 5.77
	>30 Clients	3.43	0.01	1.74	0.51	0.34 - 8.97
Main source of Income	Transactional Sex	Ref		Ref		
	Others	0.88	0.74	1.40	0.54	0.47 - 4.18
Total income in the last one month	<5000	Ref		Ref		
	5001 - 10000	1.36	0.55	1.91	0.32	0.56 - 6.47
	10001 - 20000	1.89	0.22	1.09	0.92	0.32 - 3.68
	20001 - 30000	6.00	0.00	8.41	0.00	1.81 - 39.17
	>30000	12.60	0.00	28.37	0.00	3.04 - 264.69
Spend More	Yes	Ref		Ref		

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	No	0.89	0.80	5.58	0.02	1.34 - 23.08
	Entertainment					
Where meet sex clients	Joint	Ref				
	Brothel	2.82	0.20	2.95	0.28	0.42 - 20.96
	Home	0.61	0.25	1.00	0.99	0.33 - 3.08
	Street	2.47	0.13	1.20	0.83	0.24 - 5.92
	Beach	0.41	0.05	0.85	0.79	0.27 - 2.70
	Others	0.35	0.20	0.49	0.45	0.74 - 3.18

Note: * Missing values for Adjusted OR – we started with a full model and adjusted by removing other factors based on their performance so what is missing has been removed from the final model

Using logistic regression, we estimated the effect of various socio-economic status of participants on their ability to save more than KES 5,000. Based on unadjusted Odds Ratio (uOR), various age groups had different saving behaviours, with age groups 25-29 (uOR=1.09, p=0.86) and above 40+years (uOR=1.60, p=0.47) having better saving trend than the reference age 18-24 years. Similarly, being unmarried, having no child under their care, living in house with >6 persons, having above secondary education, being in the sex trade for more than a year, reporting more than 10 clients in a month, and reporting income higher than KES 5,000 were predictors of better savers with odds greater than the reference category (Table 4). In the adjusted model, those who did not care for children were almost 4.9 times more likely to save than those caring for children (adjusted Odds Ratio (aOR)=4.86, p=0.18), those who were not head of household were 0.57 times less likely to save than household heads (aOR=0.57, p=0.28), those in the sex trade for 1-4 years and 5-9 years were 4.5-5 times likely to save than those <1 year (aOR=4.49, p=0.01 and aOR=5.22, p=0.01, respectively). Finally, those with over 30 clients in the last month were 1.7 times more likely to save than those with less than ten clients (aOR=1.74, p=0.51), and those earning over KES 30,000 were 28.37 times more likely to save than those with less than KES 5,000 (aOR=28.37, p<0.01).

Examining the typologies of sex work in the two counties, brothel- and street-based FSW had the highest proportion of savers above KES 5,000 while 46.7% of beach-based and 42.9% in other (undefined) locations saved above KES 5,000. Those operating in brothels were 2.95 times more likely to save than those operating at entertainment venues (aOR=2.95, p=0.28). Home-based FSW were equally likely to save as those based at entertainment venues (aOR=1.00, p=0.99) while street-based were 1.2 times more likely to save than those based at entertainment venues (aOR=1.20, p=0.83); all associations with p-value of ≥ 0.05 were insignificant.

Most of the FSW (89.8%) said they would consider quitting sex work after they have educated their children and other dependents, acquired some assets, especially land and house, or have started a viable business for sustenance. Majority (74%) said quitting sex work in the foreseeable future would be difficult due to increased financial burden against lack of stable alternative source of income while others (11%) reported being comfortable with sex work since it is an easy and fast way of making money that did not require financial capital, or that they were addicted to sex work so quitting was not an option (9%). A total of 275 FSW (75%) have thought of leaving sex work at some point but felt they were not ready, and 56% know someone who had quit sex work and returned.

We also asked for spending lines and classified them into two categories – essential or core needs and non-essential or non-core needs – to identify areas from where savings can be obtained by adjusting the amounts spent. Essential or core expenditures included: a) food, rent and utilities, medical, transport, house maintenance, cleaning supplies and communication (44.6% of total expenditure), and b) school expenses were tuition, uniforms, stationery and other general expenses (21.2%). Non-essential or non-core expenditures were: a) personal and home beautification (furniture, beddings, kitchen equipment, shoes,

1 clothing, beauty products) and job-related alcohol, accounting for 26.5%, and b) social
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4 support (weddings, funerals, donations, gifts), accounting for 7.7% of earnings.
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DISCUSSION

Our study assessed the acceptability, feasibility and design considerations of a savings intervention to reduce female sex workers’ risk of HIV during and post-sex work. The findings show very high acceptability of the intervention, at 94.8%. All the FSW reported to be earning majorly from sex work with about half already reporting some savings, mostly in banks and mobile money platforms, table banking (*Chama* in Kiswahili, a group-based ‘banking’ strategy in which group members save money during regularly scheduled meetings from which they can take either short or long-term loans at a small interest), and saving and credit societies. Similar studies with FSW have proved feasible in Asia; findings from pilot studies in Chennai, India and Ulaanbaatar, Mongolia, have showed the feasibility of combining a savings-led or microfinance intervention with HIV sexual risk reduction programs for FSW [36, 37]. A study in Tanzania on table banking or rotating pay-out (known as *Michezo*, equivalent to *Chama* in Kenya) proved to be acceptable and fostered a sense of empowerment among FSW [28]. In Kenya, the Global Network of Sex Work Projects demonstrated the success of combining saving-led or micro-financing and HIV prevention intervention where FSW contribute monthly and receive a share of profits from invested income on an annual basis [2]. Although about 90% of FSW are open to quitting sex work, 74% acknowledged that due to high financial burden and the lack of a stable alternative source of income, it would be difficult for them to quit sex work in the foreseeable future. These findings corroborate the results from a study in Harare, Zimbabwe, among adolescent FSW who were hesitant to quit sex work due to the limited survival options and difficulty in getting a job with a stable income [38, 39].

While 2.3% of those who reported that the intervention would be acceptable to FSW had no suggestion for modification, the majority recommended several components to include in the

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1 intervention design, such as: literacy on saving and loans management, forming saving buddy
2 groups for cross-learning of challenges and success stories among participants, goal setting,
3 flexibility in amounts to save, and integrity in managing the savings. Similar recommendations
4 have been made in studies that have reported financial literacy as a critical component of
5 successful savings-led or micro-lending interventions targeting FSW [33, 40]. It has been
6 suggested that more attention should be paid on financial literacy and business development
7 training [33], incorporating more regular goal-setting activities [37], and continuous
8 education on the importance of savings, banking services, budgeting (especially household
9 budget) and debt management [27].

10 Guided by Jun and colleagues [41] who recommend the need to explicitly seek views and
11 voices of stakeholders involved in, and impacted by, an intervention at the key moments of
12 the intervention design process to assure that not only are the outcomes of the intervention
13 effective, but the processes to achieve the results are not ethically objectionable, we asked
14 participants if FSW would have concerns over the intervention. Only 8% of the participants
15 expressed concerns over such interventions, perceiving it as a tacit strategy to force women
16 out of sex work, a veiled disapproval of sex work, or a scheme for economic abuse by the
17 study team. Trust issues have also undermined interest in savings managed by peers and may
18 have prompted the recommendation of ensuring integrity in savings management. Therefore,
19 meaningfully engaging sex workers to elect their leaders, instituting a trusted oversight body,
20 and supporting them to develop a robust financial governance system can encourage FSW to
21 save.

22 About one-quarter of our participants were saving on mobile money platforms which makes
23 it easier to withdraw cash in emergency situations. The majority of the participants (62.5%)

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reported saving in banks, which is contrary to what other studies in Kenya and other parts of Africa have reported. In Kenya, studies show minimal saving in banks [42] while outside Kenya, only 5% were saving in banks in Cote d'Ivoire [4] and 8% in Tanzania [28]. We believe that our findings may reflect social desirability bias where participants may have told us what they assumed was the more 'respected' way of saving. While a savings intervention would need to take advantage of the two saving channels that are already popular with FSW, it would be important to confirm in other studies the reported preference for bank-based saving. The findings however remain relevant for an intervention such as *Jitegemee* where funds that would be needed more urgently would be saved in mobile money platforms for ease of callback while those that are being saved for long-term plans such as starting a business, buying property, or building a home kept in banks.

Our findings show that about two-thirds of the FSW's expenditure were on household essentials and school-related expenses while one-third was on non-essentials including personal and home beautification, and support to social events. Further exploration of participants' expenditure against earning revealed about 16% of participants in Kisumu and 10% in Siaya were spending more than their earning and relied on loans from table banking groups (commonly known as *Chama*), friends and family to bridge the gaps, putting them at more debt. This finding is not unique to our study. Results from a study in Abidjan, Cote d'Ivoire, showed that about 30% of FSW reported expenditures that exceeded their income and that nearly all FSW who were observed reported borrowing money regularly to manage their expenses, especially during slow periods [4; 43]. Other studies have shown that FSW who report having debt or other economic hardships have been more likely to indicate greater exposure to sources of STI infection [30, 44]. For an intervention like *Jitegemee*, examining

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what FSW spend on provides an opportunity to explore what could be cut, postponed, adjusted down or cheaper options sought in order to release some earnings to dedicate towards savings. Therefore, supporting FSW to manage their spending on non-essentials is important for an effective savings-led HIV intervention. As noted in our study, the push to increase savings is likely to be counter-productive, as it may lead to risky sexual practices that pay more. Some of our participants cited various ways of generating additional cash to bridge their income gaps in order to save, including soliciting for more clients, working longer hours and charging their clients more for unprotected sex. Risk reduction education should therefore be embedded within FSW economic empowerment interventions.

While the immediate goal of the *Jitegemee* intervention is to make FSW have savings for instant cash callback whenever needed instead of engaging in risky sex, a long term aim is to prepare and enable those who want to quit sex work to fulfil their financial obligations such as educating their children, owning a house or property or investing in a business. For long-term outcome, entrepreneurship or business skills training has been shown to help FSW achieve financial goals that can eventually replace sex work [4, 45].

Our results showed that background factors such as low income levels, being head of household and caring for children were associated with lower saving. While low income and the burden of supporting one's family may make it difficult for a FSW to save, studies have shown that some FSW spend beyond their income [4; 46] and are not cognizant of their impulse spending, which likely contributes to high debt and low savings [4]. In their study, Igonya and colleagues [47], found that FSW were unable to save effectively because they held the belief that 'quick money does not stay', a mind-set that makes it difficult for FSW to save. We believe that financial literacy and management training have potential to empower FSW to strategize and prioritize their ways of earning, spending, and saving.

This study had some limitations. We relied on the acceptability of a proposed Jitegemee intervention to predict the actual uptake when the intervention becomes available; therefore, due to social desirability bias [48; 49] the proportion who responded affirmatively may overstate the true acceptability. Secondly, we relied on self-reported data on factors such as earnings, savings, loans and expenditure which are important to the Jitegemee intervention; however, these may be inaccurate as most participants do not keep records therefore based their answers on recall and general estimation [50]. Despite these limitations, to our knowledge, this is one of very few studies that attempted to explore the acceptability and feasibility of a savings intervention for FSW that will encourage them to save part of their earnings for use when faced with an immediate financial need that could otherwise compel them to engage in unsafe sex [29; 42]. In addition, an intervention grounded on using own income has a higher chance of being sustainable compared to those relying on external support [25]. Finally, while previous studies have explored various interventions to lower the HIV risk among FSW while they are still engaged in sex work, most have only focused on the sexual risk behaviours without concomitantly addressing economic factors that drive their HIV risk [27; 51, 52].

In conclusion, our study has demonstrated that an intervention to support FSW save part of their income for use in emergent needs instead of resorting to risky sex is highly acceptable and feasible. The findings suggest that saving may be harder among FSW with school-going children and dependents, or who are household heads; therefore, it is important for the intervention to take into account these challenges and help FSW plan on how to balance their income, expenditure and loan-taking and –repayment in order to obtain money to save. Participants made valuable recommendations on components that need to be added to make

the intervention more appealing. These findings have informed a savings interventions study currently being developed by our team to reduce the risk of HIV among FSW in western Kenya.

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Table 1: A brief description of the *Jitegemee* intervention

Interviewer to read out loud: *In the next section I want to get your views on an intervention we are thinking about that may help you or your peers to stay safe from HIV or to plan for life after sex work for those who may be thinking about leaving sex work in the near future. The intervention will primarily prepare sex workers to reduce their risk of getting infected with HIV through saving. The intervention is known as Jitegemee, which means rely or depend on yourself. The reason we are calling it Jitegemee is that sex workers who take part in it will use part of their own income to save towards some level of economic independence. They will save through MPesa directly into an account opened by the study. The saved amount by each sex worker will be available to her to call back in part or in full any time she needs it so that she does not have to engage in unsafe sex because she needs money urgently. With the savings, sex workers can say 'No' to unprotected sex or to certain clients if they want to, or to take a short break from sex work if they need to rest. This is because they have savings and cannot go hungry, for example, because they said 'No' to unsafe sex or took a break. Some sex workers may also want the savings to go towards long-term goals such as investing, educating children or even quitting sex work in the future. The intervention staff will help those enrolled in Jitegemee to set saving goals and timelines, work with them to plan their savings while being able to support their other needs, and help them to monitor achievement of the goals and address challenges that come along the way. The questions that follow will ask you what you think about such an intervention, whether it would work, what the intervention package should comprise of (i.e., components), how we can implement it so it works well, and the challenges we may face and how to address them.*

Figure 1: Acceptability of the *Jitegemee* intervention: ethical concerns and suggestions for improvement

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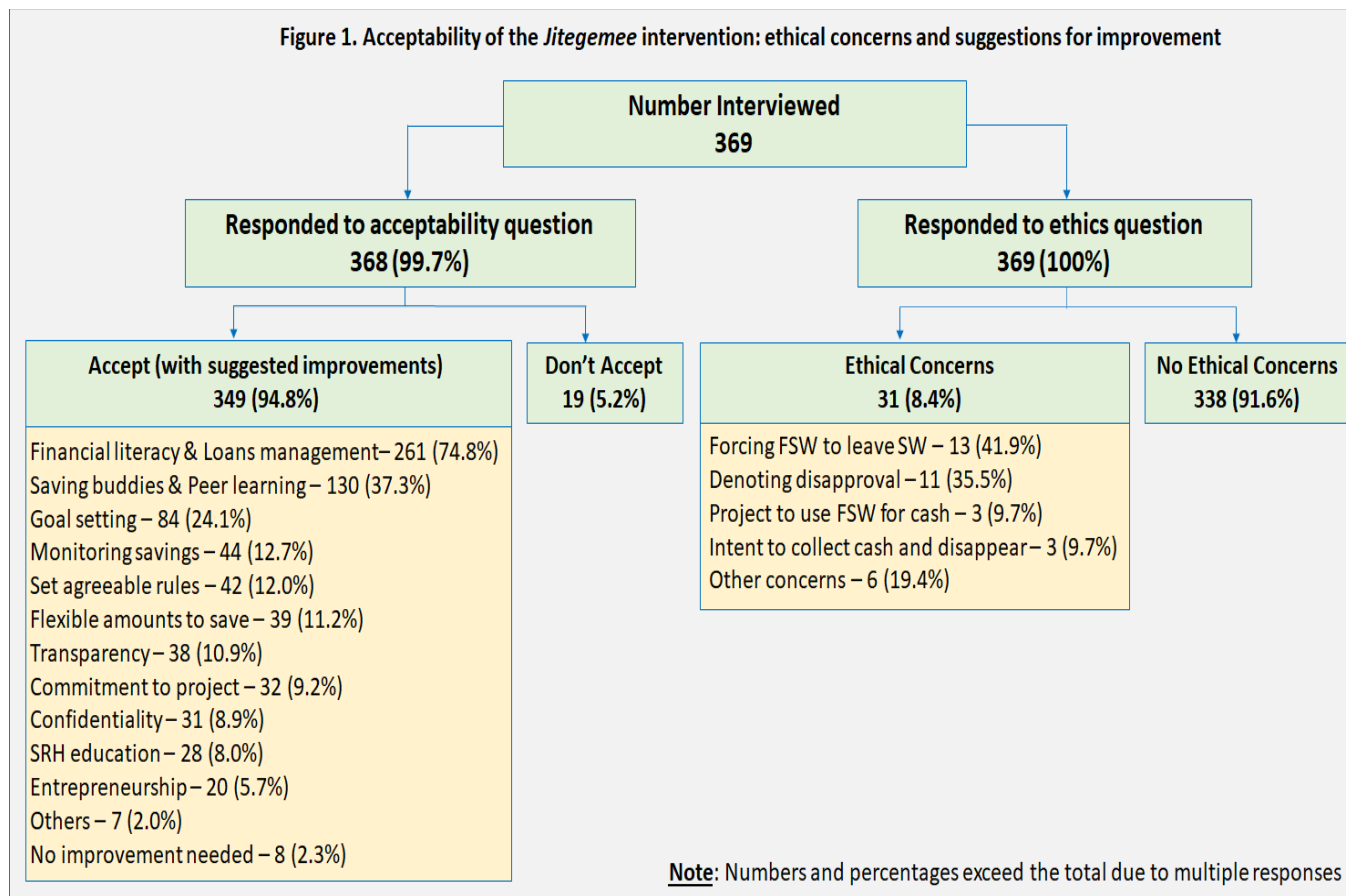
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Figure 1. Acceptability of the *Jitegemee* intervention: ethical concerns and suggestions for improvement

Jitegemee Formative Study
Appendix 3 A: Baseline Questionnaire_English_v1.0

Respondent Key Information

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Staff Name		
County		
Sub-County		
Participant ID	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
Start Time		In 24-hour format <div><div></div><div></div><div>:</div><div></div><div></div></div>

Interviewer: I would like to start by asking you a few questions about your background.

PART A: PERSONAL/HOUSEHOLD

1	How old were you on your last birthday?	<div><div></div></div> Years
2	Are you married or living as married?	1 Yes 2 No (If No skip to Qn. 4)
3	If YES: Is your partner gainfully employed (wage or self-employment that brings in steady income of any amount)	1 Yes 2 No
4	Do you have any children you are taking care of?	1 Yes 2 No (If No skip to Qn. 9)
5	IF YES: How many children do you have?	Number <div><div></div></div>
6	If YES: How many of these are your biological children?	Number: <div><div></div></div>
7	How many of these children are in these ages (Interviewer: Read out each age category and fill out; ensure number adds up to xx; write 00 for none)	<1 year <div><div></div></div> 1-3 years <div><div></div></div> 4-5 years <div><div></div></div> 6-10 years <div><div></div></div> 11-14 years <div><div></div></div> 15-17 years <div><div></div></div> ≥18 years <div><div></div></div>
8	How many of these children are enrolled in school/college/training? Read each and fill the number (ensure number add to xx above otherwise probe; insert 00 for no child in the listed categories)	PP1: <div><div></div></div> PP2: <div><div></div></div> Std. 1-3: <div><div></div></div> Std. 4-6: <div><div></div></div> Std. 7-8: <div><div></div></div> Secondary: <div><div></div></div> On-the-job training: <div><div></div></div> Vocational training: <div><div></div></div> College: <div><div></div></div> University: <div><div></div></div> Other, specify <div><div></div></div>

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

9	How many total people live in your household, including you and those away in school but stay with you during school holidays?	_____ Children _____ Adults
10	Are you the head of your household?	1 Yes 2 No
11	Have you ever attended school?	1 Yes 2 No (If No skip to Qn. 13)
12	If YES: What is the highest level of schooling that you <u>completed</u> ?	0 – Pre-primary 1 – Primary 1-4 2 – Primary 5-8 (incomplete) 3 – Completed primary 8 4 – Secondary form 1-2 5 – Secondary form 3-4 (incomplete) 6 – Completed secondary form 4 7 – College 8 – University 9 – Post-graduate

PART B: INCOME/WEALTH

In the next section, I will ask you some questions about work that you do and money that you earn. I will also ask about some items that your household may own.

13	What is your <u>main source</u> of income, the source that brings you the most money each month?	1. Transactional sex 2. Salon 3. Tailoring 4. Petty trade 5. Salaried employment 6. Others, specify _____
14	In the past month, how much have you earned from this source?	Amount: _____
15	What are your <u>other sources</u> of income? (Interviewer: Do not read out; circle all that apply)	1. Transactional sex 2. Salon 3. Tailoring 4. Petty trade 5. Salaried employment 6. Others, specify _____
16	In the past month, how much have you earned from <u>all sources combined</u> ?	Amount: _____

Now I will ask about some things your household may own. How many ____ do you have?

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

Assets	Number/Area	Estimated value/ purchase price
17. Land (in acres)		
18. Furniture/Furnishings (e.g. tables, chairs, sofa sets)		
19. Poultry		
20. Sewing machines		
21. Refrigerators		
22. Radio		
23. Televisions		
24. Smart Mobile phone		
25. Basic Mobile phone		
26. Computers		
27. Gas cooker		
28. Water tank		
29. Solar lighting		
30. Cars/vehicles		
31. Motorbikes		
32. Others (specify)		

PART C: EXPENDITURE

Now I will ask you about food that you and your household members, including you, bought in the past 7 days. Please try to include in your estimates how much your household members and you may have spent on these items as well.

	Did your household buy [...] in the past 7 days?	Amount spent by your household on [...]
33. Rice or other grains		
34. Wheat flour, porridge flour, or other milled grains		
35. Cooking oil		
36. Meat		
37. Fish		
38. Eggs		
39. Bean, green grams, groundnuts, or other legumes		
40. Fruits and vegetables		
41. Milk		
42. Tea and coffee		
43. Snacks/street food		
44 Other foods, specify: _____		

Now I will ask you about other items you may have purchased yourself in the past 30 days. Include only your own expenditures on these items.

	Did you spend money on [item] in the past 30 days?	If YES, how much was spent on [item] in the past 30 days?

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

Personal items:		
45. Alcoholic beverages for yourself		
46. Personal care items such as clothing, cosmetics, soap, toothpaste for yourself		
47. Mobile phone airtime		
48. Ceremonies such as weddings		
49. Ceremonies such as funerals		
Transport costs:		
50. Buses, taxis, boda bodas including transport to school		
Energy, water and municipal rates:		
51. Water		
52. Electricity		
53. Other energy sources such as wood, paraffin, charcoal, candles, gas, etc		
Household items:		
54. Kitchen equipment, like pots and pans, cutlery and crockery		
55. Washing powder, soap, or other household cleaners		
56. Home maintenance and repairs to the dwelling		
57. Bedding, sheets, blankets and towels		
58. Furniture and other household appliances		
59. Rent for your house		
Clothing and shoes:		
60. Shoes and clothes (excluding school uniforms)		
61. Material to make clothing		
Health care:		
62. Medical insurance such as NHIF		
63. Payment for clinic visit		
64. Medicines, bandages, or other supplies purchased at drug shop/pharmacy		
65. Traditional healer or religious healer fees		
Education:		
66. School fees and tuition		
67. School books including stationery		
68. Uniforms		
69. Other school expenses such as school outings, meals at school, boarding fees		

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

contributions to school buildings, extra costs for teachers and extramural activities		
Miscellaneous:		
70. Donations to religious groups (e.g., sadaka, tithe) or to charity, harambee, etc		
71. Gifts		

PART D: SAVINGS AND FINANCIAL INFORMATION

Now I would like to ask you some questions about money you have saved.

72.	Do you have any savings?	1 Yes 2 No (If No skip to Qn. 80)
73	If YES: Where are your savings (list all that apply). Interviewer – read one by one and circle the response	1 Bank: 1 Yes; 2 No 2 MShwari: 1 Yes; 2 No 3 MPesa: 1 Yes; 2 No 4 Pochi la Biashara: 1 Yes; 2 No 5 Airtel Money: 1 Yes; 2 No 6 Chama: 1 Yes; 2 No 7 SACCO 8 Secret place at home or elsewhere: 1 Yes; 2 No 9 Other, specify: _____ 1 Yes; 2 No
74	Amounts saved in these locations (mention only those listed in No. 73 above)	1 Bank: Amount _____ - 2 MShwari: Amount _____ 3 MPesa: Amount _____ 4 Pochi la Biashara: Amount _____ 5 Airtel Money: Amount _____ 6 Chama: Amount _____ 7 SACCO 8 Secret place at home/elsewhere: Amount _____ 9 Other, specify: _____ Amount _____
75	Are you a member of any savings group?	1 Yes 2 No (If No skip to Qn. 80)
76	Please tell me the type of group you belong to and number of such groups you are member of (read each and circle).	1. Chama/merry-go-round: 1. Yes; 2. No; # _____ 2. Burial society: 1. Yes; 2. No; # _____ 3. Women’s group: 1. Yes; 2. No; # _____ 4. SACCO: 1. Yes; 2. No; # _____ 5. Religious/church group: 1. Yes; 2. No; # _____ 6. Others (specify) _____; # _____
77	Each time you contribute to the groups you listed under No. 76 above, how much do you contribute on average in each category (e.g., if a member of multiple Chamas, total you contribute)? (Interviewer: mention only those listed in xxx above otherwise write N/A)	1. Chama/merry-go-round: Amount _____, N/A 2. Burial society: Amount _____, N/A 3. Women’s group: Amount _____, N/A 4. SACCO: Amount _____, N/A 5. Religious/church group: Amount _____, N/A 6. Other (specify) _____: Amount _____, N/A

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

78	How many times do you contribute in a month in each of the groups you listed under No. 76 above? (Mention only those listed in 76 above, otherwise write NA)	1. Chama/merry-go-round: Times: ____; N/A 2. Burial society: Times: ____; N/A 3. Women's group: Times: ____; N/A 4. SACCO: Times: ____; N/A 5. Religious/church group: Times: ____; N/A 6. Other (specify) _____: Times: ____; N/A												
79	Taken together, how much money do you have in savings from all sources? (<i>if not sure, best estimate</i>)	Amount: _____												
Now I want us to focus on any plans you may have for your future														
80	When did you start engaging in sex work?	Year: _____												
81	What made you <u>join</u> sex work? (List all, starting with the main reason)	Open _____ _____												
82	What are the reasons why you are <u>still</u> in sex work? (List all, starting with the main reason)	1 Orphaned 2 Widowed/Separated 3 Poverty 4 No alternative job 5 Liked it 6. Peer pressure 7 Family pressure/push 8 Mistreatment 9 Other(s), specify: _____												
83	Have you even thought of when you may want to leave sex work?	1 Yes 2 No (If No skip to Qn. 87)												
84	If YES , approximately after how many years from now?	____ Years												
85	Are there certain things you want to accomplish before you quit sex work?	1 Yes 2 No (If No skip to Qn. 87)												
86	If YES , list what they are and when you hope to accomplish them (use back page to ask)	<table border="1"> <thead> <tr> <th>Accomplishments</th> <th>When you hope to achieve</th> </tr> </thead> <tbody> <tr> <td>1 _____</td> <td>_____</td> </tr> <tr> <td>2 _____</td> <td>_____</td> </tr> <tr> <td>3 _____</td> <td>_____</td> </tr> <tr> <td>4 _____</td> <td>_____</td> </tr> <tr> <td>5 _____</td> <td>_____</td> </tr> </tbody> </table>	Accomplishments	When you hope to achieve	1 _____	_____	2 _____	_____	3 _____	_____	4 _____	_____	5 _____	_____
Accomplishments	When you hope to achieve													
1 _____	_____													
2 _____	_____													
3 _____	_____													
4 _____	_____													
5 _____	_____													
87	If NO: Now that I have asked you, is leaving sex work something you may want to start thinking about?	1 Yes 2 No (If No skip to Qn. 91) 3 Maybe												
88	If YES to above , approximately after how many years from now?	____ years												
89	Are there certain targets you want to accomplish before you quit sex work?	1 Yes 2 No (If No skip to Qn. 91)												

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

90	If YES, list what they are and when you hope to accomplish them (use back page to ask)	<div>Accomplishments</div> <div>When you hope to achieve</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div>
91	Please think back, are there sex workers you know who have left sex work in the last 5 years?	<div>1 Yes</div> <div>2 No (If No Skip to Qn. 94)</div>
92	If YES: how many	Number:
93	Please list all reasons why it was possible for them to leave sex work	<div>1 Responsibility reduced</div> <div>2 Children grown</div> <div>3 Changed location of residence</div> <div>4 Got a better job</div> <div>5 Got saved</div> <div>6 Got married/got into a stable relationship</div> <div>7 Felt too old for the job</div> <div>8 Others,</div> <div>specify</div>
94	Are there sex workers you currently know who have wanted to leave sex work but have not been able to?	<div>1 Yes</div> <div>2 No (If No skip to Qn. 96)</div>
95	If YES, why was/has it been difficult to quit? Give all reasons	<div>Reasons:</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div>
96	Do you know other sex workers who may have left sex work and returned?	<div>1 Yes</div> <div>2 No (If No skip to Qn. 98)</div>
97	What were the reasons for returning?	<div>1 Increased responsibility</div> <div>2 Loss of income</div> <div>3 Unwelcoming outside world/did not fit</div> <div>4 Not prepared for life outside sex work</div> <div>5 Pressure from peers to return</div> <div>6 Separation/escape from abusive relationship</div> <div>Others, specify:</div>
Credit		
98	In the last 6 months, did you borrow money from any person or institution?	<div>1 Yes</div> <div>2 No (If No skip to Qn. 101)</div>
99	How much did you borrow overall during the last 6 months?	Amount:

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

100	What was the loan used for?	1. Work-related purchases 2. Education 3. Consumption 4. Health 5. Buying assets 6. Fun activities 7. Emergency, outside health and education 8. Other (specify)
101	Do you have any outstanding debt from loans taken prior to the last 6 months?	1 Yes 2 No (If No skip to Qn. 103)
102	How much total outstanding debt do you have from loans taken prior to the last 6 months?	Amount: _____

PART F: HEALTH BEHAVIOR

The next section asks some questions about sexual behavior. Remember that all of your responses are confidential.

Sexual behavior		
103	During the past one month, how many different sexual partners have you had?	Number: _____
104	In the past one month, have you exchanged money, goods, favors and so on for sex?	1 Yes 2 No (If No skip to Qn. 108)
105	If YES: provide various examples of goods, services, assistance you have received other than money	1 Rent and utilities _____ 2 Fees for self or kids _____ 3 Basic needs _____ 4 Others, specify _____
106	In the past one month, with how many individuals did you exchange money, goods, gifts, services etc for sex?	Number: _____
107	In the past one month, how much money in total did you receive from sex work?	Amount: _____

Jitegemee Formative Study
Appendix 3 A: Baseline Questionnaire_English_v1.0

108	Where do you meet with male clients? Mention all venues (circle all that apply)	1 Entertainment joints 2 Brothel-based 3 Home-based 3 Street-based 4 Beaches 5. Other(s), specify _____
109	If more than one: Of the [venues] you mention above, which one do you meet most of your clients (circle only one)	1 Entertainment joint 2 Brothel-based 3 Home-based 4 Street-based 5. Other, specify _____

HIV questions		
110	Do you think your chances of getting HIV/AIDS in the coming year are high, moderate, low, or no risk at all?	1 High 2 Moderate 3 Low 4 No risk at all 98 DON'T KNOW 99 REFUSED TO ANSWER
111	If Low or No Risk in No. 110 above, why?	1 Use condom all the time 2 Trust all my partners 3 Have unprotected with partners whose status I don't know 4 Test before sex 5 Use PrEP or other effective prevention 6 Never engage in sex when drunk 7 Others, specify _____
112	Have you ever taken an HIV test?	1 Yes 2 No (If No skip to next section)
113	How many times have you been tested for HIV in the past 12 months?	Number of tests: _____ 98 DON'T KNOW
114	When was the most recent time you took a test for HIV?	1 Less than 3 months ago 2 Less than 6 months ago 3 About 6-12 months ago 4 12-24 months ago 5 More than 2 years ago 98 Don't know 99 Refused to answer

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

PART G: ACCEPTABILITY AND FEASIBILITY OF THE JITEGEMEE

Interviewer to read out loud: In the next section I want to get your views on an intervention we are thinking about that may help you or your peers to stay safe from HIV or to plan for life after sex work for those who may be thinking about leaving sex work in the near future. The intervention will primarily prepare sex workers to reduce their risk of getting infected with HIV through saving. The intervention is known as Jitegemee, which means rely or depend on yourself. The reason we are calling it Jitegemee is that sex workers who take part in it will use part of their own income to save towards some level of economic independence. They will save through MPesa directly into an account opened by the study. The saved amount by each sex worker will be available to her to call back in part or in full any time she needs it so that she does not have to engage in unsafe sex because she needs money urgently. With the savings, sex workers can say 'No' to unprotected sex or to certain clients if they want to, or to take a short break from sex work if they need to rest. This is because they have savings and cannot go hungry, for example, because they said 'No' to unsafe sex or took a break. Some sex workers may also want the savings to go towards long-term goals such as investing, educating children or even quitting sex work in the future. The intervention staff will help those enrolled in Jitegemee to set saving goals and timelines, work with them to plan their savings while being able to support their other needs, and help them to monitor achievement of the goals and address challenges that come along the way. The questions that follow will ask you what you think about such an intervention, whether it would work, what the intervention package should comprise of (i.e., components), how we can implement it so it works well, and the challenges we may face and how to address them.

115	What is your immediate reaction to the Jitegemee intervention as I have summarized above?	<hr/> <hr/> <hr/>
116	Is it something that FSW in Kenya can accept?	1 Yes 2 No (If No skip to Qn. 118) 3 Maybe 4 Don't know
117	If YES or Maybe: What should such an intervention comprise of to be acceptable to FSW?	1 Savings literacy 2 Goal setting 3 Transparency, integrity and team spirit 4 Commitment to the project objectives 5 Confidentiality 6 Flexible saving strategies 7 Set agreeable rules, including defaulting 8 Savings to be monitored

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

		9 Meetings to share successes/learn from each other 10 Others, specify _____
118	What specific features would they not like and why?	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
119	Of the things you mention they would not like, is there something we need to do differently for (Interviewer: list one by one)	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
120	What other challenges do you think we would face with such an intervention and how do you suggest we address them? (For each challenge mentioned, ask for how to address it)	Challenge: _____ Solution: _____ Challenge: _____ Solution: _____ Challenge: _____ Solution: _____ Challenge: _____ Solution: _____ Challenge: _____ Solution: _____
121	If implemented as I described, what proportion (in %) of FSW you know would accept Jitegemee intervention?	_____ %
122	If implemented after addressing the challenges you have listed above, what proportion (in %) of FSW you know would accept Jitegemee intervention?	_____ %
123	If implemented as I described, would YOU accept Jitegemee intervention?	1 Yes ((If Yes skip to Qn. 125)) 2 No

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

124	If No to Qn. 123 above: If implemented after addressing the weaknesses YOU have listed above, would you accept Jitegemee intervention?	1 Yes (If Yes skip to Qn. 125) 2 No 3 Maybe 4 Don't know
125	If you were to join the study, how much would YOU be able to save per week considering your current income and financial commitments?	Amount: _____
126	What else do you think other sex workers would do to increase their savings?	1 More sex work/more customers 2 Charge more 3. More unprotected sex because it pays more 4. Engage in anal sex because it pays more 5. Work longer hours 6 Start another source of income 7 Reduce spending (on _____) 8 Other, specify: _____
127	What else would YOU do to increase your savings?	1 More sex work/more customers 2 Charge more 3. More unprotected sex because it pays more 4. Engage in anal sex because it pays more 5. Work longer hours 6 Start another source income 7 Reduce spending (on _____) 8 Other, specify: _____
128	What types of economic activities would FSW prefer to engage in during or post-sex work in order to become financially stable? List all	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
129	Would there be ethical concerns with Jitegemee intervention?	1 Yes 2 No (If No skip to Qn. 131) 3 Maybe 4 Don't know
130	What would be the ethical concerns? List all	1 Forcing SWs to leave sex work 2 Denoting disapproval of sex work 3 Feeling of project using FSW to get money

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

		4 Intention is to collect money and disappear 5 Others, specify: _____					
131	What would SWs particularly like about Jitegemee intervention	1 Help SWs to remain safe from HIV 2 Help SWs to plan for future outside SW 3 Improve SWs' decision-making ability 4 Others, specify: _____					
132	What would be the most trusted place or person to save with?	1 Bank 2 MPesa 3 MShwari 4 Pochi la Biashara 5 Airtel money 6 SACCO 7 Chama 8 By self 7 Other person – Who: _____ 8 Others, specify: _____					
	End time	End Time: in <table><tr><td></td><td></td><td>:</td><td></td><td></td></tr></table> 24-hour format			:		
		:					

Those were the last questions. Thank you very much for taking the time to participate in our survey today. (Surveyor thank respondent and give interview compensation.)

PART H: INTERVIEW OBSERVATION

5	SURVEYOR COMMENTS/GENERAL OBSERVATIONS:
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BMJ Open

Jitegemee (rely on yourself): A cross-sectional study on acceptability, feasibility and design considerations for a personal savings intervention to reduce HIV risk among female sex workers in Siaya County, Kenya

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Jitegemee (rely on yourself): A cross-sectional study on acceptability, feasibility and design considerations for a personal savings intervention to reduce HIV risk among female sex workers in Siaya County, Kenya.

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ABSTRACT

Objectives: The primary objective was to assess the acceptability of a savings intervention in which female sex workers (FSW) would save part of their earnings and call back (withdraw) when faced with a financial need that could force them into HIV risk practices. The secondary objectives were to assess its feasibility, concerns and design considerations.

Design: A cross-sectional survey. Participants were asked for views on the intervention, their earnings, saving and spending practices, and suggestions for the intervention package.

Setting: Kisumu and Siaya Counties, Kenya.

Participants: FSW aged ≥18 years, self-identifying as sex workers, and living in Kisumu or Siaya County.

Outcome measures: The primary outcome was the proportion of participants who believed the *Jitegemee* intervention would be acceptable to FSW in Kenya. The secondary outcomes were the proportion who: could generate money to save (assessed from income, spending and loaning practices), reported potential challenges with the intervention, and suggested components to inform the intervention package.

Results: We enrolled 369 FSW, 88% aged 18-39 years, 78% unmarried, 94% cared for ≥1 child(ren), and 78% were household heads. Over half (52.1%) had been in sex trade for ≤4 years, with 62.3% reporting <10 clients the previous month. *Jitegemee* was highly acceptable, at 94.8%; however, participants suggested adding: financial literacy, including saving, spending and loans management (74.8%), forming saving groups (37.5%) and goal-setting (24.1%). Those who did not care for children were 4.86 times more likely to save (adjusted Odds Ratio (aOR)=4.86, p=0.18), non- household heads were less likely to save (aOR=0.57, p=0.28), and those in the sex

trade for 1-4years and 5-9years were 4-5 times more likely to save than those <1 year (aOR=4.49, p=0.01 and aOR=5.22, p=0.01, respectively).

Conclusions: *Jitegemee* intervention was highly acceptable; however, several recommendations were suggested to make the design more appealing and potentially effective.

Strengths and Limitations of this study

- Female sex workers (FSW), as end users of the *Jitegemee* intervention, participated in designing the study, including development of the questionnaire, which ensured the study was appropriate and responsive to their needs.
- Enrolling FSW from different sex worker typologies (street-based, brothel-based, home-based, entertainment venue-based, and beach-based) expands the generalizability of the results to FSW in other settings in Kenya.
- Relying on acceptability of a proposed intervention to predict actual uptake when the intervention becomes available may overstate the true acceptability.
- Given that participants were not asked for reasons for their choice of what to include in the intervention, we may not know why they made the choices they did.
- Factors such as earnings, savings, loans and expenditure which are important to the intervention were collected through self-report, thus prone to social desirability and recall biases.

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INTRODUCTION

Despite sex work being illegal in most sub-Saharan African (SSA) countries, including Kenya, some women resort to the practice as an alternative source of income when they cannot find other opportunities [1-5]. Sex work gives them financial independence and the ability to improve their economic status [6, 7]. Besides this, social factors such as dysfunctional families, lack of education, peer pressure, seeking sexual pleasure, and homelessness compel young women to join sex work [2, 3]. These economic and social factors do not only drive women to sex work, but make them financially dependent on their male clients and less able to negotiate condom use [8]. This underscores their vulnerability to sexually transmitted infections including HIV, unintended pregnancies and complications from unsafe abortions, stigma and discrimination, violence, and drug and alcohol addiction [9, 10].

In Kenya, the first phase of a size estimation activity in 2018 estimated the population of FSW at 167,940 [11]. The report also estimated the HIV prevalence among FSW at 29.3%, compared to 6.6% among women in the general population [12]. FSW's risk of HIV infection is greatly influenced by social, legal and structural factors [13, 14]. Multiple sexual partnership, gender-based violence and rape, no/low capacity to insist on condom use, sex while intoxicated and justice systems that criminalize sex work contribute to the elevated risk of HIV among FSW [13, 15-17]. These risk factors have been associated with economic disempowerment of FSW, limiting their ability to say no to unsafe sex or to higher pay that comes with it [18-20], or to exit sex work even when they want to [21].

Multiple interventions have been implemented to lower the risk of HIV among FSW while they are still engaged in sex work, but most of them have narrowly focused on sexual risk behaviours

despite the recognized importance of economic factors as drivers of HIV risk among this sub-population [4]. A systematic review of interventions to reduce the risk of HIV among FSW globally showed that none of the 26 studies selected addressed economic security as an intervention to reduce HIV risk [22]. Another systematic review on sex work interventions in SSA also found no economic empowerment component among the interventions assessed in the 25 selected studies [23]. The few interventions that focus on economic empowerment are often geared towards 'rehabilitation' of sex workers [2, 3 24], and are premised on the assumption that economic hardship drives women into sex work, therefore providing alternative source of income would draw them away from the sex trade [25] rather than keep them safe within sex work.

Promoting FSW economic empowerment may provide structural protection from HIV [8, 26]. A study in Uganda found that when FSW have access to more capital and invest to start earning additional income outside of sex work, they are likely to be empowered and improve their economic status, thereby reducing their STI/HIV risk [27]. Another study in Tanzania on savings among FSW showed that savings provided a financial safety net for FSW because it accorded financial security, improved their ability to negotiate safe sex and enabled them to be selective about clients [28]. In Kenya, a study on precautionary savings intervention among vulnerable women including FSW found that reductions in reported transactional sex and symptoms of sexually transmitted infections were associated with improved savings [29]. For women who may wish to quit sex work, financial insecurity is often a major deterrent [9, 30, 31]. A study among FSW in Thailand showed that just one in 42 sex workers interviewed had never quit sex work, 60% had gone through one or more quit-re-entry-quit cycles, while 38% quit and never returned [21]. Therefore, interventions aimed at empowering FSW to reduce their HIV risk

after leaving sex work need to address their economic insecurity [9, 21, 28, 32]. Strategies for increasing economic security of FSW can include microfinance, vocational training and income generating activities, cooperative banking, and savings and money management [28, 33].

Savings-led have been shown to promote FSW's financial security and reduce their likelihood of having unprotected sex [3, 26-28]. Between February and April 2022, we conducted a mixed methods study comprising of quantitative and qualitative data collection with FSW in Kisumu and Siaya counties, in western Kenya. Our key objectives were to assess the acceptability, feasibility, concerns and design considerations of a savings intervention known as *Jitegemee* (rely on yourself) in which FSW would be encouraged to save part of their earnings through a mobile banking platform known in Kenya as M-Pesa to fall back on when faced with an emergency financial need that may compel them to engage in unsafe sex during sex work. To support the FSW in saving, they would be given instructions on saving and how to call back their savings. Additionally, the intervention would support the FSW to save and reach a certain level of economic security that would allow them to say no to unsafe sex without fear of losing income for basic needs. Those who would wish to exit sex work would be guided to identify their preferred path to economic independence during or after sex work and supported to set realistic goals and timelines, and to work towards achieving them.

Even though there are alternative platforms for saving including saving through banks and insurance, and Rotating and Savings Credit Association (ROSCA) or self-help groups, saving through M-pesa would be acceptable perhaps due to its comparative advantage [34]. It presents a savings platform that has less restriction or minimal fees for withdrawals compared to:

insurance which tend to be risky and uncertain [35] and requires a substantial fixed monthly premium; ROSCA or self-help groups which enables members to get soft loans with easy and flexible repayment terms that could be convenient and sensitive to FSW's needs but involves opportunity cost of time spent attending meetings and the risk of default by members which has led to many such associations breaking [36]; or saving money in the bank which is safe and has loaning products but less attractive due to the perceived bureaucratic processes and higher interests on loans and service fees [34].

METHODS

Study Design

We conducted a cross-sectional study on acceptability, feasibility and design considerations of the Jitegemee (rely on yourself) intervention to support FSW to improve their financial security and consequently reduce their risk to HIV during or post-sex work. While under development, the protocol and questionnaire were reviewed by five FSW peer educators who gave comments that were incorporated into the final versions. We have used the STROBE cross sectional reporting guidelines [37] to prepare this paper.

Eligibility and Sample Size Considerations

To be eligible, women had to be ≥ 18 years; report exchanging sex for money, services, goods or favours in the previous 30 days; resident of or receiving HIV prevention or treatment services in Kisumu or Siaya county; and willing and competent to provide written informed consent for study participation. Since there was no known study on estimated acceptance rate for economic

empowerment program among FSWs at the start of the study, we assumed the statistical optimal option of 50% acceptance rate to arrive as a sample size of 370 participants for the survey.

To obtain views from different typologies of FSW (brothel-based, street-based, home-based, venue-based, and beach-based) in the two counties and minimize bias while improving on generalizability of the results, we allocated approximate slots as follows: 55 home-based (30 in Kisumu and 25 in Siaya), 50 brothel-based (30 in Kisumu and 20 in Siaya), 115 entertainment venue-based (75 in Kisumu and 40 in Siaya), 90 street-based (50 in Kisumu and 40 in Siaya), and 65 beach-based (25 in Kisumu and 40 in Siaya). The allocations were roughly based on the proportion of sex workers in each typology in each county, estimated from our program data of more than 10 years' experience working with FSW in the two counties.

Data Collection

We trained peer educators, who were themselves FSW, to recruit participants. During recruitment, potential participants chose if they preferred to be interviewed at the research site, at their venue (e.g., brothel) or some other safe place. Trilingual (English, Kiswahili and Dholuo) Research Assistants trained on the protocol, data collection tools and ethics explained the study, administered a consent in the preferred language, screened for eligibility and conducted the interview with consented and eligible FSW. The questions explored whether the intervention would be acceptable to FSW, where FSW typically met sex partners, their risk-taking behaviours, their earnings, savings, loaning and spending behaviours, their investment goals and assets owned, sources of income, health-seeking behaviours, including HIV testing history, views on and possible concerns over the *Jitegemee* intervention, preferred intervention components, and alternative economic activities. Participants were also asked for activities FSW would engage in

to generate income towards saving. Data were collected between February and April, 2022. The primary outcome was on acceptability (the proportion accepting the intervention) while secondary outcomes were on feasibility (the proportion who demonstrated ability to generate money to save, assessed from their income, spending and loaning practices), concerns (the proportion who reported potential challenges with the intervention), and design considerations (the proportion who mentioned different components to include when designing the intervention package to make it more attractive to FSW).

The *Jitegemee* intervention was described to participants (Table 1) before they were asked questions on their views about it. It was explained to them that this intervention will be anchored on the belief that FSW are capable of saving part of their earnings to reach a certain level of economic security that allows them to say no to unsafe sex. For those who would wish to quit sex work, the savings would accord them stable alternative livelihood post-sex work so that they do not return to the sex trade. The intervention would involve asking FSW their preferred path to economic independence during or after sex work, how they can save towards their goals and how long it would take to reach those goals, then support them to set realistic goals and timelines, and to work towards achieving them. A key feature of the *Jitegemee* intervention that ensures sustainability is that participants would be supported to use their own earnings to finance their saving goals.

The question on acceptability (Is it – Jitegemee Intervention – something that FSW in Kenya can accept?) had Yes/No/Maybe/Don't Know response options, with follow on question (What should such an intervention comprise of to be acceptable to FSW?) asked to those who responded Yes or May to the acceptability question. For questions on potential challenges and components of the

intervention package, a list of response options was prepared with information obtained from literature review and peer educators of FSW. However, the research assistants did not read out the options for participants to select from; rather, participants were asked, unprompted, what they would like to see included in the Jitegemee intervention and any ethical concerns they and other sex workers might have about the intervention. The research assistants matched the responses given to the options provided in the list; responses that did not match the listed options were recorded under 'Other, Specify' and later post-coded by the study team (see supplemental material 1 for questionnaire used).

Data Analysis

Data were collected manually through paper-based forms, entered by trained data staff in a password-protected, excel-based database, and 30% randomly selected and reviewed for accuracy and completeness of entry by a senior data officer for purposes of external quality assurance. The officer also ran statistical scripts to check out-of-range values and performed data inconsistency checks.

Data were analysed descriptively to describe the study population in terms of their earning, spending, saving and loaning practices. We also used descriptive statistics to evaluate the acceptability of the *Jitegemee* intervention, Chi square statistics to determine the association between sociodemographic characteristics of participants and both their saving and spending levels, and logistic regression to determine how various participant characteristics influenced saving ability.

Ethical Consideration

The study was conducted between February and April 2022 after obtaining approval from Maseno University Ethics Review Committee (MUERC 1033/21). All participants provided written informed consent prior to taking part in study activities.

Patient and Public Involvement Statement

We involved peer educators of female sex workers (FSW) to review the questionnaire and the proposed intervention design components to be presented to participants. A peer educator (PE) for FSW is herself a sex worker who is recognized as a leader and a role model by her peers who elect her to lead them. Once elected, a PE is trained on sexually transmitted infections and HIV to equip her with knowledge and skills to support her peers on behaviour change; PE also delivers condoms and lubricants to their peers at their places of work or residence [38].

RESULTS

We screened 373 FSW and enrolled 369 in the study. Our results indicate that a majority of FSW (40.8%, n=151) reported the need for a steady source of income as the main reason for joining sex work. Nearly one-quarter (23.8%, n=88) and about one-fifth (19.7%, n=78) cited increased family responsibility (assuming breadwinner's role due to being single or lacking financial support from spouse) and being widowed or separated from spouse (19.7%, n=78), as circumstances that drove them to sex work. Peer pressure (6.8%, n=25) and poverty (4.9%, n=18) were the least mentioned factors.

A majority of FSW enrolled (88%) were aged 18-39 years, 78% were unmarried, 94% cared for ≥1 child(ren), 47% and 32.9% lived with 2-3 and 4-5 persons, respectively, and 78% were the head of their households (Table 2). Highest level of schooling was relatively low, with slightly over half (54.8%) reporting primary level. Over half (52.1%) had been in the sex trade for ≤4 years, one-third for 5-9 years and 15% for over 10 years. A majority (86.2%) reported sex work as the main source of income with about two-thirds (62.3%) reporting <10 different male clients the previous month, 20.9% reported 10-30 different clients and 16.8% reported >30 different clients.

Reported earning was varied, with a little over one-fifth reporting under Kenya Shillings (KES) 5,000 in the previous month (1US\$≈KES118), 27.4% earned KES 5,000-10,000, 26.1% earned KES 10,001-20,000, and 24.5% earned KES >20,000. Monthly expenditure was categorized into four levels: lower level (below KES 10,000 per month), lower middle level (KES 10,000-29,999), upper middle level (KES 30,000-99,999) and high level (≥KES 100,000).

Table 2. Socio economic and demographic characteristics of participants

Characteristics		n	%
Age at enrolment	18-24	63	17.1
	25-29	107	29.0
	30-34	82	22.2
	35-39	73	19.8
	≥40	44	11.9
Married/living as married	Yes	81	22.0
	No	288	78.0
Taking care of a child(ren)	Yes	347	94.0
	No	22	6.0
Total people living in household	Alone	47	13.5
	2-3 persons	163	47.0
	4-5 persons	114	32.9
	6-10 persons	23	6.6
Head of your household	Yes	287	78.2
	No	80	21.8
Highest level of schooling	Primary	199	54.8
	Secondary	144	39.7
	Tertiary	20	5.5
Duration in sex work	<1 year	51	15.3
	1-4 years	123	36.8
	5-9 years	110	32.9
	≥10 years	50	15.0
Number of different sexual partners last month	<10 Clients	230	62.3
	10-30 Clients	77	20.9
	>30 Clients	62	16.8
Main source of income	Transactional Sex	318	86.2
	Others	51	13.8
Total income last one month	≤5000	81	22.0
	5001 - 10000	101	27.4
	10001 - 20000	96	26.1
	20001 - 30000	54	14.7
	>30000	36	9.8
Total spending in a month	Low Level	57	15.4
	Lower Middle Level	192	52.0
	Upper Middle Level	115	31.2
	High Level	5	1.4
Total saving at time of interview	No Savings	186	excluded
	≤ 5000	64	35.0

5001-10000	31	16.9
10001-50000	74	40.4
>50000	14	7.7

Most of the participants (83.2%) were in lower- and upper-middle expenditure brackets while 48.1% had over KES.10,000 in savings and one-third had saved below KES.5,000. Participants reported saving their money mostly in banks (62.5%) and mobile money system (27.7%); table banking (Chama – a group-based saving strategy) and Saving and Credit Cooperative Societies were minimally preferred, at 5.7% and 1.1%, respectively.

Fig. 1 shows very high acceptability of the *Jitegemee* intervention by FSW, at 94.8%; however, participants made several recommendations for improvements to make *Jitegemee* more acceptable and feasible, with the top three being: adding a component of financial literacy, including loans management (74.8%); forming saving buddies and cross-learning from each other about challenges, best practices and success stories (37.5%); and goal-setting (24.1%). A few participants (8.4%, n=31) expressed ethical concerns over the intervention, viewing it as a veiled attempt to force sex workers out of their trade (n=13), that the intervention is an indirect disapproval of sex work (n=11), and that there is a hidden intention to use sex workers as cash cow or to take their saved money and disappear (n=6).

Participants cited various activities to generate additional cash to save if they participate in *Jitegemee*, which included (multiple responses allowed): starting other income activities besides sex work (60.7%); soliciting for more customers (37.1%); reducing current spending (28.2%); working longer hours (20.6%); charging their clients more (15.5%); practicing higher-paying sex, specifically unprotected sex (4.3%) and anal sex (0.3%). We post-classified these activities into 3

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2 levels of risk (high, medium and low; multiple responses were allowed): unprotected sex and anal
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4 sex were classified as high risk (17 responses); seeking more clients, working long hours and
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6 charging more were classified as medium risk, because we did not ask whether the sex would be
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8 protected or not (270 responses); and seeking alternative income sources and reducing spending
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10 were classified as low risk (328 responses).
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17 Other findings show that FSW in Siaya which is mostly rural, earned significantly less ($\chi^2=30.88$,
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19 $p<0.001$) compared to those in Kisumu, a more urban therefore better economically endowed
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21 setting. Specifically, 65.2% FSW in Siaya and 37.2% in Kisumu earned <KES 10,000, and 34.8% in
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23 Siaya and 62.8% in Kisumu earned >KES 10,000. Similarly, participants in Kisumu saved
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25 significantly more than those in Siaya ($\chi^2=14.66$, $p=0.002$), with 38.8% in Siaya and 56.1% in
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27 Kisumu saving above KES 10,000. When we explored whether participants spent more than they
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29 earned, we found no significant difference between the two counties ($\chi^2=2.80$, $p=0.10$), with only
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31 15.7% in Kisumu and 9.7% in Siaya spending more than they earned.
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Table 3. Association of participants' socio-demographic characteristics with savings ability and spending

		Saving < 5000 n (%)	Saving >5000 n (%)	(χ^2) p-value	Spending ≤Earning n (%)	Spend > Earning n (%)	(χ^2) p-value
Age at enrolment	18-24	8 (12.5)	15 (12.6)	(2.07)	12 (25.5)	18 (15.4)	(5.09)
	25-29	19 (29.7)	39 (32.8)	0.723	16 (34.0)	90 (28.8)	0.278
	30-34	14 (21.9)	23 (19.3)		9 (19.1)	71 (22.8)	
	35-39	17 (26.6)	24 (20.2)		7 (14.9)	64 (20.5)	
	≥40	6 (9.4)	18 (15.1)		3 (6.4)	39 (12.5)	
Married/living as married	Yes	20 (31.3)	24 (20.2)	(2.80)	6 (12.8)	72 (23.1)	(2.55)
	No	44 (68.8)	95 (79.8)	0.094	41 (87.2)	240 (76.9)	0.110
Taking care of child(ren)	Yes	62 (96.9)	110 (92.4)	(1.45)	41 (87.2)	96 (94.9)	(4.14)
	No	2 (3.1)	9 (7.6)	0.228	6 (12.8)	16 (5.1)	0.042
Head of household	Yes	45 (70.3)	100 (85.5)	(5.97)	40 (87.0)	39 (76.8)	(2.40)
	No	19 (29.7)	17 (14.5)	0.015	6 (13.0)	72 (23.2)	0.122
Duration in sex work	<1 yr	14 (25.0)	13 (11.7)	(5.34)	12 (27.9)	38 (13.4)	(7.44)
	1-4 yrs	16 (28.6)	40 (36.0)	0.148	14 (32.6)	108 (38.2)	0.059
	5-9 yrs	17 (30.4)	42 (37.8)		14 (32.6)	92 (32.5)	
	≥10 yrs	9 (16.1)	16 (14.4)		3 (7.0)	45 (15.9)	
Number of different sexual partners last month	<10 Clients	51 (79.7)	67 (56.3)	(10.03)	22 (46.8)	104 (65.4)	(16.70)
	10-30 Clients	7 (10.9)	25 (21.0)	0.007	8 (17.0)	68 (21.8)	0.000
	>30 Clients	6 (9.4)	27 (22.7)		17 (36.2)	40 (12.8)	
Main income source	Transactional						
	Sex	52 (81.3)	99 (83.2)	(0.11)	45 (95.7)	155 (84.9)	(4.05)
	Others	12 (18.8)	20 (16.8)	0.741	2 (4.3)	47 (15.1)	0.044
Total income last one month	≥5000	12 (19.0)	10 (8.4)	(13.93)	1 (2.1)	78 (25.1)	(68.83)
	5001 - 10000	22 (34.9)	25 (21.0)	0.001	4 (8.5)	94 (30.2)	0.000
	10001 - 20000	21 (33.3)	33 (27.7)		10 (21.3)	83 (26.7)	
	20001 - 30000	6 (9.5)	30 (25.2)		14 (29.8)	38 (12.2)	
	>30000	2 (3.2)	21 (17.6)		18 (38.3)	18 (5.8)	

To determine if there would be need to segment the audience when implementing the intervention and/or to tweak the content to address the factors that would inhibit saving, we determined if participant characteristics influenced saving ability. There was a significant association between selected participants background and their saving and spending behaviours (Table 3). For example, saving and being head of household ($\chi^2=5.97$, $p=0.015$), number of different sexual partners in the last one month ($\chi^2=10.03$, $p=0.007$) and the total income earned in the last one month ($\chi^2=13.93$, $p=0.001$) were all significantly associated. Additionally, there was a significant association between spending more than earning and having children under one's care ($\chi^2=4.14$, $p=0.042$), number of different sexual partners ($\chi^2=16.70$, $p<0.001$) and the total income earned in the last one month ($\chi^2=68.83$, $p<0.001$). Age at enrolment ($p=0.723$), marital status ($p=0.094$), having children under their care ($p=0.228$), duration of sex work ($p=0.148$), and main income source ($p=0.741$) were not significantly associated with saving. Similarly, age at enrolment ($p=0.278$), marital status ($p=0.110$), being head of household ($p=0.122$) and duration of sex work ($p=0.059$) were not significantly associated with spending more than earning.

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Table 4. Logistic regression of socio-demographic characteristic with participants’ saving ability

Characteristics		Unadjusted OR	P-Value	Adjusted OR*	P-Value	CI
Age at enrolment	18-24	Ref				
	25-29	1.09	0.86			
	30-34	0.88	0.81			
	35-39	0.75	0.60			
	≥40	1.60	0.47			
Married/living as married	Yes	Ref				
	No	1.80	0.10			
	Yes	Ref		Ref		
Taking care of child(ren)	No	2.54	0.24	4.86	0.18	0.47 - 50.02
Total people living in household	Alone	Ref				
	2-3 persons	0.74	0.55			
	4-5 persons	0.84	0.75			
	6-10 persons	1.24	0.79			
Head of household	Yes	Ref		Ref		
	No	0.40	0.02	0.57	0.28	0.20 - 1.60
Highest level of schooling	Never completed	Ref				
	Secondary and above	1.27	0.55			
Duration in sex work	<1 yr	Ref		Ref		
	1-4 yrs	2.69	0.04	4.49	0.01	1.25 - 14.09
	5-9 yrs	2.66	0.04	5.22	0.01	1.35 - 15.70
	≥10 yrs	1.91	0.25	2.80	0.15	0.59 - 10.63
Number of different sexual partners in the last month	<10 Clients	Ref		Ref		
	10-30 Clients	2.72	0.03	1.58	0.48	0.44 - 5.77
	>30 Clients	3.43	0.01	1.74	0.51	0.34 - 8.97
Main source of Income	Transactional Sex	Ref		Ref		
	Others	0.88	0.74	1.40	0.54	0.47 - 4.18
Total income in the last one month	<5000	Ref		Ref		
	5001 - 10000	1.36	0.55	1.91	0.32	0.56 - 6.47
	10001 - 20000	1.89	0.22	1.09	0.92	0.32 - 3.68
	20001 - 30000	6.00	0.00	8.41	0.00	1.81 - 39.17
	>30000	12.60	0.00	28.37	0.00	3.04 - 264.69
Spend More	Yes	Ref		Ref		

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	No	0.89	0.80	5.58	0.02	1.34 - 23.08
	Entertainment					
Where meet sex clients	Joint	Ref				
	Brothel	2.82	0.20	2.95	0.28	0.42 - 20.96
	Home	0.61	0.25	1.00	0.99	0.33 - 3.08
	Street	2.47	0.13	1.20	0.83	0.24 - 5.92
	Beach	0.41	0.05	0.85	0.79	0.27 - 2.70
	Others	0.35	0.20	0.49	0.45	0.74 - 3.18

Note: * Missing values for Adjusted OR – we started with a full model and adjusted by removing other factors based on their performance so what is missing has been removed from the final model

Using logistic regression, we estimated the effect of various socio-economic status of participants on their ability to save more than KES 5,000. Based on unadjusted Odds Ratio (uOR), various age groups had different saving behaviours, with age groups 25-29 (uOR=1.09, p=0.86) and above 40+years (uOR=1.60, p=0.47) having better saving trend than the reference age 18-24 years. Similarly, being unmarried, having no child under their care, living in house with >6 persons, having above secondary education, being in the sex trade for more than a year, reporting more than 10 clients in a month, and reporting income higher than KES 5,000 were predictors of better savers with odds greater than the reference category (Table 4). In the adjusted model, those who did not care for children were almost 4.9 times more likely to save than those caring for children (adjusted Odds Ratio (aOR)=4.86, p=0.18), those who were not head of household were 0.57 times less likely to save than household heads (aOR=0.57, p=0.28), those in the sex trade for 1-4 years and 5-9 years were 4.5-5 times likely to save than those <1 year (aOR=4.49, p=0.01 and aOR=5.22, p=0.01, respectively). Finally, those with over 30 clients in the last month were 1.7 times more likely to save than those with less than ten clients (aOR=1.74, p=0.51), and those earning over KES 30,000 were 28.37 times more likely to save than those with less than KES 5,000 (aOR=28.37, p<0.01).

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Examining the typologies of sex work in the two counties, brothel- and street-based FSW had the highest proportion of savers above KES 5,000 while 46.7% of beach-based and 42.9% in other (undefined) locations saved above KES 5,000. Those operating in brothels were 2.95 times more likely to save than those operating at entertainment venues (aOR=2.95, p=0.28). Home-based FSW were equally likely to save as those based at entertainment venues (aOR=1.00, p=0.99) while street-based were 1.2 times more likely to save than those based at entertainment venues (aOR=1.20, p=0.83); all associations with p-value of ≥ 0.05 were insignificant.

Most of the FSW (89.8%) said they would consider quitting sex work after they have educated their children and other dependents, acquired some assets, especially land and house, or have started a viable business for sustenance. Majority (74%) said quitting sex work in the foreseeable future would be difficult due to increased financial burden against lack of stable alternative source of income while others (11%) reported being comfortable with sex work since it is an easy and fast way of making money that did not require financial capital, or that they were addicted to sex work so quitting was not an option (9%). A total of 275 FSW (75%) have thought of leaving sex work at some point but felt they were not ready, and 56% know someone who had quit sex work and returned.

We also asked for spending lines and classified them into two categories – essential or core needs and non-essential or non-core needs – to identify areas from where savings can be obtained by adjusting the amounts spent. Essential or core expenditures included: a) food, rent and utilities, medical, transport, house maintenance, cleaning supplies and communication (44.6% of total expenditure), and b) school expenses were tuition, uniforms, stationery and other general expenses (21.2%). Non-essential or non-core expenditures were: a) personal and home beautification (furniture, beddings, kitchen equipment, shoes,

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1 clothing, beauty products) and job-related alcohol, accounting for 26.5%, and b) social
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4 support (weddings, funerals, donations, gifts), accounting for 7.7% of earnings.
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DISCUSSION

Our study assessed the acceptability, feasibility and design considerations of a savings intervention to reduce female sex workers’ risk of HIV during and post-sex work. The findings show very high acceptability of the intervention, at 94.8%. All the FSW reported to be earning majorly from sex work with about half already reporting some savings, mostly in banks and mobile money platforms, table banking (*Chama* in Kiswahili, a group-based ‘banking’ strategy in which group members save money during regularly scheduled meetings from which they can take either short or long-term loans at a small interest), and saving and credit societies. Similar studies with FSW have proved feasible in Asia; findings from pilot studies in Chennai, India and Ulaanbaatar, Mongolia, have showed the feasibility of combining a savings-led or microfinance intervention with HIV sexual risk reduction programs for FSW [39, 40]. A study in Tanzania on table banking or rotating pay-out (known as *Michezo*, equivalent to *Chama* in Kenya) proved to be acceptable and fostered a sense of empowerment among FSW [28]. In Kenya, the Global Network of Sex Work Projects demonstrated the success of combining saving-led or micro-financing and HIV prevention intervention where FSW contribute monthly and receive a share of profits from invested income on an annual basis [2]. Although about 90% of FSW are open to quitting sex work, 74% acknowledged that due to high financial burden and the lack of a stable alternative source of income, it would be difficult for them to quit sex work in the foreseeable future. These findings corroborate the results from a study in Harare, Zimbabwe, among adolescent FSW who were hesitant to quit sex work due to the limited survival options and difficulty in getting a job with a stable income [41, 42].

While 2.3% of those who reported that the intervention would be acceptable to FSW had no suggestion for modification, the majority recommended several components to include in the

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1 intervention design, such as: literacy on saving and loans management, forming saving buddy
2 groups for cross-learning of challenges and success stories among participants, goal setting,
3 flexibility in amounts to save, and integrity in managing the savings. Similar recommendations
4 have been made in studies that have reported financial literacy as a critical component of
5 successful savings-led or micro-lending interventions targeting FSW [33, 43]. It has been
6 suggested that more attention should be paid on financial literacy and business development
7 training [33], incorporating more regular goal-setting activities [40], and continuous
8 education on the importance of savings, banking services, budgeting (especially household
9 budget) and debt management [27].

10 Guided by Jun and colleagues [44] who recommend the need to explicitly seek views and
11 voices of stakeholders involved in, and impacted by, an intervention at the key moments of
12 the intervention design process to assure that not only are the outcomes of the intervention
13 effective, but the processes to achieve the results are not ethically objectionable, we asked
14 participants if FSW would have concerns over the intervention. Only 8% of the participants
15 expressed concerns over such interventions, perceiving it as a tacit strategy to force women
16 out of sex work, a veiled disapproval of sex work, or a scheme for economic abuse by the
17 study team. Trust issues have also undermined interest in savings managed by peers and may
18 have prompted the recommendation of ensuring integrity in savings management. Therefore,
19 meaningfully engaging sex workers to elect their leaders, instituting a trusted oversight body,
20 and supporting them to develop a robust financial governance system can encourage FSW to
21 save.

22 About one-quarter of our participants were saving on mobile money platforms which makes
23 it easier to withdraw cash in emergency situations. The majority of the participants (62.5%)

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reported saving in banks, which is contrary to what other studies in Kenya and other parts of Africa have reported. In Kenya, studies show minimal saving in banks [45] while outside Kenya, only 5% were saving in banks in Cote d'Ivoire [4] and 8% in Tanzania [28]. We believe that our findings may reflect social desirability bias where participants may have told us what they assumed was the more 'respected' way of saving. While a savings intervention would need to take advantage of the two saving channels that are already popular with FSW, it would be important to confirm in other studies the reported preference for bank-based saving. The findings however remain relevant for an intervention such as *Jitegemee* where funds that would be needed more urgently would be saved in mobile money platforms for ease of callback while those that are being saved for long-term plans such as starting a business, buying property, or building a home kept in banks.

Our findings show that about two-thirds of the FSW's expenditure were on household essentials and school-related expenses while one-third was on non-essentials including personal and home beautification, and support to social events. Further exploration of participants' expenditure against earning revealed about 16% of participants in Kisumu and 10% in Siaya were spending more than their earning and relied on loans from table banking groups (commonly known as *Chama*), friends and family to bridge the gaps, putting them at more debt. This finding is not unique to our study. Results from a study in Abidjan, Cote d'Ivoire, showed that about 30% of FSW reported expenditures that exceeded their income and that nearly all FSW who were observed reported borrowing money regularly to manage their expenses, especially during slow periods [4; 46]. Other studies have shown that FSW who report having debt or other economic hardships have been more likely to indicate greater exposure to sources of STI infection [30, 47]. On the other hand, in as much as saving-

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led interventions can promote FSW's financial security, they may also have negative impact, especially during hard economic times or shocks. As a shock-coping mechanism, some FSW may risk to have unprotected sex to earn more money [48, 49] to be able to save. This may increase their risk of HIV infection, especially when the offer comes from HIV-positive clients who are willing to pay more for unprotected sex. For an intervention like *Jitegemee*, examining what FSW spend on provides an opportunity to explore what could be cut, postponed, adjusted down or cheaper options sought in order to release some earnings to dedicate towards savings. Therefore, supporting FSW to manage their spending on non-essentials is important for an effective savings-led HIV intervention. As noted in our study, the push to increase savings is likely to be counter-productive, as it may lead to risky sexual practices that pay more. Some of our participants cited various ways of generating additional cash to bridge their income gaps in order to save, including soliciting for more clients, working longer hours and charging their clients more for unprotected sex. Risk reduction education should therefore be embedded within FSW economic empowerment interventions.

While the immediate goal of the *Jitegemee* intervention is to make FSW have savings for instant cash callback whenever needed instead of engaging in risky sex, a long term aim is to prepare and enable those who want to quit sex work to fulfil their financial obligations such as educating their children, owning a house or property or investing in a business. For long-term outcome, entrepreneurship or business skills training has been shown to help FSW achieve financial goals that can eventually replace sex work [4, 50].

Our results showed that background factors such as low income levels, being head of household and caring for children were associated with lower saving. While low income and the burden of supporting one's family may make it difficult for a FSW to save, studies have shown that some FSW spend beyond their income [4; 51] and are not cognizant of their

1 impulse spending, which likely contributes to high debt and low savings [4]. In their study,
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4 Igonya and colleagues [52], found that FSW were unable to save effectively because they held
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6 the belief that ‘quick money does not stay’, a mind-set that makes it difficult for FSW to save.
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8 We believe that financial literacy and management training have potential to empower FSW
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10 to strategize and prioritize their ways of earning, spending, and saving.
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14 This study had some limitations. We relied on the acceptability of a proposed Jitegemee
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16 intervention to predict the actual uptake when the intervention becomes available; therefore,
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18 due to social desirability bias [53; 54] the proportion who responded affirmatively may
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20 overstate the true acceptability. Secondly, we relied on self-reported data on factors such as
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22 earnings, savings, loans and expenditure which are important to the Jitegemee intervention;
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24 however, these may be inaccurate as most participants do not keep records therefore based
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26 their answers on recall and general estimation [55]. Despite these limitations, to our
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28 knowledge, this is one of very few studies that attempted to explore the acceptability and
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30 feasibility of a savings intervention for FSW that will encourage them to save part of their
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32 earnings for use when faced with an immediate financial need that could otherwise compel
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34 them to engage in unsafe sex [29; 45]. In addition, an intervention grounded on using own
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36 income has a higher chance of being sustainable compared to those relying on external
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38 support [25]. Finally, while previous studies have explored various interventions to lower the
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40 HIV risk among FSW while they are still engaged in sex work, most have only focused on the
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42 sexual risk behaviours without concomitantly addressing economic factors that drive their
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44 HIV risk [27; 56, 57].
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54 In conclusion, our study has demonstrated that an intervention to support FSW save part of
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56 their income for use in emergent needs instead of resorting to risky sex is highly acceptable
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58 and feasible. The findings suggest that saving may be harder among FSW with school-going
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1 children and dependents, or who are household heads; therefore, it is important for the
2 intervention to take into account these challenges and help FSW plan on how to balance their
3 income, expenditure and loan-taking and –repayment in order to obtain money to save. This
4 can help in mitigate negative impact of saving such as situations where some FSW may engage
5 in risky unprotected sex to earn more money to be able to save. Participants also made
6 valuable recommendations on components that need to be added to make the intervention
7 more appealing. This informed the subsequent phases of a multi-phase process of co-creating
8 a savings-led intervention with FSW to reduce their HIV risk. The positive finding of the
9 acceptability study led to implementation of pilot randomized-control feasibility study (phase
10 2) and helped focus the in-depth review of literature on FSW economic empowerment studies
11 (phase 3). The list of intervention components were then presented to FSW who prioritized
12 those that could be tested on a larger scale by ranking (phase 4). Finally, a selected number
13 of FSW peer educators participated in reviewing and modifying the draft intervention package
14 developed in a workshop session (phase 5).

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Contributor statements: KA and HT designed the study; JA, OO and SCO collected the data; NO and TO contributed to the study design and analysed the data; KA, JA, GNW, JO, MO and BA substantially contributed to the writing of the paper; all authors critically reviewed and approved the final manuscript. KA is the guarantor responsible for the overall content of the paper.

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Table 1: A brief description of the *Jitegemee* intervention

Interviewer to read out loud: *In the next section I want to get your views on an intervention we are thinking about that may help you or your peers to stay safe from HIV or to plan for life after sex work for those who may be thinking about leaving sex work in the near future. The intervention will primarily prepare sex workers to reduce their risk of getting infected with HIV through saving. The intervention is known as Jitegemee, which means rely or depend on yourself. The reason we are calling it Jitegemee is that sex workers who take part in it will use part of their own income to save towards some level of economic independence. They will save through MPesa directly into an account opened by the study. The saved amount by each sex worker will be available to her to call back in part or in full any time she needs it so that she does not have to engage in unsafe sex because she needs money urgently. With the savings, sex workers can say 'No' to unprotected sex or to certain clients if they want to, or to take a short break from sex work if they need to rest. This is because they have savings and cannot go hungry, for example, because they said 'No' to unsafe sex or took a break. Some sex workers may also want the savings to go towards long-term goals such as investing, educating children or even quitting sex work in the future. The intervention staff will help those enrolled in Jitegemee to set saving goals and timelines, work with them to plan their savings while being able to support their other needs, and help them to monitor achievement of the goals and address challenges that come along the way. The questions that follow will ask you what you think about such an intervention, whether it would work, what the intervention package should comprise of (i.e., components), how we can implement it so it works well, and the challenges we may face and how to address them.*

Figure 1: Acceptability of the *Jitegemee* intervention: ethical concerns and suggestions for improvement

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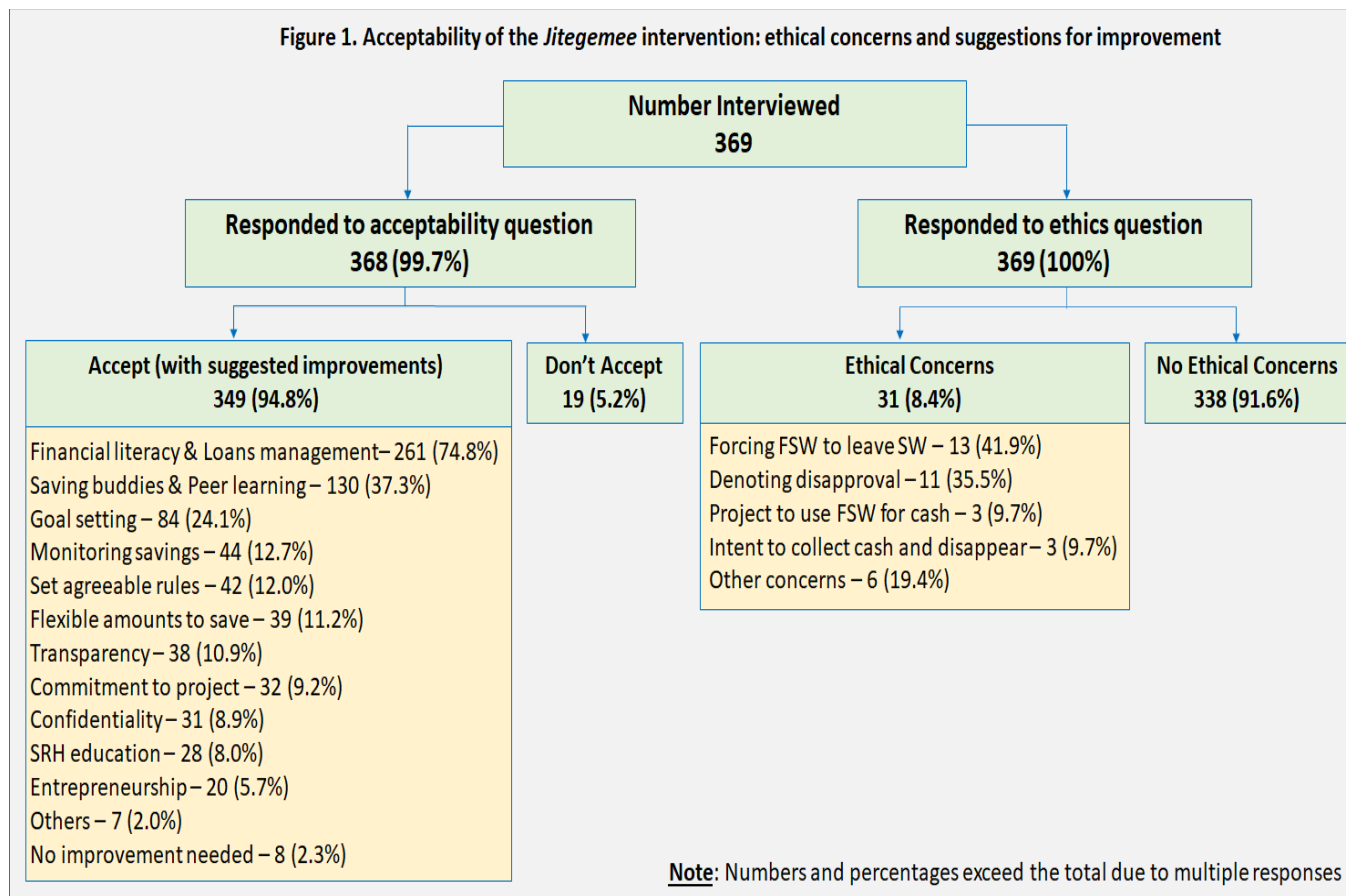
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58.

Figure 1. Acceptability of the *Jitegemee* intervention: ethical concerns and suggestions for improvement

Jitegemee Formative Study
Appendix 3 A: Baseline Questionnaire_English_v1.0

Respondent Key Information

Staff ID	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	Date: <div><div></div><div></div><div></div></div> / <div><div></div><div></div><div></div></div> / <div><div></div><div></div><div></div><div></div></div> (DD) / (MMM) / (YYYY)
Staff Name		
County		
Sub-County		
Participant ID	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
Start Time		In 24-hour format <div><div></div><div></div><div>:</div><div></div><div></div></div>

Interviewer: I would like to start by asking you a few questions about your background.

PART A: PERSONAL/HOUSEHOLD

1	How old were you on your last birthday?	<div>_____</div> Years
2	Are you married or living as married?	1 Yes 2 No (If No skip to Qn. 4)
3	If YES: Is your partner gainfully employed (wage or self-employment that brings in steady income of any amount)	1 Yes 2 No
4	Do you have any children you are taking care of?	1 Yes 2 No (If No skip to Qn. 9)
5	IF YES: How many children do you have?	Number <div>_____</div>
6	If YES: How many of these are your biological children?	Number: <div>_____</div>
7	How many of these children are in these ages (Interviewer: Read out each age category and fill out; ensure number adds up to xx; write 00 for none)	<1 year <div>_____</div> 1-3 years <div>_____</div> 4-5 years <div>_____</div> 6-10 years <div>_____</div> 11-14 years <div>_____</div> 15-17 years <div>_____</div> ≥18 years <div>_____</div>
8	How many of these children are enrolled in school/college/training? Read each and fill the number (ensure number add to xx above otherwise probe; insert 00 for no child in the listed categories)	PP1: <div>_____</div> PP2: <div>_____</div> Std. 1-3: <div>_____</div> Std. 4-6: <div>_____</div> Std. 7-8: <div>_____</div> Secondary: <div>_____</div> On-the-job training: <div>_____</div> Vocational training: <div>_____</div> College: <div>_____</div> University: <div>_____</div> Other, specify <div>_____</div>

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

9	How many total people live in your household, including you and those away in school but stay with you during school holidays?	_____ Children _____ Adults
10	Are you the head of your household?	1 Yes 2 No
11	Have you ever attended school?	1 Yes 2 No (If No skip to Qn. 13)
12	If YES: What is the highest level of schooling that you <u>completed</u> ?	0 – Pre-primary 1 – Primary 1-4 2 – Primary 5-8 (incomplete) 3 – Completed primary 8 4 – Secondary form 1-2 5 – Secondary form 3-4 (incomplete) 6 – Completed secondary form 4 7 – College 8 – University 9 – Post-graduate

PART B: INCOME/WEALTH

In the next section, I will ask you some questions about work that you do and money that you earn. I will also ask about some items that your household may own.

13	What is your main source of income, the source that brings you the most money each month?	1. Transactional sex 2. Salon 3. Tailoring 4. Petty trade 5. Salaried employment 6. Others, specify _____
14	In the past month, how much have you earned from this source?	Amount: _____
15	What are your other sources of income? (Interviewer: Do not read out; circle all that apply)	1. Transactional sex 2. Salon 3. Tailoring 4. Petty trade 5. Salaried employment 6. Others, specify _____
16	In the past month, how much have you earned from all sources combined ?	Amount: _____

Now I will ask about some things your household may own. How many ____ do you have?

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

Assets	Number/Area	Estimated value/ purchase price
17. Land (in acres)		
18. Furniture/Furnishings (e.g. tables, chairs, sofa sets)		
19. Poultry		
20. Sewing machines		
21. Refrigerators		
22. Radio		
23. Televisions		
24. Smart Mobile phone		
25. Basic Mobile phone		
26. Computers		
27. Gas cooker		
28. Water tank		
29. Solar lighting		
30. Cars/vehicles		
31. Motorbikes		
32. Others (specify)		

PART C: EXPENDITURE

Now I will ask you about food that you and your household members, including you, bought in the past 7 days. Please try to include in your estimates how much your household members and you may have spent on these items as well.

	Did your household buy [...] in the past 7 days?	Amount spent by your household on [...]
33. Rice or other grains		
34. Wheat flour, porridge flour, or other milled grains		
35. Cooking oil		
36. Meat		
37. Fish		
38. Eggs		
39. Bean, green grams, groundnuts, or other legumes		
40. Fruits and vegetables		
41. Milk		
42. Tea and coffee		
43. Snacks/street food		
44 Other foods, specify: _____		

Now I will ask you about other items you may have purchased yourself in the past 30 days. Include only your own expenditures on these items.

	Did you spend money on [item] in the past 30 days?	If YES, how much was spent on [item] in the past 30 days?

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

Personal items:		
45. Alcoholic beverages for yourself		
46. Personal care items such as clothing, cosmetics, soap, toothpaste for yourself		
47. Mobile phone airtime		
48. Ceremonies such as weddings		
49. Ceremonies such as funerals		
Transport costs:		
50. Buses, taxis, boda bodas including transport to school		
Energy, water and municipal rates:		
51. Water		
52. Electricity		
53. Other energy sources such as wood, paraffin, charcoal, candles, gas, etc		
Household items:		
54. Kitchen equipment, like pots and pans, cutlery and crockery		
55. Washing powder, soap, or other household cleaners		
56. Home maintenance and repairs to the dwelling		
57. Bedding, sheets, blankets and towels		
58. Furniture and other household appliances		
59. Rent for your house		
Clothing and shoes:		
60. Shoes and clothes (excluding school uniforms)		
61. Material to make clothing		
Health care:		
62. Medical insurance such as NHIF		
63. Payment for clinic visit		
64. Medicines, bandages, or other supplies purchased at drug shop/pharmacy		
65. Traditional healer or religious healer fees		
Education:		
66. School fees and tuition		
67. School books including stationery		
68. Uniforms		
69. Other school expenses such as school outings, meals at school, boarding fees		

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

contributions to school buildings, extra costs for teachers and extramural activities		
Miscellaneous:		
70. Donations to religious groups (e.g., sadaka, tithe) or to charity, harambee, etc		
71. Gifts		

PART D: SAVINGS AND FINANCIAL INFORMATION

Now I would like to ask you some questions about money you have saved.

72.	Do you have any savings?	1 Yes 2 No (If No skip to Qn. 80)
73	If YES: Where are your savings (list all that apply). Interviewer – read one by one and circle the response	1 Bank: 1 Yes; 2 No 2 MShwari: 1 Yes; 2 No 3 MPesa: 1 Yes; 2 No 4 Pochi la Biashara: 1 Yes; 2 No 5 Airtel Money: 1 Yes; 2 No 6 Chama: 1 Yes; 2 No 7 SACCO 8 Secret place at home or elsewhere: 1 Yes; 2 No 9 Other, specify: _____ 1 Yes; 2 No
74	Amounts saved in these locations (mention only those listed in No. 73 above)	1 Bank: Amount _____ - 2 MShwari: Amount _____ 3 MPesa: Amount _____ 4 Pochi la Biashara: Amount _____ 5 Airtel Money: Amount _____ 6 Chama: Amount _____ 7 SACCO 8 Secret place at home/elsewhere: Amount _____ 9 Other, specify: _____ Amount _____
75	Are you a member of any savings group?	1 Yes 2 No (If No skip to Qn. 80)
76	Please tell me the type of group you belong to and number of such groups you are member of (read each and circle).	1. Chama/merry-go-round: 1. Yes; 2. No; # _____ 2. Burial society: 1. Yes; 2. No; # _____ 3. Women’s group: 1. Yes; 2. No; # _____ 4. SACCO: 1. Yes; 2. No; # _____ 5. Religious/church group: 1. Yes; 2. No; # _____ 6. Others (specify) _____; # _____
77	Each time you contribute to the groups you listed under No. 76 above, how much do you contribute on average in each category (e.g., if a member of multiple Chamas, total you contribute)? (Interviewer: mention only those listed in xxx above otherwise write N/A)	1. Chama/merry-go-round: Amount _____, N/A 2. Burial society: Amount _____, N/A 3. Women’s group: Amount _____, N/A 4. SACCO: Amount _____, N/A 5. Religious/church group: Amount _____, N/A 6. Other (specify) _____: Amount _____, N/A

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

78	How many times do you contribute in a month in each of the groups you listed under No. 76 above? (Mention only those listed in 76 above, otherwise write NA)	1. Chama/merry-go-round: Times: ____; N/A 2. Burial society: Times: ____; N/A 3. Women's group: Times: ____; N/A 4. SACCO: Times: ____; N/A 5. Religious/church group: Times: ____; N/A 6. Other (specify) _____: Times: ____; N/A												
79	Taken together, how much money do you have in savings from all sources? (if not sure, best estimate)	Amount: _____												
Now I want us to focus on any plans you may have for your future														
80	When did you start engaging in sex work?	Year: _____												
81	What made you <u>join</u> sex work? (List all, starting with the main reason)	Open _____ _____												
82	What are the reasons why you are <u>still</u> in sex work? (List all, starting with the main reason)	1 Orphaned 2 Widowed/Separated 3 Poverty 4 No alternative job 5 Liked it 6. Peer pressure 7 Family pressure/push 8 Mistreatment 9 Other(s), specify: _____												
83	Have you even thought of when you may want to leave sex work?	1 Yes 2 No (If No skip to Qn. 87)												
84	If YES , approximately after how many years from now?	____ Years												
85	Are there certain things you want to accomplish before you quit sex work?	1 Yes 2 No (If No skip to Qn. 87)												
86	If YES , list what they are and when you hope to accomplish them (use back page to ask)	<table border="1"> <thead> <tr> <th>Accomplishments</th> <th>When you hope to achieve</th> </tr> </thead> <tbody> <tr> <td>1 _____</td> <td>_____</td> </tr> <tr> <td>2 _____</td> <td>_____</td> </tr> <tr> <td>3 _____</td> <td>_____</td> </tr> <tr> <td>4 _____</td> <td>_____</td> </tr> <tr> <td>5 _____</td> <td>_____</td> </tr> </tbody> </table>	Accomplishments	When you hope to achieve	1 _____	_____	2 _____	_____	3 _____	_____	4 _____	_____	5 _____	_____
Accomplishments	When you hope to achieve													
1 _____	_____													
2 _____	_____													
3 _____	_____													
4 _____	_____													
5 _____	_____													
87	If NO: Now that I have asked you, is leaving sex work something you may want to start thinking about?	1 Yes 2 No (If No skip to Qn. 91) 3 Maybe												
88	If YES to above , approximately after how many years from now?	____ years												
89	Are there certain targets you want to accomplish before you quit sex work?	1 Yes 2 No (If No skip to Qn. 91)												

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

90	If YES, list what they are and when you hope to accomplish them (use back page to ask)	<div>Accomplishments</div> <div>When you hope to achieve</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div>
91	Please think back, are there sex workers you know who have left sex work in the last 5 years?	<div>1 Yes</div> <div>2 No (If No Skip to Qn. 94)</div>
92	If YES: how many	Number:
93	Please list all reasons why it was possible for them to leave sex work	<div>1 Responsibility reduced</div> <div>2 Children grown</div> <div>3 Changed location of residence</div> <div>4 Got a better job</div> <div>5 Got saved</div> <div>6 Got married/got into a stable relationship</div> <div>7 Felt too old for the job</div> <div>8 Others,</div> <div>specify</div>
94	Are there sex workers you currently know who have wanted to leave sex work but have not been able to?	<div>1 Yes</div> <div>2 No (If No skip to Qn. 96)</div>
95	If YES, why was/has it been difficult to quit? Give all reasons	<div>Reasons:</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div>
96	Do you know other sex workers who may have left sex work and returned?	<div>1 Yes</div> <div>2 No (If No skip to Qn. 98)</div>
97	What were the reasons for returning?	<div>1 Increased responsibility</div> <div>2 Loss of income</div> <div>3 Unwelcoming outside world/did not fit</div> <div>4 Not prepared for life outside sex work</div> <div>5 Pressure from peers to return</div> <div>6 Separation/escape from abusive relationship</div> <div>Others, specify:</div>
Credit		
98	In the last 6 months, did you borrow money from any person or institution?	<div>1 Yes</div> <div>2 No (If No skip to Qn. 101)</div>
99	How much did you borrow overall during the last 6 months?	Amount:

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

100	What was the loan used for?	1. Work-related purchases 2. Education 3. Consumption 4. Health 5. Buying assets 6. Fun activities 7. Emergency, outside health and education 8. Other (specify)
101	Do you have any outstanding debt from loans taken prior to the last 6 months?	1 Yes 2 No (If No skip to Qn. 103)
102	How much total outstanding debt do you have from loans taken prior to the last 6 months?	Amount: _____

PART F: HEALTH BEHAVIOR

The next section asks some questions about sexual behavior. Remember that all of your responses are confidential.

Sexual behavior		
103	During the past one month, how many different sexual partners have you had?	Number: _____
104	In the past one month, have you exchanged money, goods, favors and so on for sex?	1 Yes 2 No (If No skip to Qn. 108)
105	If YES: provide various examples of goods, services, assistance you have received other than money	1 Rent and utilities _____ 2 Fees for self or kids _____ 3 Basic needs _____ 4 Others, specify _____
106	In the past one month, with how many individuals did you exchange money, goods, gifts, services etc for sex?	Number: _____
107	In the past one month, how much money in total did you receive from sex work?	Amount: _____

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

108	Where do you meet with male clients? Mention all venues (circle all that apply)	1 Entertainment joints 2 Brothel-based 3 Home-based 3 Street-based 4 Beaches 5. Other(s), specify _____
109	If more than one: Of the [venues] you mention above, which one do you meet most of your clients (circle only one)	1 Entertainment joint 2 Brothel-based 3 Home-based 4 Street-based 5. Other, specify _____

HIV questions		
110	Do you think your chances of getting HIV/AIDS in the coming year are high, moderate, low, or no risk at all?	1 High 2 Moderate 3 Low 4 No risk at all 98 DON'T KNOW 99 REFUSED TO ANSWER
111	If Low or No Risk in No. 110 above, why?	1 Use condom all the time 2 Trust all my partners 3 Have unprotected with partners whose status I don't know 4 Test before sex 5 Use PrEP or other effective prevention 6 Never engage in sex when drunk 7 Others, specify _____
112	Have you ever taken an HIV test?	1 Yes 2 No (If No skip to next section)
113	How many times have you been tested for HIV in the past 12 months?	Number of tests: _____ 98 DON'T KNOW
114	When was the most recent time you took a test for HIV?	1 Less than 3 months ago 2 Less than 6 months ago 3 About 6-12 months ago 4 12-24 months ago 5 More than 2 years ago 98 Don't know 99 Refused to answer

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

PART G: ACCEPTABILITY AND FEASIBILITY OF THE JITEGEMEE

Interviewer to read out loud: In the next section I want to get your views on an intervention we are thinking about that may help you or your peers to stay safe from HIV or to plan for life after sex work for those who may be thinking about leaving sex work in the near future. The intervention will primarily prepare sex workers to reduce their risk of getting infected with HIV through saving. The intervention is known as Jitegemee, which means rely or depend on yourself. The reason we are calling it Jitegemee is that sex workers who take part in it will use part of their own income to save towards some level of economic independence. They will save through MPesa directly into an account opened by the study. The saved amount by each sex worker will be available to her to call back in part or in full any time she needs it so that she does not have to engage in unsafe sex because she needs money urgently. With the savings, sex workers can say 'No' to unprotected sex or to certain clients if they want to, or to take a short break from sex work if they need to rest. This is because they have savings and cannot go hungry, for example, because they said 'No' to unsafe sex or took a break. Some sex workers may also want the savings to go towards long-term goals such as investing, educating children or even quitting sex work in the future. The intervention staff will help those enrolled in Jitegemee to set saving goals and timelines, work with them to plan their savings while being able to support their other needs, and help them to monitor achievement of the goals and address challenges that come along the way. The questions that follow will ask you what you think about such an intervention, whether it would work, what the intervention package should comprise of (i.e., components), how we can implement it so it works well, and the challenges we may face and how to address them.

115	What is your immediate reaction to the Jitegemee intervention as I have summarized above?	<hr/> <hr/> <hr/>
116	Is it something that FSW in Kenya can accept?	1 Yes 2 No (If No skip to Qn. 118) 3 Maybe 4 Don't know
117	If YES or Maybe: What should such an intervention comprise of to be acceptable to FSW?	1 Savings literacy 2 Goal setting 3 Transparency, integrity and team spirit 4 Commitment to the project objectives 5 Confidentiality 6 Flexible saving strategies 7 Set agreeable rules, including defaulting 8 Savings to be monitored

Jitegemee Formative Study
Appendix 3 A: Baseline Questionnaire_English_v1.0

		9 Meetings to share successes/learn from each other 10 Others, specify _____
118	What specific features would they not like and why?	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
119	Of the things you mention they would not like, is there something we need to do differently for (Interviewer: list one by one)	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
120	What other challenges do you think we would face with such an intervention and how do you suggest we address them? (For each challenge mentioned, ask for how to address it)	Challenge: _____ Solution: _____ Challenge: _____ Solution: _____ Challenge: _____ Solution: _____ Challenge: _____ Solution: _____ Challenge: _____ Solution: _____
121	If implemented as I described, what proportion (in %) of FSW you know would accept Jitegemee intervention?	_____ %
122	If implemented after addressing the challenges you have listed above, what proportion (in %) of FSW you know would accept Jitegemee intervention?	_____ %
123	If implemented as I described, would YOU accept Jitegemee intervention?	1 Yes ((If Yes skip to Qn. 125)) 2 No

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Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

124	If No to Qn. 123 above: If implemented after addressing the weaknesses YOU have listed above, would you accept Jitegemee intervention?	1 Yes (If Yes skip to Qn. 125) 2 No 3 Maybe 4 Don't know
125	If you were to join the study, how much would YOU be able to save per week considering your current income and financial commitments?	Amount: _____
126	What else do you think other sex workers would do to increase their savings?	1 More sex work/more customers 2 Charge more 3. More unprotected sex because it pays more 4. Engage in anal sex because it pays more 5. Work longer hours 6 Start another source of income 7 Reduce spending (on _____) 8 Other, specify: _____
127	What else would YOU do to increase your savings?	1 More sex work/more customers 2 Charge more 3. More unprotected sex because it pays more 4. Engage in anal sex because it pays more 5. Work longer hours 6 Start another source income 7 Reduce spending (on _____) 8 Other, specify: _____
128	What types of economic activities would FSW prefer to engage in during or post-sex work in order to become financially stable? List all	1 _____ 2 _____ 3 _____ 4 _____ 5 _____
129	Would there be ethical concerns with Jitegemee intervention?	1 Yes 2 No (If No skip to Qn. 131) 3 Maybe 4 Don't know
130	What would be the ethical concerns? List all	1 Forcing SWs to leave sex work 2 Denoting disapproval of sex work 3 Feeling of project using FSW to get money

Jitegemee Formative Study

Appendix 3 A: Baseline Questionnaire_English_v1.0

		4 Intention is to collect money and disappear 5 Others, specify: _____					
131	What would SWs particularly like about Jitegemee intervention	1 Help SWs to remain safe from HIV 2 Help SWs to plan for future outside SW 3 Improve SWs' decision-making ability 4 Others, specify: _____					
132	What would be the most trusted place or person to save with?	1 Bank 2 MPesa 3 MShwari 4 Pochi la Biashara 5 Airtel money 6 SACCO 7 Chama 8 By self 7 Other person – Who: _____ 8 Others, specify: _____					
	End time	End Time: in <table><tr><td></td><td></td><td>:</td><td></td><td></td></tr></table> 24-hour format			:		
		:					

Those were the last questions. Thank you very much for taking the time to participate in our survey today. (Surveyor thank respondent and give interview compensation.)

PART H: INTERVIEW OBSERVATION

5	SURVEYOR COMMENTS/GENERAL OBSERVATIONS:
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