ORIGINAL RESEARCH ARTICLE

A Model for Improving the Health and Quality of Life of Single Mothers in the Developing World

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Abstract

Among the impoverished population of coastal Kenya, there is a rapidly growing group of young single mothers who suffer from adverse health outcomes, incomplete schooling, social ostracism by their communities, and economic hardship. To address this problem, in 2008 the Single Mothers Program (SMP) selected a group of vulnerable single mothers, provided them with basic relief and education, equipped them with training and start-up capital to run their own businesses, and assessed the impact of the program via a pre- and post-implementation survey. After two years in the program, a majority of the single mothers increased their contraceptive use, increased their degree of literacy, increased their individual incomes, and were more positively perceived by their communities. This study demonstrates a program model that can be used to improve the health and quality of life of single mothers and their children in similar communities throughout the world. *(Afr J Reprod Health 2013; 17[4]: 14-25).*

Keywords: single mothers, Kenya, quality of life, women's health, microfinance, Africa

Résumé

Parmi la population pauvre de la côte du Kenya, il y a un groupe en pleine croissance des jeunes mères célibataires qui souffrent de conséquences nocives sur la santé, la scolarisation abandonnée, l'ostracisme social par leurs communautés, et des difficultés économiques. Pour résoudre ce problème, en 2008, le Programme des Mères Célibataires (PMC) a sélectionné un groupe de mères célibataires vulnérables, leur a fourni des secours et de l'éducation de base, leur a donné une formation et le capital initial pour leur permettre de fonctionner leurs propres entreprises et d'évaluer l'impact du programme à travers une enquête pré- et post- exécution. Après deux ans dans le programme, la majorité des mères célibataires ont augmenté leur utilisation de la contraception, ont augmenté leur niveau d'alphabétisation, de leurs revenus individuels et ont perçu plus positivement par leurs communautés. Cette étude démontre un modèle de programme qui peut être utilisé pour améliorer la santé et la qualité de vie des mères célibataires et de leurs enfants dans les communautés pareilles à travers le monde. *(Afr J Reprod Health 2013; 17[4]: 14-25).*

Mots clés: mères célibataires, Kenya, qualité de vie, santé des femmes, micro finance, Afrique

Introduction

Becoming a single mother, especially at an early age, can have a variety of negative consequences on individual women and their families. Early childbearing has been linked to several adverse health outcomes that disproportionally affect women, including maternal morbidity and mortality, abortion, and exposure to sexually transmitted diseases such as HIV/AIDS[1,2]. In addition to these reproductive health issues, early childbearing denies girls the opportunity to complete education and acquire human capital skills critical for gainful employment. Early childbearing also results in the psychological cost of rejection or social ostracism ranging from disapproval by friends to rejection by the family[3]. In societies where there is an absence of welfare benefits and child support, these outcomes lead to increased dependency, perpetuating poverty and low status of women[3].

The economic hardships of single mothers are inextricably linked to the fact that fathers generally feel less obligated to support children born out of

wedlock[4]. In a study in Botswana, less than one fourth of households with premarital births received support from children's fathers[5]. Unfortunately, children's lives are severely affected by these socioeconomic circumstances[6,7]. One study showed that children of never-married and formerly-married mothers have significantly higher probabilities of polio dropout and acute under nutrition than those of monogamously married mothers[8]. In particular, analysis revealed that children of never-married mothers were about 3 times more likely to experience bodily wasting compared to those whose mothers were in monogamous unions.

Early pregnancies are especially detrimental in sub-Saharan African countries, most of which experience high levels of poverty[3]. This study focuses on the coastline of Kenya, a district that the World Bank declared as one of the most impoverished areas of Kenya, with a rural poverty incidence of 69.7% in 2005-2006[9]. The fact that Kenya also had one of the best economic growth rates in Africa in 2005-2006 illustrates that regional disparities in the distribution of poverty remain high. This disparity is illustrated by many "skipped over" people who reside in the coastal regions of Kenya and Tanzania. Beginning in the colonial era, infrastructure as well as schools, hospitals, and businesses developed inland, in the more attractive highlands, where the climate is temperate and the land more arable. This trend continued until the present time leaving the coastal areas much less developed with lower education and literacy levels, compounded by widespread poverty and illness.

During the post-independence period in the 1960s, British settlers to Kenya established holiday homes along the coastline, and were closely followed by European tourists[10]. Malindi, the coastline town in which this study takes place, rapidly moved from being a quiet backwater inhabited largely by Swahili fishermen and traders to a multi-ethnic hub catering to tourists. While tourism has made Malindi quite prosperous compared to other parts of Kenya, local inhabitants of Malindi have seen little benefit from these revenues. Local unemployment is paradoxically high, and the region is dominated by a "consumerist" and "hedonistic" culture in which fortunes have been made through association with Europeans[10]. Since the 1980s, tourism has continued to be the main industry, with Italians, the main residents and visitors of the town, widely blamed by East Africans for exacerbating a range of social ills, including gambling, prostitution, and drug use[10].

Among these impoverished coastal people is a rapidly growing group of single mothers. In this paper, a single mother family is one that lacks the presence of the father within the family. Such families exist when there is a divorce in which the husband and wife separate, when the husband dies, or when there is childbearing outside marriage due to unwanted pregnancies. This study focuses on the third category of single mothers, those girls who become mothers unwillingly before age 18. These girls become single mothers at a time when they are not prepared to take care of their children. A majority of these mothers were between 13 to 20 years when they had one or more children, essentially leading to children raising children. Based on pre-study research and interviews, these young, single mothers were generally ostracized and marginalized by their families and communities. A daughter is valued for her ability to bring income into the family through her bride price. When a girl becomes pregnant before marriage her bride price and value are compromised, thus impairing her ability to bring the income, for which she is valued, into the family. She is cast out of the family, out of school, out of society and left to fend on her own[3]. In many cases, these young mothers reside in the streets to find ways to survive, resorting to the readily available sex trade of the slum hovels or tourist beach culture[11], inevitably resulting in additional pregnancies and additional children born into single mother homes.

To address this problem, two of the authors started the Single Mothers Program in Malindi, Kenya in 2008. The project was funded by the Caris Foundation, a Texas-based non-profit organization (NGO) that aims to provide basic medical, nutrition and welfare needs for impoverished people by working through local communities and implementing solutions that are culturally relevant and sustainable. The SMP selected a group of vulnerable single mothers,

provided them and their children with basic relief and education, and then equipped them with the training and start-up capital to run their own businesses to provide for themselves and their children. The purpose of this study is to show quantitatively and qualitatively how the SMP has affected these women's lives, and to demonstrate a program model that can be used in similar communities throughout the world.

Methods

Recruitment

A baseline survey (created by a local NGO, Mulangaza) was administered during interviews of 200 single mothers in the Malindi town area. In order to locate these single mothers, Mulangaza selected 1 female leader in each of 5 sub-locations of Malindi who knew of single mothers in their respective locations. The female leaders also received input from village elders, chiefs, sub-chiefs, and other single mothers. Each female leader was teamed with one community development worker who helped administer the survey, for a total of 10 enumerators who were each acquired, trained, and supervised by Mulangaza. In order to be eligible for the program, a woman must have become a single mother before age 18. The survey objectives were to establish the existence of single mothers in Malindi, determine the circumstances that lead girls to become single mothers, find out the gaps existing in the single mothers' lives and the coping mechanisms they use to address these gaps, and assess the existing opportunities which are available to improve the lives of single mothers. An interview file of personal information was created for each potential program participant and their family. Upon completion of the survey, the enumerators and project leaders selected the most vulnerable single mothers, ultimately selecting a group of 60 girls and their 107 children to participate in the program. Vulnerability was determined using the criteria in Figure 1.

Figure 1: Criteria for Intake into Single Mothers Program

Target Group: Single mothers with at least one living child whose age at first pregnancy was 18 years or younger. Those with the highest level of vulnerability will be given priority.

Vulnerability Factors:

1. Family Profile:

1st priority

i. Orphans

2nd priority to those with

i. Fathers only
ii. Parents with drug addictions

3rd priority to:

i. Those with abusive parents/other family members such that safety of the SM is at stake
ii. Uneducated parents
iii. Impoverished parents

2. Residence:
   i. Those with no permanent residence
   ii. Those in rented housing
   iii. Those with no sanitation facilities
   iv. Those with no clean water supply
   v. Those whose houses are insubstantial and not protective from the environment
3. Current age of mother:
   i. Priority on younger mothers
4. Medical condition:
   i. Priority on those with chronic health conditions
5. Employment status:
   i. Unemployed

   ii. Self employed
   iii. No skills
   iv. Currently employed but working very long hours for very little pay
6. Attitude:
   i. Priority on those whose attitude is one of hopelessness
7. Age of Children:
   i. Those with newborns or school age children who are not in school
8. Condition of Clothing

Relief

At the start of the program, the SMP provided 60 single mothers and their children relief in food supplements, clothing, bed sheets, mosquito nets, hygiene and sanitation packets, and medical needs, including emergency hospital care, immunizations for children, de-worming for children, sanitation and first aid packets, vitamin supplements, and HIV and AIDS prevention, testing, and care.

Education & Training

The goal of training was to provide single mothers with the knowledge and tools to become self reliant and independent, to be able to provide basic needs for themselves and their children, and to become community change agents. Didactic sessions occurred twice a week and included diverse topics such as how to make oil with coconuts (a local resource) for use on the skin and hair rather than having to buy a commercial products, how to treat mosquito nets with insecticide, information about HIV/AIDS prevention and management, sexual awareness and behavior, communication skills, family planning, nutrition and health care, and child care. The training also focused on equipping the single mothers with skills that would enable them to engage in income-generating work and ultimately become financially independent. The seminars included "Group Management and Leadership Skills," "Savings," "Business and Financial Management," and "Credit."

After the initial training period, staff conducted one-on-one interviews with each single mother to determine their educational goals and needs, their skills and training, their business experience if any, their current business capital, and their hopes and plans. Interview feedback indicated that the basic skills that the single mothers wished to explore included tailoring, catering, housekeeping, hair dressing, setting up their own kiosk (to sell items such as charcoal, used cloths, and basic food), handcrafts, and additional schooling. To start, the program hosted two camps that brought in outside professionals to train staff and then these staff members trained the single mothers. During the training camps, the single mothers devised a plan for opening their businesses and staff members assisted each single mother with making supply and equipment lists. This then determined what start-up capital would be needed to set up each single mother's small scale business in their area of interest, with a ceiling amount of 4,000 Kenyan shillings (approximately 50 USD) available for each boost. Centralized training at the program headquarters (rather than training in local institutions) was utilized to reduce absenteeism, increase the ability to monitor and supervise, minimize cost of resources, foster better performance, accountability, and partnerships within the single mothers group, provide multiple areas of training in a day, and provide centralized child care. In addition, many of the single mothers enrolled in the program did not have the pre-requisites (i.e. literacy skills) to be trained in local training centers.

Sustainability

Since the ultimate goal of the program was to help the single mothers become financially and personally independent, the final phase of the program involved making sure that the single mothers could sustain themselves without financial assistance. Before they entered the program, a majority of single mothers felt isolated among their community and this isolation often led to hopelessness and abuse. Thus, several small group activities were incorporated into the program to

provide a forum for relationship building, savings and loan groups, brainstorming and problem solving about the challenges of their businesses and daily lives, and sharing success stories. For the sustainability phase, small groups transitioned from occurring at the program's headquarters to occurring in the home areas of the single mothers. Model structures were developed with patterns that could be followed without program participation.

The biggest of these small groups to emerge during the sustainability phase were savings groups or TTGs. TTG means is an acronym for "Tujalie Tujisaidie Group" which is translated as "Help us help ourselves." A TTG is an informal association of people in a community who come together for their economic and social development, empowerment and overall development of their area. A benefit of saving in groups rather than individually is that the commitment to a group is higher than the responsibility to help their families or neighbors[12,13], except in emergencies. Before these groups, single mothers felt obligated to give their profits to relatives or neighbours in order to meet their social responsibilities. The savings groups aimed to help the single mothers keep their profits for reinvestment in their businesses and to cover school fees for their children.

The TTG size ranged from 15-20 members, membership was voluntary, and the groups were not political and not religious. The TTGs featured homogeneity in terms of similarities in gender, economic status, and geographic area and group leadership was rotational – every member of the group had the opportunity to become a moderator, book writer, or group representative. The functions of the TTGs included meeting every week, contributing savings at every meeting, managing savings by setting rules relating to loan prioritization and interest to be charged for loans, monitoring credit utilization, ensuring regular payment of loans, maintaining required books of accounts, and establishing linkage with government departments.

Mentoring and Monitoring

In order to monitor how the relief was being used, check on the understanding of the training, offer encouragement for challenges or problems, and mentor at an individual level, staff field workers made individual home visits to single mothers once a week. A record system was created to help monitor the progress of each participant in the program, assess whether or not goals were being met, and provide a road map for future multiplication. Records of home visits, medical assistance, attendance at group meetings and training, and relief given were all recorded using different evaluation forms. All single mothers enrolled in the program were expected to attend every training session.

Table 1: Budget for Single Mothers Program 2008-2009 (Start-up Phase)

	Kenyan shillings	**USD ($)** *Exchange Rate: $1 = 70ksh*
Record Keeping	3,560	50.86
Bedding & Mosquito Nets	206,620	2,951.71
Clothing	147,745	2,110.64
Food & Nutrition	622,017	8,885.96
Medical Care & Hygiene	97,040	1,386.29
Relief Preparation & Setup	27,000	385.71
Relief Transport (Tuk Tuks)	73,363	1,048.04
Relief Workers and Educators	255,162	3,645.17
Salaries for Program Workers	407,838	5,826.26
Bread Baking Course & Supplies	39,716	567.37
Business Training Course & Supplies	486,327	6,947.53
Hairdressing Training Course & Supplies	287,855	4,112.21
Literacy Training Expenses	7,930	113.29
School Fees and Tuition	177,971	2,542.44
Small Business Boost	94,492	1,349.89
Tailoring Course & Supplies	741,330	10,590.43
Total for 60 Single Mothers and their 100+ Children	**3,675,966**	**52,513.80**

Costs

The SMP was funded by the Caris Foundation, a Texas-based NGO. Key budgets items for 2008-2009 and 2010 are shown in Tables 1 and 2, respectively. The leaders of the SMP offered

salaries and benefits to the staff that were consistent with those of other international NGOs.

Table 2: Budget for Single Mothers Program 2010

	Kenyan shillings	**USD ($)** *Exchange Rate: $1 = 70ksh*
Salary for Program Workers (8) + Medical Care, Pension, & Transport for Staff	3,541,200	50,588.57
Teachers	120,000	1,714.29
Staff Training	180,000	2,571.00
Training Equipment	140,000	2,000.00
Transport	180,000	2,571.43
Food (Discontinued July 2010)	1,500,000	21,428.57
Clothing	150,000	2,142.86
Medical Care	240,000	3,428.57
Tailoring Course & Supplies	670,000	9,571.43
Bread Baking Supplies	27,000	385.71
Small Business Boost	100,000	1,428.57
School Fees and Tuition	115,000	1,642.86
Total for 52 Single Mothers and their 100+ Children	**6,963,200**	**99,473.86**

Evaluation

A shortened version of the Mulangaza survey (26-question subset) was used for a pre-assessment (October 2008) and post-assessment (November 2010) of the program. Quantitative and qualitative data was gathered on single mother's quality of life, standard of living, sexual health, and literacy. The survey was translated in Swahili by hired bilingual translators for the single mothers who could not speak English. Each survey took approximately 1 hour to complete. The response rate for the 2008 survey was 100% (60 out of 60 single mothers) while the response rate for the 2010 survey was 83.3% (50 out of the original 60 single mothers). Study data were managed using RED Cap (Research Electronic Data Capture) electronic database[14]. The Vanderbilt Institutional Review Board approved this study.

Results

Recruitment

Sixty single mothers with 105 children were enrolled into the SMP in October 2008. The mean age of the single mothers entering the program was 20.2. The average age at first pregnancy was 15.9. At the start of the program, 15% of the single mothers did not have a mother and 44% did not have a father. Of the single mothers, 45% were in school when they first got pregnant and 55% were not in school. When the single mothers first got pregnant, 12% had lost a mother and 35% has lost a father to death. Forty percent of the single mothers said that their father did not live with them growing up, and 17% said that their mother did not live with them growing up. Thirty-eight percent of single mothers were "chased away" from home when they first got pregnant, meaning that their parents or guardians forced them to leave their home at least for some period of time.

Of the single mothers entering the program, 85.7% left during primary school (grades 1-8), 4.1% left during secondary school (high school) and 10.2% never went to school. The average age for leaving school was 15.3. Reasons for leaving school included pregnancy (48.8%), not being able to pay school fees (34.9%), sickness (4.7%), and other reasons (11.6%).

Seventy-two point three per cent of single mothers received no support from the father of the child. Support included visitation, and financial support for child necessities such as medical care, clothing, shelter, school fees, and food. When asked how long the father of the first child stayed after finding out that she was pregnant, 53.1% of single mothers said "not at all," 6.1% said "up to one month," 18.4% said "up to six months," and 22.4% said "over six months." When asked where the father of the child lives, 18% said "don't know," 22% said "same town," and 61% said "another town."

In response to "What are the everyday challenges faced by single mothers in Kenya?" the top five responses included "being discriminated against from family and/or community" (58.3%), "lack of money to provide basic needs (food, clothing, shelter) for children" (37.5%),

"poverty/going hungry" (35.4%), "raising children alone" (27.1%), and "abuse from family and/or being chased away from home" (22.9%). "Being discriminated against" included being excluded from mixing with married women, being verbally insulted and/or mocked, and being rejected and/or ignored by family and community members.

Table 3: Descriptive information about single mothers who stayed active in the program or self-graduated versus single mothers who became inactive or left the program as of 2010

	Active / Self-Grads	**% of Group**	**Inactive / Left**	**% of Group**
Total number	42		10	
Gave Birth After Initiation of Program	4	10%	5	50%
Income-generating activity				
Small Scale Business	18	43%	8	80%
Tailoring	17	40%	0	0%
Hairdressing	4	10%	2	20%
Formal Schooling	3	7%	0	0%
Age				
<18 years old	5	12%	4	40%
18 years or older	37	88%	6	60%
Literacy level				
Illiterate	14	33%	6	60%
Semi-literate	16	38%	4	40%
Literate	12	29%	0	0%

Relief

The relief consisted of maize meal, rice, beans, oil, and soap. Enriched baby porridge and milk were included when age appropriate. The amount received was scheduled according to the age and number of each single mother's children. The food relief was directly tied to the single mother's participation in the training programs. In order to receive the relief she must have followed the guidelines of the program and attended every training session or group meeting that was scheduled each week. The relief was ordered, delivered and distributed weekly. This minimized the need for storage, as well as the possibility of the relief being stolen or used fraudulently. It also ensured that the products were fresh when distributed. In 2008, the average number of meals consumed per day by each single mother was 2.4. When surveyed again in 2010, the average number of meals consumed was 2.8.

Health care

Before enrolling in the SMP, 88% of single mothers had been tested for HIV. Of these single mothers, 2 were HIV positive and 1 of these 2 was being treated. After enrolling in the SMP, all participants were tested for HIV and 2 additional single mothers were found to be HIV positive. All 4 mothers who tested positive were given appropriate counselling and treatment. One of these 4 women had just given birth and was thus provided with formula to prevent mother-to-child transmission of HIV. All single mothers in the program also received a mosquito net and were taught how to treat it with insecticide. All 105 children were weighed, measured, and de-wormed. Thirty-four young boys of single mothers were circumcised.

A review of hospital receipts indicated that many of the single mothers and/or their children were treated at the local hospital multiple times. There was a wide range of diagnoses, including upper respiratory infections, malaria, scabies, anaemia, parasite illnesses, wounds resulting from accidents, and chronic ulcers. Throughout the duration of the program, the peak use of medical services occurred in July, likely due to the rainy season when malaria and flu are more prevalent.

Sexual health

When entering the program, 43% of single mothers had had 1 sexual partner, 53% had had between 2-5 sexual partners, and 2% had had more than 5 sexual partners. When surveyed in 2010, 30% of single mothers had had 0 sexual partners since enrolling in the SMP (93% who said they were practicing abstinence), 53% had had 1 sexual partner, and 17% had had greater than 2 sexual partners. When asked about condom use in 2008, 8% of single mothers used a condom "every time," 35% used a condom "sometimes," and 56% never used a condom. Forty-one percent of single mothers used a form of birth control aside from condoms. In 2010, of those that have sex, 21% used a condom "every time," 44% used a condom

"sometimes," and 35% never used a condom." Sixty-five percent of single mothers used a form of birth control aside from condoms. In both 2008 and 2010, injectable birth control was the leading form of alternate birth control.

Community Perceptions

In a free response question, single mothers were asked how they were perceived by the community in 2008 and in 2010. Figure 2 shows the responses in 2008 and 2010 with the top 2008 responses being "Without respect," "Not worthy to be among community," and "Disgrace to family" and the top 2010 responses being "With respect" and "As responsible/hard working."

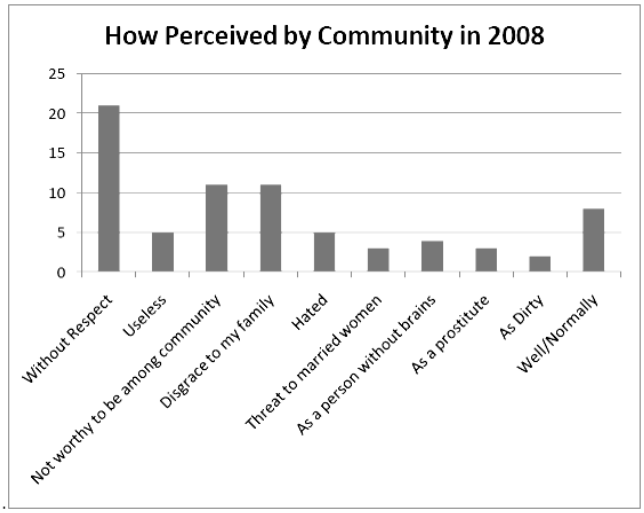

Figure 2a: Community perceptions of SMP single mothers in 2008

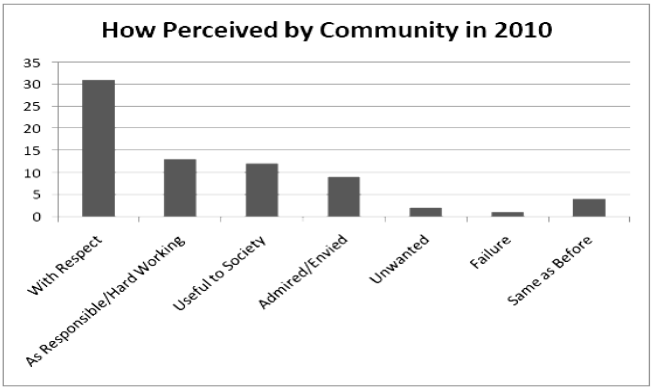

Figure 2b: Community perceptions of SMP single mothers in 2010

Literacy

An adult literacy teacher developed criteria for testing and rating the single mothers according to the following definitions: Illiterate = no reading or writing skills, Poor = able to write letters and numbers but not able to read, Moderate = able to read and write but not fluent, Good = can read and write fluently with understanding of sentences and passages. In 2008, 29% of single mothers were evaluated as being illiterate, 12% as having poor literacy, 17% as having moderate literacy, and 21% as having good literacy. In 2010, 2% were evaluated to be illiterate, 30% as having poor literacy, 17% as having moderate literacy, and 50% as having good literacy. The most significant changes occurred in the "illiterate" category (29% to 2% of single mothers) and "good" category (21% to 50% of single mothers), from 2008 to 2010. Qualitative data from 2010 indicated that some of the ways that an increase in literacy has improved quality of life include ability to sign one's name to open a bank account, keep business records, read a newsletter to find their child's test results, understand written school notices, and help their children with homework.

Income-Generating Activities

One year after the start of the program, 25 single mothers in the Small Scale Business training track were given an "economic boost" to help them initiate their small businesses. The total amount given to each of these single mothers was 81,977 ksh. This is an average of 3726 ksh per single mother or about $40.00. Stock and equipment for 25 small scale businesses was purchased. Immediate visible results from this financial training and boost included multiple kiosks built and supplied with everyday merchandise, small businesses becoming profitable, a garden yielding enough produce to sustain a family, single mothers putting aside savings for the first time, houses built, personal ownership of land and houses, business collaboration between single mothers who have completed tailoring school, a bread-baking business, and initially no new pregnancies.

Three months after the boost, the single mothers had been categorized by their levels of

success with their small scale business efforts. Thirty-six per cent of the single mothers were characterized as "building their business," meaning they had been able to build a structure, add more stock, or begin saving their profit. Twenty-seven per cent were characterized as "maintaining their business," meaning that their business continued on the same level with the stock being replenished but no discernible growth made. Twenty-three per cent were characterized as "failed," indicating that their business had stopped or supplies and equipment had decreased or been destroyed by rats or fire.

In terms of formal skills training, 18 single mothers entered tailoring school, 6 entered hairdressing school, 1 entered catering school, 4 pursued formal primary or secondary school education, and 1 entered university to pursue a degree in Community Development and Social Work.

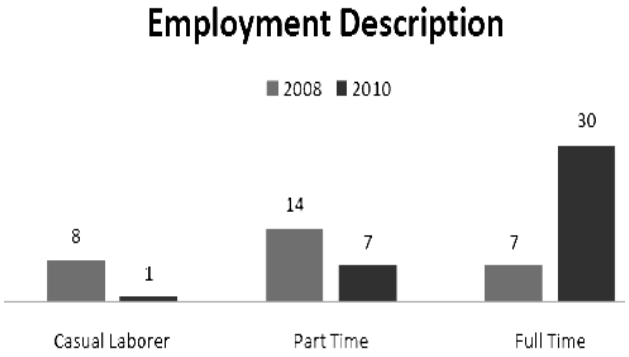

Figure 3: Single mother self-reported employment description in 2008 and 2010

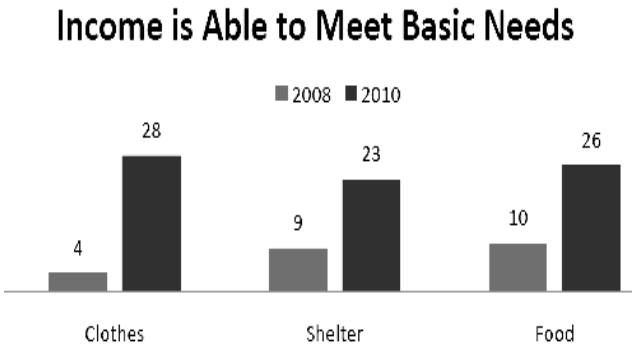

Figure 4: Ability of single mothers' income to meet basic needs in 2008 and 2010

Figure 3 illustrates the change in single mother employment description from 2008 to 2010. In 2010, 30 of the single mothers considered themselves engaged in full time income generating activities, compared to only 7 in 2008. The number of casual labourers decreased to only 1 in 2010. At both time points, single mothers were also queried about whether their income met their basic needs of clothes, shelter, and food. Figure 4 shows an increased ability of single mothers in the program to meet these daily requirements from 2008 to 2010.

Group activities

Small group meetings empowered single mothers with respect to self-esteem and organizational skills, and provided a social support network for realization and execution of entrepreneurial possibilities. From 2008 to 2010, involvement in group activities increased from 4% of single mothers participating in group activities in 2008 to 96% in 2010.

Retention and current status

When the SMP began in 2008, 60 single mothers and their 107 children became part of the program. At one year into the program, 52 single mothers with 104 children continued to participate, for a retention rate of 86.7%. Of the 8 participants who left the program at this point, 6 withdrew, 1 was asked to withdraw for disturbing the other women, and 1 died.

Two years into the program in 2010, of the 60 original participants in the program, 35 (58%) were still active, 7 (12%) self-graduated, or reached the goal of being able to sustain themselves and their children, 6 (10%) were inactive, and 12 (20%) left the program. Table 3 compares those single mothers who stayed active in the program or self-graduated versus single mothers who became inactive or left the program.

These results indicate that those in the "Inactive/Left" group were more likely than those who stayed in the program or self-graduated to give birth during the program (50% versus 10%).

The single mothers who were inactive or left were also more likely to have run a small scale

business (such as running a food kiosk) as opposed to participating in work that required additional vocation training (such as tailoring, hairdressing, or pursuing further schooling).

There were a higher percentage of single mothers under the age of 18 who became inactive or left versus stayed active or self-graduated and most of the individuals who became inactive or left were illiterate (60%).

Discussion

The SMP initially provided 60 single mothers and their 105 children with nutritional relief, health care, education, business training and start-up capital. In the next phase of the program, relief was tapered and the program focused on transitioning single mothers from earning and saving within the program to participating in small savings groups within their communities in order to make the impact of the program more sustainable. Quantitatively, this study showed that after 2 years in the program, a majority of the single mothers increased their contraceptive use, had an increased degree of literacy, increased their individual incomes, increased participation in supportive and income-generating group activities, and increased their use of mosquito nets. Qualitatively, this study showed that the single mothers were more positively perceived by their communities and were more able to fulfil their basic needs of clothing, shelter, and food with their own income. Most importantly, this program reached out to single mothers during a vulnerable period—when many of them were still teenagers and new mothers with no income, when they had recently dropped out of primary or secondary school, and when they were at a higher risk for participating in the local sex trade or becoming involved with other men in a financially-dependent way. Thus, one of the greatest benefits of the program may be the number of additional pregnancies it helped prevent. It has been shown that women who already have a mistimed or unwanted birth are significantly more likely than others to have another unplanned birth[15]. This is supported by an earlier study done in low-income urban communities that found that abortion was more common among women who had previously given birth[16]. Considering these findings, the 5-10 year outcomes of this program, even with an initial sample size of 60, could be staggering. If similar populations around the world could also address this task of empowering young single mothers and their children in their most vulnerable states, the health and quality of life of single mothers and their children could be significantly improved. Looking forward, it will be important to longitudinally assess the health and survival of the children of these single mothers to better qualify and quantify the impact.

The success of this program also begs the question of what intervention can address the actions and lack of education of the fathers of the single mother's children. In this study, a staggering 72.3% of single mothers received no support from the father of the child. In some cases, early childbearing led to the formation of subfamilies within larger households, thus mitigating the adverse consequences of single parenthood through the distribution of parenting costs and responsibilities across family members. However, more commonly, an unwed mother was considered an embarrassment to her clan and had neither moral nor normative claim to her natal family's resources. Thus, the thought of the same father, not having suffered any consequences, making another girl pregnant is worrisome; in fact, in a period of 5-10 years, these fathers could contribute to the formation of multiple single parent households in which the mother is providing everything for herself and her child, often within the backdrop of being ostracized from her family and/or community and having to drop out of school.

Risk factors

Also interesting to note is the profile of the single mothers who entered the program. Studies have demonstrated that peer pressure, idleness, poverty (need for money or material gains) and lack of parental guidance, coupled by low contraceptive use have been mentioned as some of the factors likely to influence and encourage pre-marital sex[17,18]. This study corroborated many these findings. Over half of the single mothers were not in school when they got pregnant, and of those

who were in school, the majority dropped out due to their pregnancy and/or their inability to pay school fees. In terms of parental guidance, it was interesting to note that 40% of single mothers grew up in a household without their father. This could suggest that girls who lack a father during their own childhood may be at additional risk of becoming a single mother, an important consideration for single mothers as they raise their own daughters.

Similarly interesting is the profile of those who left the program or became inactive (Table 3). This group was more likely to be under the age of 18, be illiterate, give birth during the program, and have pursued a small scale business rather than have undergone skills training. This data suggests several future considerations for the program. First, these trends may help determine which project participants are more at risk so that a system can be in place to provide these single mothers with more attention to encourage their success. Particularly, increased emphasis should be placed on teaching reading and writing skills to illiterate single mothers early in the program so these single mothers can benefit maximally from the education and training sessions. Second, since those who continue to give birth are less likely to continue in the program, sex education and abstinence should have ongoing emphasis throughout the program. Third, these trends may indicate that those who are given specialized skills training and business training have a higher chance of reaching the program goals as compared to those who are given business training alone.

Future directions

For this program to have a greater impact, it must focus on prevention. Levels of reproductive health awareness among the Kenyan youth are lower than that of adults[19], and in particular, young and uneducated women have been found to struggle with accessing contraceptive information and counselling services than older and educated women[20]. In one study on the determinants of teenage pregnancy, the majority of adolescents surveyed overwhelmingly felt that access to family life education and counselling was the most effective way of curbing teenage pregnancies[15]. Considering the lifelong impact that one unplanned pregnancy can have on a single mother and the community she lives in, education regarding early sexual behavior and its consequences needs to be emphasized more strongly and frequently within communities. In Kenya, the Nyanza, Coast, and Western provinces are regions where the lowest contraceptive prevalence in the country has been recorded[21]. Thus, there must be increased access to sex education and birth control methods, including detailed information regarding use, effectiveness and reliability, especially in rural areas with high levels of illiteracy[15].

Ultimately, the best method of preventing early, unplanned childbearing is not only lecturing school girls on the consequences of unsafe pre-marital sex; it is also encouraging them to be economically independent. Financial instability and poverty have been shown to be key predictors of women's risky sexual behaviors[22]. In African countries such as Kenya, women may have fewer employment opportunities compared to men because of lower rates of school completion and greater likelihood of prior work in informal, lower-paying segments of the economy[23]. Also, research on US-based samples have also suggested that adolescents who have low expectations for their futures may feel that they have "nothing to lose" by their risky behavior[24,25]. This program has shown that if girls are given the opportunity for economic development and hope for their future they can in turn become sexually responsible. Looking forward, if this program is to ultimately have an impact on the thousands of young single mothers in the coastal area of Kenya, the graduating single mothers need to lead a rippling economic movement within their own communities and encourage their younger peers to stay in school.

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