NI BINTI NI MAMA; A Model for Targeted Nurturing Care Provision for Teenage Mothers and Their Children

INTRODUCTION

Teenage pregnancy and consequent birth are a global problem which is worse in developing countries including Kenya (1). The African continent has the highest adolescent pregnancy rates in the world, according to the United Nations. Adolescent girls who have early and unintended pregnancies face many social, health and financial barriers to continuing with formal education. Poor school enrolment, retention, transition and completion rates compromise education attainment and can be attributed to high teenage pregnancy rates in some counties (2)Similarly, teenage pregnancy and motherhood pose a major risk to their children (3). It has been documented that offspring of adolescent mothers have more cognitive deficits, smaller head circumference and a higher weight to height ratio compared to offspring of adult women (4). This can be attributed to nutritional deficits relating to challenges uniquely experienced by this special group. Some of these include inadequate support and mentorship on child care and inability to executive proper breastfeeding. The breastfeeding policy requires children to be breast fed exclusively for the first 6 months followed by complementary feeding for two years (5–7). This may be difficult to achieve since it will require long absence from school that will jeopardize the success of school reentry for these young mothers. Therefore, in addition to primary prevention by avoiding teenage pregnancies, early identification of adolescent mothers and children at risk for early treatment and intervention is necessary (8,9).

Adolescent girls who have early and unintended pregnancies face many social, health and financial barriers to continuation of their formal education(10,11). This can result into mental health problems such as depression during pregnancy and even after birth. Maternal depressive emotions during pre- and postnatal periods have been associated with an increase in children's sleep problems, while increased happiness during pregnancy was associated with a decrease in children's sleep problems (Liu et al., 2020). Sustainable development goal 3 targets to end preventable deaths of newborns and children under 5 years of age. Unfortunately, more than 5 million children died before reaching their fifth birthday in 2020. Almost half of those deaths, 2.4 million, occurred among newborn. If current trends persist, 48 million children under the age of 5 will die between 2018 and 2030 – half of them newborns. Improving the survival chances of babies, children and

their mothers remains an urgent global challenge (Maternal, Newborn and Child Survival | UNICEF, n.d.).

The World health Organisation (WHO) announced a framework for helping children survive and thrive to transform health and human potential in 2018 dabbed Nurturing Care(12). The framework outlines three levels of support for families which include Universal Support, Targeted Support and Indicated Support. Teenage mothers are among the target populations for Targeted Support. Targeted support focuses on individuals or communities who are at risk of later problems because of factors such as poverty, undernutrition, adolescent pregnancy, HIV, violence, displacement and humanitarian emergencies. It aims to reduce the damaging effects of stress and deprivation, to strengthen individuals' capacity to cope, and to provide extra help. Families and caregivers who are at risk still need access to universal support. But they also need extra contact with trained providers (professional or non-professional), whether that is in facilities, in their community, or at home. They may also need extra resources, such as financial benefits. And they need continuous assessment to spot when they are ready to stop getting targeted support – or to move them on to even more. Examples of targeted support include:

• programmes of home visits that target very young mothers and their children, with the visitors being either professionals or community workers trained to proficiency and with adequate incentives and support;

• participatory groups, based in the community, ensuring the inclusion of caregivers who are marginalized and least likely to attend;

• children's day care that is affordable or free for low-income families, of good quality, and provided at community day-care centers or through other forms of organized care for young children.

This pilot project was aimed at developing a model (Ni Binti Ni Mama) for implementing targeted nurturing care for teenage mothers and their children. We first sought to understand the specific needs, challenges, and preferences of teenage mothers and their children needs, priorities and demands. Secondly, we used insights from the first objective to co-design a strategy tailored to the specific population aimed at promoting nurturing care for the teenage mothers and their

children. Finally, we developed an evaluation tool to measure implementation of nurturing care framework for targeted populations.

Methods

An iterative human-centered approach was adopted in the design of the model to ensure that it is tailored to meet the needs and preferences of the teenage mothers, their supportive systems and the health care system in general. We first mapped teenager mothers in Shibwe subcounty in Ikolomani subcounty with the help of community health volunteers and community health extension workers. The used both qualitative and quantitative approaches to assess their needs. A mobile based structured questionnaire based on the nurturing care framework was used to collect quantitative data from teen mothers (n=). The tool was a combination of an observation checklist and an interviewer administered questionnaire. It was modified from the standardized tools for collecting data on the various components of the nurturing care framework (Maciej Serda et al., 2013). The framework consists of five components which include; - Good health, Adequate Nutrition, Safety and Security, Responsive Caregiving and Opportunities for early learning (WHO et al., 2018). The tool was modified based on the suggested indicators for the nurturing care model and the child age criteria for the teenage mother respondents (Jeong et al., 2022). The tool was anchored on the Kobo collect platform.

Qualitative data was collected through in-depth interviews from the teen mothers. Further, five key informant interviews were conducted, 1 CHEWs, 2 lead CHVs, 1 subcounty community strategy focal person and 1 subcounty reproductive health nurse. Descriptive analysis was done on the quantitative data with means and proportions. The qualitative data was transcribed and scripts in Kiswahili were translated into English. Themes were identified and used to triangulate the findings from the assessment based on the five components of the nurturing care framework. From the findings we were able to conclude on specific needs, challenges, and preferences of teenage mothers and their children needs, priorities and this informed choice of the strategies to be included in the model

A dissemination workshop was organized involving the subcounty health management team and a panel of experts from Masinde Muliro University. The workshop was used as an avenue to; let key stakeholders understand the rationale and outcome of the study, to advocate for action based

on the results, generate proposals on the best course of action and how the stakeholders can get involved and gain support for future program design and implementation.

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Findings

To quantitatively assess the practice, we used a tool based on the nurturing care framework to collect data on each of the five components of the framework; Good Health; security and safety; responsive care giving, nutrition and opportunities for early learning. The tool was made up of prompts that led up to a score based on which proportions were generated.

Good health

The overall practice in the activities involved to ensure achievement of good health had a mean of 58%±21.4. Among the ten (10) parameters used as indicators HIV testing had the highest proportion of mother and baby pairs reporting having been tested at 65.1%. 63.1% were up to date in immunization attendance while 61% had attended all the scheduled ANC visits. Records showed that the growth of 60% of children was being monitored while 55.1% of the mothers reported being on a family planning method. Access to healthcare and family planning resources emerged as a key theme in the qualitative data corroborating this finding. A good number of mothers had completed the scheduled TT vaccination and 55.1 % had received skilled birth attendance. Only a few mothers reported having been counselled on general care of the babies at 49%.

Responsive caregiving

In this component, 24 parameters were used to measure the status. The first set of - parameters aimed at checking for responsive behavior based on the mood of the caregiver when approached

by a child with a need and the resultant response to the need whether positive or negative. For example, we assessed whether the caregiver responded positively to the child's activity/vocalizations or praises the child when interacting with or whether they are able imitate the child's affect (if the child is smiling, they smile back). The next set of parameters were assessing for the presence of non-responsive stimulation both verbally and by active. For instance, it assessed whether a caregiver praises the child or conveys a positive tone of voice at the child in a nonresponsive way. Finally, we assessed for the presence of a negative behavior on the part of the care giver in this case the teen mother. The mean score of this component was slightly above average at 55.3%±17.3. The most gaps were realized on the unavailability of responsive behavior which was later attributed to lack of knowledge on the need to respond.

Early learning opportunities.

This was the third component assessed with an average mean (Mean=50%±18.5) implying that mother the mothers were able to implement at least 50% of the activities expected of them for maximize on their children learning potential. There were14 parameters used as indicators, grouped under; motor activities, social activities, reading/cognitive activities and access to resources to support early learning. Most were able to support motor and operant activities by giving their children things for moving around (balls, wheels, push & pull). They experienced challenges in supporting social activities like singing lullabies or playing with children because they were either busy with housework or going to school and could not afford time for such activities. They also lacked books and materials to enable them to read to their children to promote cognition. Most did not have access to resources to encourage self-play to include toys or objectives with different shapes and colors.

These was collaborated by the information from the interview where it emerged that the teen mothers were suffering from economic dependency and could not afford to provide adequately for their children.

‘’*Maisha ni ngumu tu. Ni nadepend kwa wazazi. Hata diaper*.

‘*Baba yake alitoroka akarudi kwao Tanzania na simu yake ni mteja. Chakula ni ngumu kupata na kazi hakuna. Kwa saa hii niko tu’’.*

Financial difficulties were apparent, with references to not receiving support from their children's fathers, economic struggles, and the mention of not currently having a source of income

Safety and security

The fourth component assessed was focusing on food security housing, access to clean water and sanitation and general protection. The mean score for those who answered positively to most of the prompts was relatively good compared to the other components at M=60.0±14.7. Most had access to safe water for drinking and reported having access to sanitary facilities. On housing most reported sleeping in well ventilated rooms with mosquito nets although the rooms did not have adequate play spaces for their children. Similarly, most were able to have some form of protection where they felt that their children were safe with them, and did not face a risk of being neglected unless they are away from them. Further each mother had either a birth certificate or a notification for their child. Unfortunately, a good number of mothers were found not being secure in terms of food since many reported having skipped meals and could not give their children milk because they lacked money. This was supported by excerpts from the interviews; '*Chakula ni ngumu kupata na kazi hakuna* (Food is hard to find and there is no work').

Nutrition

Most aspects of nutrition assessed performed were positive with a M=64.77±16.27. For instance, under maternal nutrition and child feeding practices most mothers were of normal weight with a mean BMI of 23.7±5.1. They reported having received vit A supplementation and initiating exclusive breast feed immediately after birth but experienced challenges maintaining it until six months. This could be attributed to their need to resume school or inadequate food intake resulting in low production of breast milk as expressed by one of the teen mothers; *Lakini chakula wakati mwingine hakipatikani na nikiwa na njaa maziwa huwa inapotea (But food is sometimes not available and when I am hungry, milk is lost).* The Child nutritional status based on Length for Age Z-score (LAZ), Weight for Age Z-score (WAZ) and Weight for Length Z-score (WHZ) was mainly normal albeit with a number of children having scores suggestive of stunting.

Overall practice on nurturing care

The average score for all the five components was M=57.67±8.90 and could have been influenced with certain socio demographics like age at birth of the child, support from the teen mothers' parents and the level of education of the teen mothers.

Social demographic aspects

		N	M	SD	SEM	T	df	P Value	MD	95% CI
Mother Age Group	14-16	39	60.26	17.09	2.74	0.87	65.98	0.388	2.74	-3.56 - 9.05
	17-19	197	57.51	22.12	1.58					
Birth order for the mother	<=3rd	110	61.91	22.73	2.17	2.66	216.46	**0.008**	7.39	1.91 - 12.86
	>3rd	126	54.52	19.54	1.74					
Age at birth of the child	12-15	142	53.24	16.87	1.42	-4.01	147.68	**<0.001**	-11.87	-17.72 - -6.01
	16-19	94	65.11	25.22	2.6					
Parental support	Yes	142	61.2	21.55	1.81	2.9	234	**0.004**	8.11	2.6 - 13.62
	No	94	53.09	20.22	2.09					
Level of education	Primary	147	55.31	19.91	1.64	-2.4	165.35	**0.018**	-7.05	-12.86 - -1.25
	Post Primary	89	62.36	23.01	2.44					
Status of schooling	Continued	77	54.81	17.74	2.02	-1.73	188.28	0.085	-4.69	-10.04 - 0.66
	Suspended	159	59.5	22.8	1.81					
Monthly earning	>=3000	93	61.29	22.85	2.37	1.89	178.71	0.061	5.49	-0.25 - 11.22
	<3000	143	55.8	20.12	1.68					
Employment	Informal	104	58.65	21.99	2.16	0.44	234	0.662	1.23	-4.3 - 6.76
	None	132	57.42	20.92	1.82					
Marital status	Single	222	56.98	20.83	1.4	-2.86	234	**0.005**	-16.59	-28.01 - -5.17
	Married	14	73.57	24.37	6.51					
Residence	Rural	115	58.7	20.15	1.88	0.51	234	0.610	1.42	-4.07 - 6.91
	Urban	121	57.27	22.51	2.05					
Social support	Good	121	60	21.37	1.94	1.50	234	0.134	4.17	-1.29 - 9.64
	Not good	115	55.83	21.23	1.98					
Health status	Good	105	58.1	21.31	2.08	0.08	234	0.934	0.23	-5.29 - 5.76
	Not good	131	57.86	21.48	1.88					
Access to information.	Yes	122	55.57	21.67	1.96	-1.79	234	0.075	-4.95	-10.41 - 0.5
	No	114	60.53	20.82	1.95					

N=Sample ,M =mean, SD=Standard deviation, SEM= Standard error of mean, t= t statistic, df=degrees of freedom,MD= mean difference

Other emerging themes from the interviews that informed the development of the model included

Family Dynamics and Struggles

The script reflected complex family relationships, including disagreements between parents, challenges in raising a child, and tension between the teens' parents and themselves and their children. Issues such as unwanted pregnancies, parental disapproval, and struggles with childcare were central to the narrative.

Script 2; "Wazazi wangu hawakufurahia mimi kuwa mjamzito. Wakakataa nisiolewe nakama wale watu wakita mtoto wakuje kumchukua."

My parents were not happy that I was pregnant. They refused to let me get married but they were okay if the father and his people would come and take the child.

Script 5; Mama huwa ananigombanisha hata aniamba nirudishe mtoto kwao. Wakati mwingine ananipea manguo ananiambia niende.

The mother always argues with me and even tells me to return the child to them. Sometimes he gives me clothes and tells me to go.

Social Support and Networks:

The importance of social connections was evident, with mentions of friends, family, and the father's willingness to send assistance when called. Social support and networks can play a role in mitigating some of the challenges faced by the mothers.

Gender Roles and Expectations

Gender-related issues surface through the portrayal of the mother's arguments, insistence on returning the children to their paternal relatives, and societal expectations regarding pregnancy and marriage. There are indications of traditional gender roles influencing decisions and relationships within the family.

Youth and Identity

The script touches on the experiences of the teen mothers in dealing with peer pressure, and the emotional impact of others' comments. The youth's perspective and identity development are woven into the narrative.

***Cultural and Traditional Influences**:*

Cultural elements are present, such as the refusal to shave the child's hair, indicating the significance of traditions within the community. The tension between modern choices and traditional expectations adds complexity to the characters' experiences.

Mental and Emotional Well-being:

Emotional challenges are evident, with the mothers' expressing feelings of discomfort, sadness, and the impact of negative comments from peers. Mental and emotional well-being is a recurring theme that requires attention and support.

These cross-cutting themes collectively contribute to the complexity of the teen mothers' lives, offering a rich tapestry of experiences and challenges. Addressing these themes holistically enabled us to develop a more comprehensive intervention

Collaborative workshop and stakeholder engagement

A dissemination/feedback workshop was organized with key stakeholders in the subcounty. Key in the discussion was the need to enhancing parenting skills, and fostering emotional well-being, promoting financial independence. It was noted that the current government's efforts were geared more towards the achievement of good health and nutrition but little was being done around ensuring the mental wellbeing, economic empowerment and enhancing parental skills.

The first intervention suggested was home visiting for counselling and support for teen mothers who had recently delivered during the post-partum period. This could best be done by community health volunteers since they are the ones who can easily access the teen mums with the minimum resources. It was agreed that after delivery, teen mums are referred back to the community health volunteers who will ensure continuity of care during the post-partum period. It was proposed that CHVs should carryout home visits for the referred adolescent mothers. They then assess and make a plan for support depending on the needs identified. To this effect, there was need to empower community health volunteers to enable them to conduct these visits effectively.

Consequently, a draft training module for sensitizing the CHVs on nurturing care and their role in cascading the information to the teens and remaining as a resource was developed. The module was piloted in a one-day workshop involving 21 CHVs at Shieywe subcounty hospital. The content

of the module included; an introduction to the nurturing care framework, a basic description of the five components of the model and the roles of CHVs in implementing the care packages of the framework.

The Model description

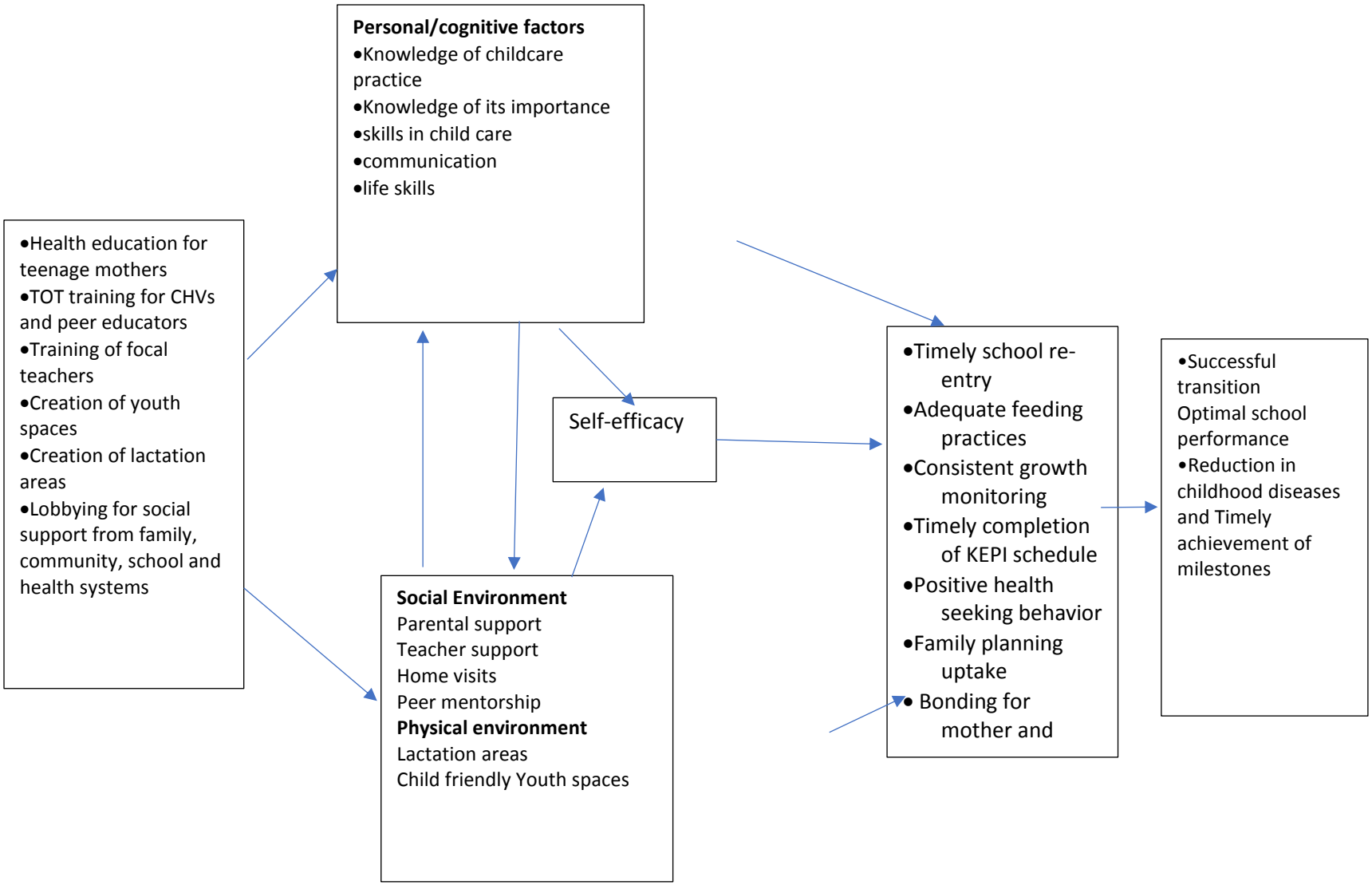
Ni Binti Ni Mama loosely translated as '**she is a girl she is mother'** is an intervention aimed at supporting teen mothers to effectively care for their children while maximizing on their own potential. The latter could be achieved through resumption of schooling or actively being engaged in economic activities. These desired outcomes for both mother and baby are embodied in the Nurturing Care framework (WHO et al., 2018). The ***Ni Binti Ni Mama*** model is a set of tailored interventions aimed at achieving the goals of this framework.

The quantitative needs assessment findings, the engagements with the mothers, the community health volunteer and feed back sessions resonated well with Social Cognitive Theory. This theory provided a more concrete pattern in which the identified interventions could interact to arrive at the anticipated goal and objectives. This pattern informed the change theory/conceptual framework for this model. Social Cognitive Theory (SCT) describes the influence of individual experiences, the actions of others, and environmental factors on individual health behaviors. SCT provides opportunities for social support through instilling expectations, self-efficacy, and using observational learning and other reinforcements to achieve behavior change.

The NI BINTI NI MAMA MODEL will work to influence the cognitive and personal factors for teenage mothers, their parents and peers through health education. This model will employ a multidisciplinary approach where it encompasses training focal teachers in schools that will support reentry of teen mothers and community health promotors in community units where the teen mothers come from. Their empowerment will be done using the developed modules which will undergo expert review before adoption. This will build self-efficacy and behavioral capability to implement the child care practices for teenage mothers and to provide social support and role modelling for the parents. Bringing on board peers, parents and focal teachers will create a friendly social atmosphere to allow these teenagers to thrive. It will also promote destigmatisation and support for the teenage mother from the peers. Further the project will also support creation of enabling physical environment by establishing lactation areas, crèches and youth friendly spaces in schools. Teenage mothers will be empowered to be mentors of other teenage mothers to promote

observational learning. Behavior change could be reinforced initially with cash transfers and later support to start income generating activities that will sustain the mothers and their children in the long term.

The model will support school re-entry of teenage mothers without interrupting exclusive breastfeeding among other child health practices to ensure optimum health for the babies and teenage mothers. The mothers will be trained in key child health care practices, which include; exclusive breastfeeding, manual expression of breast milk, its storage, transportation back home and how it is fed to the baby while the mothers are away in school. To maintain the cold chain, we will design milk bags and ice packs and empower the teenage mothers to make them using locally available materials. They will use yarn to crotchet bags and line them with foil. Frozen bean bags filled with rice will be used as ice pack to keep the milk fresh during transport and storage even in the absence of refrigeration facilities at home.


Personal/cognitive factors
•Knowledge of childcare practice
•Knowledge of its importance
•skills in child care
•communication
•life skills
•Health education for teenage mothers
•TOT training for CHVs and peer educators
•Training of focal teachers
•Creation of youth spaces
•Creation of lactation areas
•Lobbying for social support from family, community, school and health systems
Self-efficacy
Social Environment
Parental support
Teacher support
Home visits
Peer mentorship
Physical environment
Lactation areas
Child friendly Youth spaces
•Timely school re-entry
•Adequate feeding practices
•Consistent growth monitoring
•Timely completion of KEPI schedule
•Positive health seeking behavior
•Family planning uptake
• Bonding for mother and
•Successful transition
Optimal school performance
•Reduction in childhood diseases and Timely achievement of milestones

The model implementation will can be based on the following logical framework;

Outcome 1; Improved nurturing care practices among teenage mothers in identified sub-counties

Output 1.1: Enhance personal/cognitive factors that can influence change in childcare practices

Activities

- Prepare a curriculum and occupational standards for to training community health workers and focal teachers on nurturing care
- Stakeholder involvement and expert review of the curriculum for adoption
- Training community providers and focal teachers on nurturing care
- Facilitate the identification of teenage mothers, assessment and attachment to a community health volunteer for mentorship in nurturing care
- Monitoring and evaluation

Output 1.2. Lobbying for social support from family, community, school and health systems

Activities

- Sensitization meetings for parents with teenage mothers
- Sensitization of teachers in school where these mothers go
- Community dialogue on teenage pregnancy and stigma
- Find linkage to facilities that teenage mother friendly maternal and child welfare services

Output 1.3. Creation of an enabling physical environment to implement the childcare practices

Activities

- Creation of a lactation area in a model school
- Creation of teen mothers' clubs with monthly meetings for social support for mental well-being and comprehensive sexuality information sharing

Output 1.4. Increasing accessibility of child welfare services

Activities

- Stakeholder engagement to lobby for teenage-friendly hours of service provision in linked facilities
- Enhance NHIF cover for the teenage mother to include the children

Output 1.5: Research Evidence

- Baseline Survey
- Endline survey
- Data Analysis and Reporting
- Manuscript writing and Submitted to Peer Reviewed Journal

Conclusion:

In conclusion, the Ni Binti Ni Mama model represents a significant step towards addressing the complex challenges faced by teenage mothers and their children in developing countries. By taking a comprehensive approach that considers the social, economic, and cultural factors influencing teenage pregnancy and maternal-child health outcomes, the model can be used to improve the lives of teenage mothers and their children, ultimately contributing to the broader goals of sustainable development and social equity. Through targeted interventions and community engagement, the models seek to empower teenage mothers to provide nurturing care for their children while also supporting their own well-being and future prospects. The model could benefit from further randomized feasibility studies to ascertain its applicability in different settings consequently refined for adoption.

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