Impact Evaluation

End of Phase One Impact Evaluation for the Treating Depression at Scale in Africa Program in Uganda

November 2014

This Impact Evaluation was completed by StrongMinds. Dr. Katia Peterson, of In Situ Research LLC, executed the analysis and contributed to the report document.

Table of Contents

Acronyms

DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
GEE	Generalized Estimating Equation
GIPT	Group Interpersonal Psychotherapy
IPT	Interpersonal Psychotherapy
MHF	Mental Health Facilitator
MOH	Ministry of Health
NGO	Non-Governmental Organization
PHQ-9	Patient Health Questionnaire-9
RCT	Randomized Controlled Trial
STATA	Statistical Software by StataCorp.

1. Executive Summary

Synopsis

An Impact Evaluation indicates that the StrongMinds' "Treating Depression at Scale in Africa" Phase One pilot exceeded expectations by successfully reducing the depressive symptoms in 94-97% of the patients treated using Group Interpersonal Psychotherapy (GIPT). This decrease in depression had an impact on the well-being of the participants. During the 16-week intervention, self-employment increased by 22%, unemployment was reduced by 67%, the number of women who were able to save part of their income increased by 63%, and women eating three meals a day increased 245%. Recommendations for Phase Two and scale up include changes in the type and quantity of data collected as well as the length of treatment and the severity of cases to include in treatment.

Introduction and Background

During the period 1/2014 – 2/2015, StrongMinds is implementing a pilot program using Group Interpersonal Psychotherapy (GIPT) to treat 500 depressed women in Kampala, Uganda, a post-conflict and highly impoverished country where 1 out of every 4 adults suffers from depression. Depression in Africa is a pervasive and debilitating mental illness; it is the number one cause of disability for over 60 million African women, over 90% of whom have no access to treatment.

GIPT is a proven model of treating depression. It focuses on the interpersonal relationships of depressed group members and is led by a facilitator who uses a structured model over a period of 16-weeks to help group members identify and understand the root causes and triggers of their depression, and then to formulate strategies to overcome those triggers. Since depression is episodic and will continue to recur throughout most people's lives, these newly acquired skills have both an immediate impact and a long-term preventive impact on the lives of those suffering from depression.

The pilot "Treating Depression at Scale in Africa" will test, assess and modify key program features over a 14 month period, and allow StrongMinds to develop a refined model that can be subsequently implemented at a larger scale beginning in early 2015.

This pilot will treat patients in two cohorts of roughly equal size, over two phases. StrongMinds concluded Phase One of the pilot by completing the 16-week treatment of 244 depressed women, via 26 Interpersonal Psychotherapy (IPT) groups, on September 12. These 26 groups were led by four Mental Health Facilitators (MHFs) who are employed by StrongMinds. Phase Two of this pilot, which will treat approximately 260 women and reach the Pilot goal of treating 500 women in total, begins in early November.

Impact Evaluation Purpose and Methods

Purpose

The end of Phase One Impact Evaluation for the StrongMinds' Treating Depression at Scale in Africa Project in Uganda was carried out between September and October of 2014. The purpose of the evaluation is to inform program activities for Phase Two of the Project during the remainder of 2014 and early 2015.

The evaluation focused on three major questions:

1. Was the use of Group Interpersonal Psychotherapy, implemented at a scaled approach, effective in treating depression in Uganda?
2. What, if any, were the secondary positive impacts of using GIPT on the depressed patients?
3. What actions are necessary for StrongMinds to improve its programmatic activities in light of the impact evaluation findings?

Methods

The Impact Evaluation primarily used quantitative techniques and was comprised of all the 244 depressed female participants in the treatment intervention group and all the 36 depressed female participants in the control arm. Participants were located in various towns within the Bulenga and Maganjo Parishes in suburban Kampala (site map located on page 12).

Basic demographic data was collected at pre-assessment. Raw Scores from the Patient Health Questionnaire-9 (PHQ-9, a quantitatively based depression diagnostic tool) were recorded at pre-assessment, again at every IPT group meeting from weeks 5-16, and once more at post-assessment (week 17). Data on patient functionality (treatment intervention group only) was collected at pre and post-assessment.

Limitations of the Evaluation included the possibility of patient response bias; the subjectivity of self-reported data; some missing data, and logistical and time constraints to organize and analyze the sizeable amount of data.

Findings and Discussion

The first question posed in this Impact Evaluation was:

1. Was the use of Group Interpersonal Psychotherapy (GIPT), implemented at a scaled approach, effective in treating depression in Uganda?

The GIPT intervention appears to have had a strong impact in terms of reducing the depressive symptoms of a very large majority of the treated women patients. **The Evaluation finds a range of 94-97% of the patients treated by StrongMinds were depression-free after this 16-week GIPT intervention**, which is roughly equivalent to the 92% success rate achieved by a Randomized Controlled Trial for GIPT conducted in Uganda in 2002.[1] The 2002 RCT used 9 MHFs to treat 224 individuals whereas StrongMinds, using a scaled approach, used 4 MHFs to treat 244 people. The RCT staff MHFs were lay individuals with high school training only; the StrongMinds MHFs consisted of two nurses and two women with degrees in community psychology. In this pilot, StrongMinds set a goal of reaching depression-free status for 75% of its patients. This mark was attained in week 12, and then further exceeded by the end of the intervention in week 16.

Furthermore, the analysis determined that **depressed female patients who completed the GIPT intervention, on average, experienced a 5.1 point reduction** in their total PHQ-9 Raw Score[2] over the

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[1] Bolton, Paul, et al. Group Interpersonal Psychotherapy for Depression in Rural Uganda. JAMA, June 18, 2003: 289; 3117-3124.

[2] The PHQ-9 is a quantitative tool used to diagnose patients with depression, with scores ranging from 1-27. Further information on the PHQ-9, including the form itself, is included in Appendix B of the Impact Evaluation report.

entire 16-week intervention period, compared to the control group. Additionally, for each visit, **these women experienced an average 0.63 reduction in their PHQ-9 Raw Score for depression.**   These findings were both statistically significant, and indicate the magnitudes by which their depressive symptoms were reduced.

The above findings were verified in several manners. First, after the conclusion of the 16-week intervention, a post-assessment evaluation was conducted within the following week, in which group members were re-evaluated by a different MHF, using the PHQ-9 diagnosis tool. The reason for this visit was to correct for any patient bias or allegiance to the MHF, and also to correct for any MHF quality issues in administering the diagnosis tool. In addition, outside mental health experts have reviewed the rates of improvements of GIPT group members, and found the information to be reasonable.

It is important to note that the StrongMinds team of four Ugandan female MHFs who led these 26 groups comprising 244 women were all first time GIPT implementers. There is a distinct possibility that their inexperience may have led to a partially inflated success rate, by incorrectly using the depressive diagnostic tools, for example, despite the MHFs being closely supervised by highly experienced GIPT experts both in Uganda and the US.

It is interesting that the control group in this Phase One of the pilot also experienced a notable reduction of depressive symptoms: 33% of the control group were depression-free at the end of the study period. Discussions with mental health experts and program staff have led to possible explanations as to why the control group did improve, but will need to be further explored by StrongMinds in Phase Two and in future interventions in 2015.

The second question posed in this Impact Evaluation was:

2. <u>What, if any, were the secondary positive impacts of using GIPT on the depressed patients?</u>

The GIPT intervention appears to have had an impact in addition to significantly reducing the depressive symptoms of these women patients. The following is a summary of the statistically significant findings for women who completed the GIPT intervention, comparing baseline to end line data:

- **Self-employment of women increased 22%**
    o   an increase from 158 to 192 women reported being self-employed
- **Unemployment of women reduced 67%**
    o   a decrease from 49 to 16 women reported being unemployed
- **Ability of women to save from their income increased 63%**
    o   an increase from 129 to 211 women reported being able to save from their income
- **Women eating three meals a day (proxy for nutrition) increased 245%**
    o   an increase from 44 to 152 women

The demonstrated increases in various well-being indicators collectively demonstrate that GIPT appears to have had significant secondary positive impacts on the well-being of these women. Since depression is the number one cause of disability for women in Africa, it is logical that by reducing these women's level of depression, their level of disability is reduced. In other words, by reducing their depressive levels, the women become "enabled." Therefore, with lower disability, we see corresponding increases in employment and correlated reductions in unemployment. It is fair to assume that the improved employment situation helps to drive the increases in savings and meals consumed.

There is a possibility that some or all of these positive impacts in employment, unemployment, savings and better nutrition resulted from some other outside factor(s) non-attributed to this StrongMinds' intervention, and that these positive impacts, in turn, drove the positive improvements in the depressive states of the women patients. Future efforts by StrongMinds will need to address this issue.

Recommendations

The third question posed in the Impact Evaluation was:

3. <u>What actions are necessary for StrongMinds to improve its programmatic activities in light of the Impact Evaluation findings?</u>

In summary form, the following actions are recommended:

- Revise functionality data collection tools to reflect more appropriate indicators of patient and their family well-being, to include income, health, educational achievement, etc. and link these tools to local Uganda District Health Survey tools to allow for comparisons.
- Consider the addition of qualitative methods such as in depth interviews of random participants in order to capture context around quantitative results.
- Ensure functionality data collection is completed for both patient intervention group and control group.
- Consider reducing data collection frequency to limit the burden and also the number of missing data values. Consider automation of data collection efforts, using laptops/tablets/etc.
- Develop new programmatic strategies for addressing depression with males.
- Consider utilizing independent/external mental health experts to implement PHQ-9 diagnoses to 10% of participants from each intervention group in order to capture/correct any response and MHF bias, and to serve as a quality control check.
- Consider excluding Minimal or Mild cases of depression in future groups unless there are extenuating circumstances (for example, suicidality). Determine if there are other, non-GIPT methods by which StrongMinds can assist these case types.
- Consider reducing the length of GIPT interventions to less than 16 weeks, in light of the high degree of success by week 12.
- Ensure future control groups are not at risk of contamination; limit their contact with StrongMinds' MHFs and patients.

2. Impact Evaluation Purpose and Evaluation Questions

The end of Phase One impact evaluation for the StrongMinds' Treating Depression at Scale in Africa Project in Uganda was carried out between September and October of 2014. The purpose of the evaluation is to inform program activities for Phase Two of the Project during the remainder of 2014 and early 2015.

The evaluation focused on three major questions:

1. Was the use of Group Interpersonal Psychotherapy (GIPT), implemented at a scaled approach, effective in treating depression in Uganda?
2. What, if any, were the secondary positive impacts of using GIPT on the depressed patients?
3. What actions are necessary for StrongMinds to improve its programmatic activities in light of the impact evaluation findings?

3. Project Background

Context: Depression in Africa

The single most prevalent mental illness in the world is major depressive disorder, more commonly known as depression. Globally, 350 million people suffer from depression. According to the World Health Organization, it is expected that by the year 2030, depression will be the second highest contributor to the global burden of disease, second only behind HIV/AIDS. It is a debilitating illness, which disables more Africans than HIV/AIDS, cancer, or heart disease. In Africa, approximately 100 million people suffer from depression, with women afflicted at twice the rate of men. For African women, depression is the number one cause of disability. The impact on the life of an African woman suffering from depression is wide-ranging and severe:

- Depression incapacitates a woman, leaving her physically and mentally debilitated.
- Depression disrupts family stability, and frequently leads to strife between the patient and her children, spouse and relatives.
- Depression sufferers exhibit more maladaptive parental behaviors such as harsh punishment and spending smaller amounts of time with their children.
- Children of mothers suffering from depression:
  - Have poorer overall health than children of mothers without depression, including a higher risk of being underweight, stunted and suffering more episodes of diarrhea
  - Generally have lower attendance and achievement during primary school years
  - Form less secure attachment relationships with their parents
  - Are at increased risk themselves for depression during childhood and adolescence
- People with mental disorders, including depression, are at a heightened risk of contracting HIV/AIDS.
- Depressed patients incur significantly higher health care costs.

Mental illness in the developing world, and especially Africa, continues to be one of the most neglected health problems, despite the growing prevalence of many such illnesses, like depression. Extreme poverty, terrorism, conflict, and instability in many African countries are creating a depression epidemic—rates of depression throughout Africa are several times higher than rates found in Europe or the U.S. However, the response to this health crisis is greatly lacking. The Ugandan Ministry of Health (MOH) spends just 2% of its health budget on mental illnesses, devoting most of those funds to the national mental hospital in Kampala, and thereby neglecting the large majority of the country's mentally ill population. International development assistance to promote mental health for developing world countries is extremely limited. As a result, in both Uganda and Africa in general, there is a startling lack of financial and human resources available to treat the growing mental health problem of depressive disorders. The ultimate impact of this situation is compelling: an average of 90% of Africans suffering from depression--90 million people, including 60 million women--have no access to effective treatment.

Project Background

In response to the depression crisis in Africa, StrongMinds in 2013 conducted extensive research and analysis in order to identify the most appropriate treatment intervention which would be effective and scalable. StrongMinds ultimately selected group interpersonal psychotherapy (GIPT) as its method of intervention. GIPT is a proven, simple and cost efficient community-based model to treat depression. GIPT focuses on the interpersonal relationships of depressed group members and is led by a facilitator

who uses a structured model over a period of 16 weeks to help group members identify and understand the root causes and triggers of their depression, and then to formulate strategies to overcome those triggers. Since depression is episodic and will continue to recur throughout most people's lives, these newly acquired skills have both an immediate impact and a long-term preventive impact for the depressive sufferer.

GIPT was first tested in Uganda by Johns Hopkins University in a randomized controlled trial (RCT) in 2002. Using nine lay community workers with only a high-school education as their Mental Health Facilitators (MHFs), the researchers found that GIPT was successful in reducing the depressive symptoms of 92% of the 224 patients they treated. A separate group therapeutic approach of psychotherapy also was successful in Africa in 2012. These group therapeutic methods are well suited for the African culture, given its strong communal society.

As a talk therapy approach, GIPT does not require the use of antidepressant medications for patients. Given that access to such medications is problematic for most of the African population, GIPT's ability to treat depression without the use of such medications makes it particularly well suited for the African context.

The original 2002 GIPT research study also showed that the positive effect of the intervention continued for 6 months after the intervention, and some of the groups actually continued to meet for many years while maintaining a reduction in their depressive symptoms. Thus, StrongMinds aims to replicate a similar GIPT regimen for depressed patients, but at scale, helping them to learn coping strategies that both resolve their current depressive states and prevent future depressive episodes.

Project Overview and Status

During the period 1/2014 – 2/2015, StrongMinds is implementing a pilot program using Group Interpersonal Psychotherapy to treat 500 depressed women in Kampala, Uganda, a post-conflict and highly impoverished country where 1 out of every 4 adults suffers from depression. The pilot "Treating Depression at Scale in Africa" will test, assess and modify key program features over a 14-month period, and allow StrongMinds to develop a refined model that can be subsequently implemented at a larger scale beginning in early 2015.

This pilot will treat patients in two Phases, of roughly equal cohort sizes. StrongMinds concluded Phase One of the pilot by completing the 16-week treatment of 244 depressed women, via 26 IPT groups, on September 12. These 26 groups were led by four Mental Health Facilitators who are employed by StrongMinds. Treatment began May 26, with 259 women, and 15 women withdrew for various personal reasons (6% drop out rate).   The overall group session attendance rate for these 244 women throughout the 16-weeks was 86%. Originally, the pilot had planned to include a small percentage of depressed men as patients, but outreach efforts to males proved unsuccessful and new program strategies will be developed for them in 2015.

StrongMinds plans to maintain contact with a representative sample of the 500 patients treated during this pilot for a 6-month period post-intervention, during which their depressive states will be monitored on a monthly basis. This 6-month post-intervention engagement will permit StrongMinds to evaluate the longer term impact of GIPT on the patients' depressive conditions, and provide early indication on the effectiveness of this intervention for preventing the recurrence of future depressive episodes among treated patients.

Further details on program strategies can be found in the appendices:

- Appendix A: StrongMinds Model Overview
- Appendix B: Depressed Patient Diagnosis Using the PHQ-9 and PHQ-9 Form
- Appendix C: Depressed Patient Identification and Recruitment
- Appendix D: Group Interpersonal Psychotherapy: How does it work?
- Appendix E: Training of Mental Health Facilitators (MHFs)

Phase Two of this pilot, which will treat approximately 260 women and reach the Pilot goal of treating 500 women in total, begins in early November. A separate Impact Evaluation for Phase Two will be completed, after its conclusion, in early 2015.

4. Evaluation Methods and Limitations

Methods

The study was comprised of all the 244 depressed female participants in the treatment intervention group and all the 36 depressed female participants in the control arm. Participants were located in various towns within the Bulenga and Maganjo Parishes in suburban Kampala. Participants in the treatment intervention group were screened, diagnosed with depression and agreed to join IPT groups in March and April of 2014. Participants in the control arm were also screened and diagnosed with depression in March and April 2014, but they were not able to join IPT groups operated by StrongMinds due to capacity constraints. Thus, the control arm participants did not receive any official treatment for depression during this 16-week intervention period, although they were offered the opportunity to join an IPT group with StrongMinds during Phase Two, beginning in November.

Table 1 provides a specific listing of the participant population groups per town location; Map 1 provides a geographical representation.

Table 1. Study participant location

Location	Intervention Size N (%)	Control Size N (%)
Bulenga Parish		
Bulenga	39 (16%)	6 (17%)
Kikaaya	29 (12%)	3 (8%)
Nakuwadde	24 (10%)	2 (6%)
Bulaga	6 (2%)	2 (6%)
Ssumbwe	21 (9%)	5 (14%)
Maganjo Parish		
Jinja Kawempe	21 (9%)	--
Mau	65 (27%)	7 (19%)
Kagoma	38 (16%)	9 (25%)
Kawempe B	--	2 (6%)

Map 1. Site Location Map (Kampala, Uganda environs)
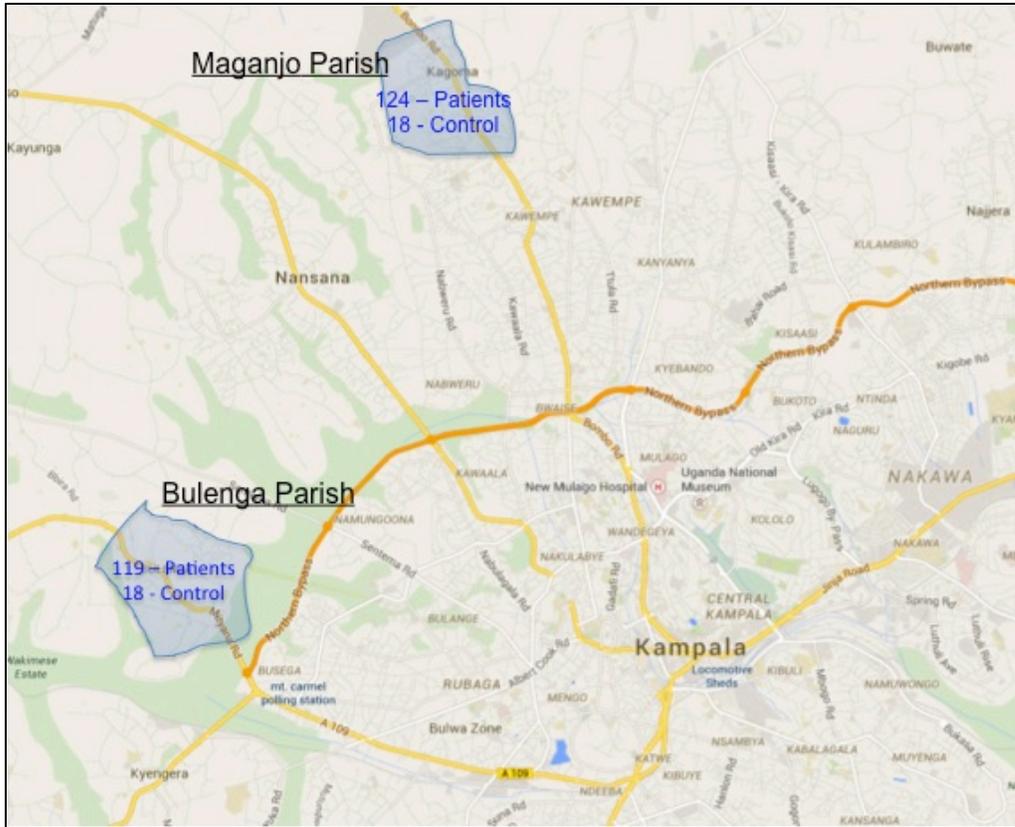
As background, StrongMinds uses a quantitative tool to formally diagnose an individual with depression called the Patient Health Questionnaire (PHQ-9), which is contained within the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association and supported by the WHO for use in the developing world. (Please also see Appendix B: Depressed Patient Diagnosis Using the PHQ-9 and PHQ-9 Form.) The PHQ-9 is a series of 9 questions which score the severity of depressive symptoms for a patient, and provides an overall Raw Score for a patient's level of depression, as seen in Table 2. The Raw Score, in turn, equates to a level of depression, or Depression Severity Score.

Minimal Depression, which equates to a PHQ-9 Raw Score of between 1-4, can also be referred to as a normative level of depression. Minimal Depression, in lay terms, means that the individual is not able to be diagnosed with any significant level of depression, and is thus, "depression-free." The goal of the StrongMinds' pilot intervention is to reach the Minimal Depression state for its patients.

Table 2: Raw score to depression score conversion

PHQ-9 Raw Score	Depression Severity Score
1-4	0 = Minimal Depression
5-9	1 = Mild Depression
10-14	2 = Moderate Depression
15-19	3 = Moderately Severe Depression
20-27	4 = Severe Depression

Respondents with Minimal or Mild Depression (anyone with total raw scores between 1-9) at baseline in both the treatment intervention and control groups were dropped from the analysis. In typical practice around the world, individuals with Minimal/Mild Depression are not considered for inclusion in group therapy, because their depressive symptoms are relatively insignificant. While StrongMinds consciously included these Minimal and Mild cases in this Phase One of their pilot to gain experience with the patient population, their removal from the analysis serves to ensure that the Impact Evaluation is not artificially inflated, since reducing the depressive symptoms of Minimal/Mild Depressive cases is admittedly easier to do.

The result was longitudinal data collected from 211 patients in the treatment intervention group and 33 people in the control population. As previously indicated, all the participants in the study were female.

Basic demographic data was collected at pre-assessment. PHQ-9 scores were recorded at pre-assessment, again at every IPT group meeting from weeks 5-16, and once more at post-assessment (week 17). PHQ-9 scores were not collected the weeks 1-4 in order to permit our MHFs to focus on establishing rapport with the newly created IPT groups and to minimize the early-stage MHF workload. Data on patient functionality (intervention group) was collected at pre and post-assessment.

Analysis

<u>Demographic characteristics</u>

Descriptive statistics were generated for both the treatment intervention and control groups. Demographic data consisted of age, location, marital status, and parity.

<u>Treatment effect</u>

A generalized estimating equation (GEE) model was utilized to analyze correlated data and intra-subject changes in raw PHQ-9 score changes over the 16-week study period and at post-assessment (week 17) among both treatment intervention and control groups. The GEE model was selected in order to determine the overall impact of the intervention on the average scores of individuals in the treatment intervention group relative to those in the control group, and to determine the effect size in score changes. After performing exploratory data analysis with a continuous response variable, we hypothesized that it may be reasonable that the correlation structure would be autoregressive and thus fit an AR(1) correlation structure to our GEE model.

We also re-ran the analysis on a subset of the population and removed all persons who came in with Minimal or Mild Depression (anyone with total raw scores between 1-9) at baseline in both treatment intervention and control groups to gauge whether there was any difference in the effect size on the entire group without those starting off with mild symptoms. This dropped the sample size to 33 in the control population and 211 in the treatment intervention group.

Data was analyzed using STATA /SE version 12.1 using the xtgee commands. Missing data was not imputed as we found them to be missing at random (and that the probability of drop out may be related to covariates and pre-drop out responses). Further, GEE models use the "all available pairs" method, in which all non-missing pairs of data are used in the estimating the working correlation parameters. In our case the GEE model only lost the observations that the subject is missing, not all measurements.

Pre and post functionality data was descriptively analyzed and specific indicators of functionality were compared treatment effect using a z-test. Functionality data included number of meals eaten in the previous 24 hours, employment status, and income savings.[3]

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[3] Due to missing data from many functionality indicators, it was not possible to compute statistics for each one.

5. Findings, Discussion and Recommendations

Findings

Demographic descriptive statistics (all participants)

The control group consisted of 36 people with an average age of 42 years. The treatment intervention group consisted of 244 people with an average age of 39 years. Approximately 50% of respondents in the treatment intervention group reported being married at the beginning of the study. Ninety-four respondents reported having at least one child. There was no data collected on marital status or parity of the control group, as it was constituted after those data collection efforts. Table 3 below illustrates demographic characteristics of the control and treatment intervention groups.

Table 3. Baseline demographic characteristics

Characteristics	Intervention Size N (%)	Control Size N (%)
Age (years)	39	42
Marital Status		
Married	110 (46%)	--
Separated	57 (24%)	--
Divorced	2 (1%)	--
Widowed	60 (25%)	--
Single	8 (3%)	--
Have Children		
Yes	222 (93%)	--
No	11 (5%)	--

Treatment Effects

Tables 4(a) and 4(b) outline descriptive statistical data on depression scores and prevalence for both the treatment intervention and control groups at pre and post-assessment.   Figures 1 and 2 represent those scores graphically.

Table 4(a). Treatment Intervention Pre and Post-Assessment Depression Scores

Characteristics	Intervention N (%)		Control N (%)	
	Pre	Post	Pre	Post
Median PHQ-9 Raw Score	12	0	12	6
Median Depression Score	2	0	2	1
Prevalence of Depression by Type				
(0) Minimal	8 (3%)	**233 (94-97)%**	0 (0%)	12 (33%)
(1) Mild	32 (13%)	9 (3%)	3 (8%)	15 (42%)
(2) Moderate	159 (66%)	0 (0%)	21 (58%)	8 (22%)
(3) Moderately Severe	34 (14%)	0 (0%)	12 (33%)	1 (3%)
(4) Severe	8 (3%)	0 (0%)	0 (0%)	0 (0%)

Figure 1. Treatment Intervention Population Pre and Post-Assessment Depression Scores[4]
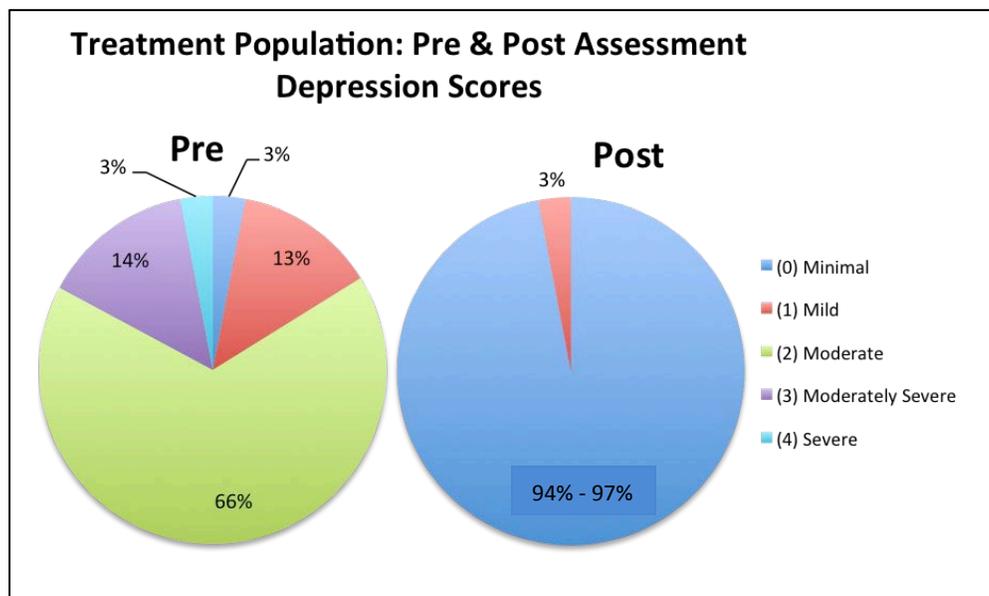
[4] See Table 2 for conversion of PHQ-9 Raw Score to Depression Score.

16

Table 4(b). Control Population Pre and Post Depression Scores

Characteristics	Intervention N (%)		Control N (%)	
	Pre	Post	Pre	Post
Median Raw PHQ-9 Score	12	0	12	6
Median Depression Score	2	0	2	1
Prevalence of Depression by Type				
(0) Minimal	8 (3%)	233 (94-97)%	0 (0%)	**12 (33%)**
(1) Mild	32 (13%)	9 (3%)	3 (8%)	15 (42%)
(2) Moderate	159 (66%)	0 (0%)	21 (58%)	8 (22%)
(3) Moderately Severe	34 (14%)	0 (0%)	12 (33%)	1 (3%)
(4) Severe	8 (3%)	0 (0%)	0 (0%)	0 (0%)

Figure 2. Control Population Pre and Post-Assessment Depression Scores[5]

The number of patients in the treatment intervention group responding to Minimal Depression (or "depression-free") at post-assessment (Week 17) ranges from 94% to 97%. As previously explained, all of the respondents who reported Minimal or Mild depression at the pre-assessment (or baseline) were excluded from the analysis (40 patients in total). As such we removed these people not only from the numerator, but also from the denominator for post-assessment calculations and attained the 97% figure. This could result in an overestimation for treatment effect in the post-assessment. If these individuals are removed from the numerator but included in the denominator, the treatment drops to 94% reporting Minimal Depression.

GEE Analysis

As evidenced in Table 5, those in the treatment intervention group, on average, **had a 5.1 point reduction in their total PHQ-9 Raw Score over the intervention period**, as compared to control populations. Further, there is also a significant visit effect when controlling for group membership. The **PHQ-9 Raw Score decreased on the average by 0.63 points for each visit**. Both of these findings are statistically significant.

Table 5. Results of the GEE analysis

Treatment Session	Coefficient	Standard Error	Z	P> |z|	95% Confidence Interval	
group	-5.126172	0.3732125	-13.74	0.000	-5.857655	-4.394689
session	-.6304242	0.0345843	-18.23	0.000	-0.6982082	-0.5626401
_cons	15.5554	0.4805464	32.37	0.000	14.61355	16.49725

The results from the GEE model demonstrate that the intervention did have a decreasing effect on the final PHQ-9 Raw depression scores. Although both the control and treatment intervention group did have an overall decrease in depression scores, the treatment intervention group had a greater drop in PHQ-9 Raw depression scores and by the 12th session 75% of patients had PHQ-9 Raw Scores of 1-4 in which they would be classified as Minimally Depressed (or "depression-free"). **By week 17, the number of Minimally Depressed dropped even further with between 94-97% having scores of 1-4.** Figure 3 displays the average PHQ-9 scores for both the treatment intervention and control groups throughout the intervention period.

**Figure 3: Line graph displaying <u>average</u> PHQ-9 Raw Scores at each session
of treatment intervention vs. control groups**
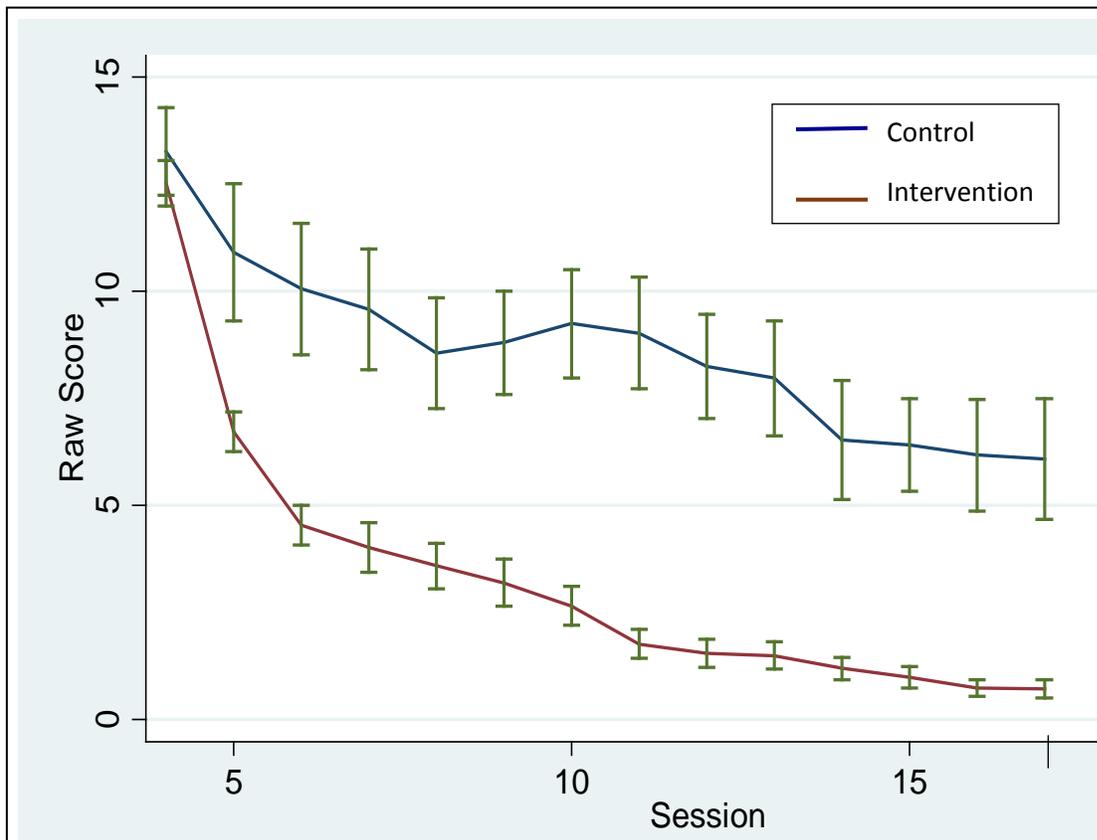
Functionality

Functionality was measured on 28 factors and collected from 238 treatment intervention patients at pre- and post-assessment. Due to missing values and the questionability of some indicators as appropriate measures of functionality, only four indicators were analyzed for results: employment status, income savings, weekly earnings and number of meals within the previous 24 hours (proxy measure for nutritional status). The Functionality Assessment Tool, which was used to collect this data, is included in Appendix F.

Employment Status

Respondents were queried about their employment status at pre and post-assessment. Z-scores were significant for pre and post-test differences between the self-employed and unemployed. Specifically, there were more people who identified as 'self employed' and fewer people who identified as 'unemployed' post intervention (z-scores -3.2 and 4.4, p-value < 0.05 respectively), as evidenced in Figure 4.

Figure 4. Employment status pre and post assessment
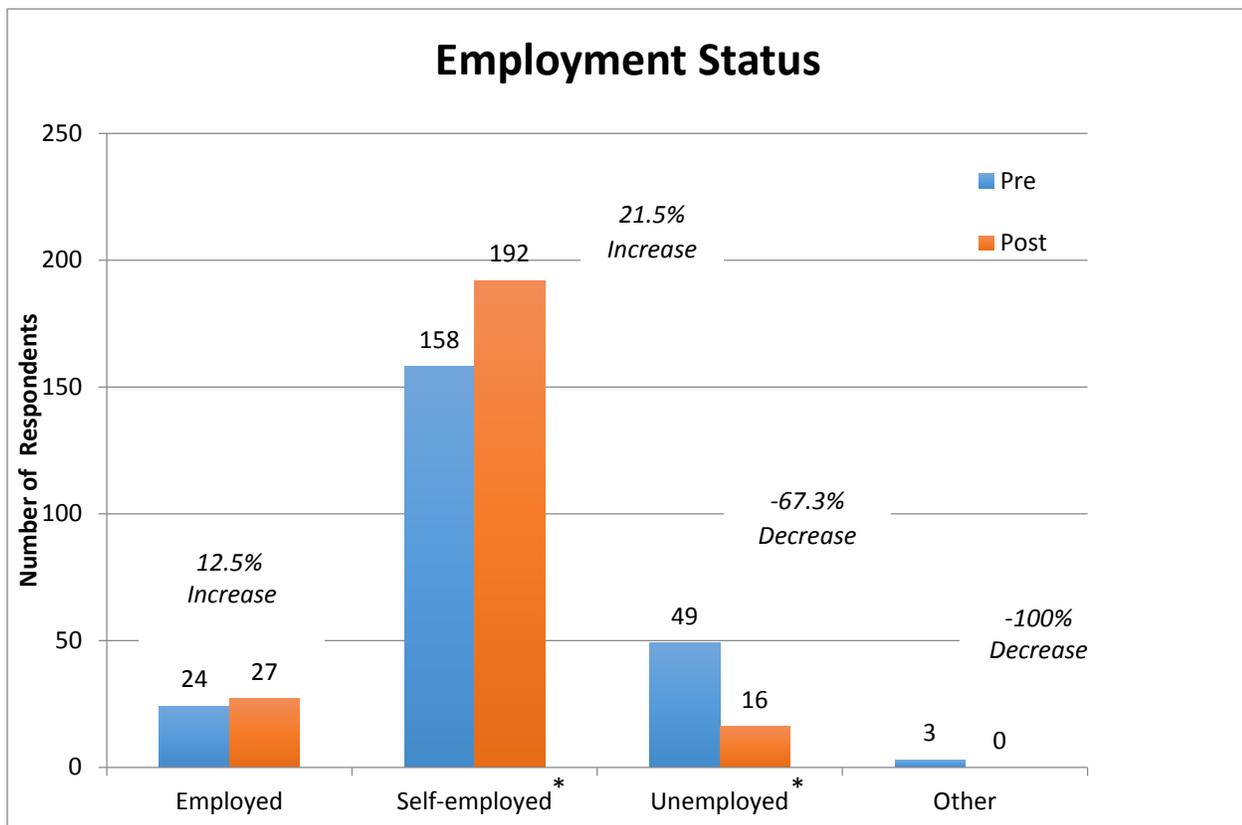
*Self-employed and Unemployed findings are statistically significant.

<u>Earnings</u>

The average weekly earnings are reported in Figure 5 below. Given that 25% of earning data is missing from pre-assessment data, it was not possible to accurately calculate z-score statistics on this data. However, the overall trend in increasing wages is noteworthy.

Figure 5. Weekly earnings pre and post assessment
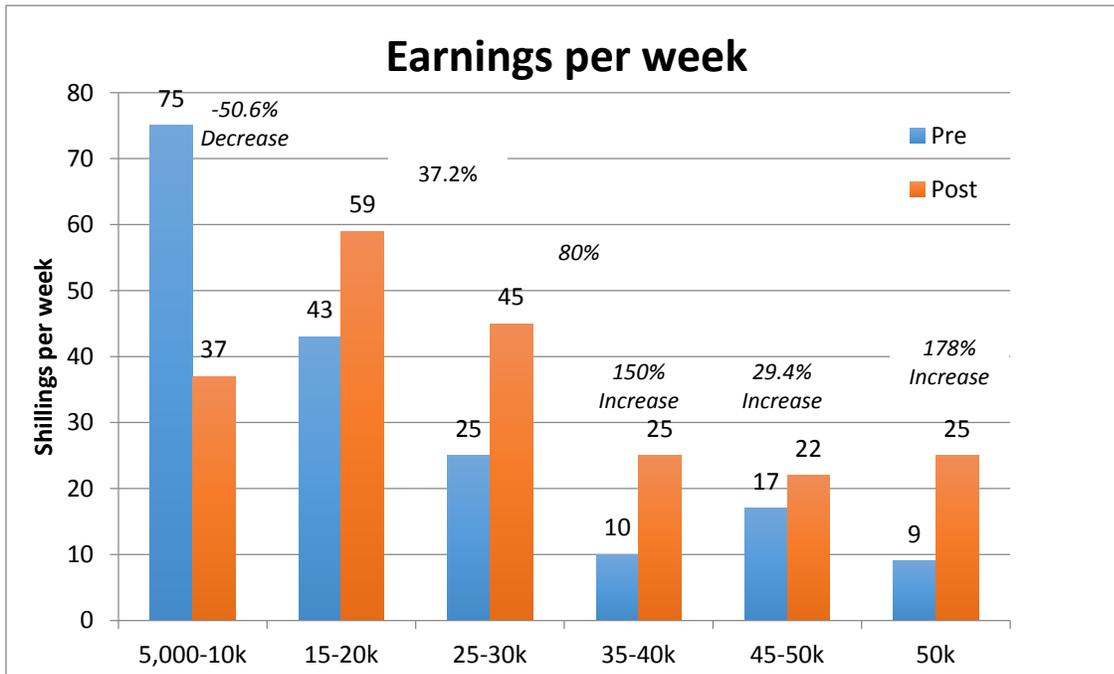
<u>Savings</u>

Results on income savings do appear to correlate with increasing earnings (Figure 6). The number of participants who reported being able to save part of their income rose from 129 to 211 (z-score 7.9, p-value < 0.05).

Figure 6. Income savings
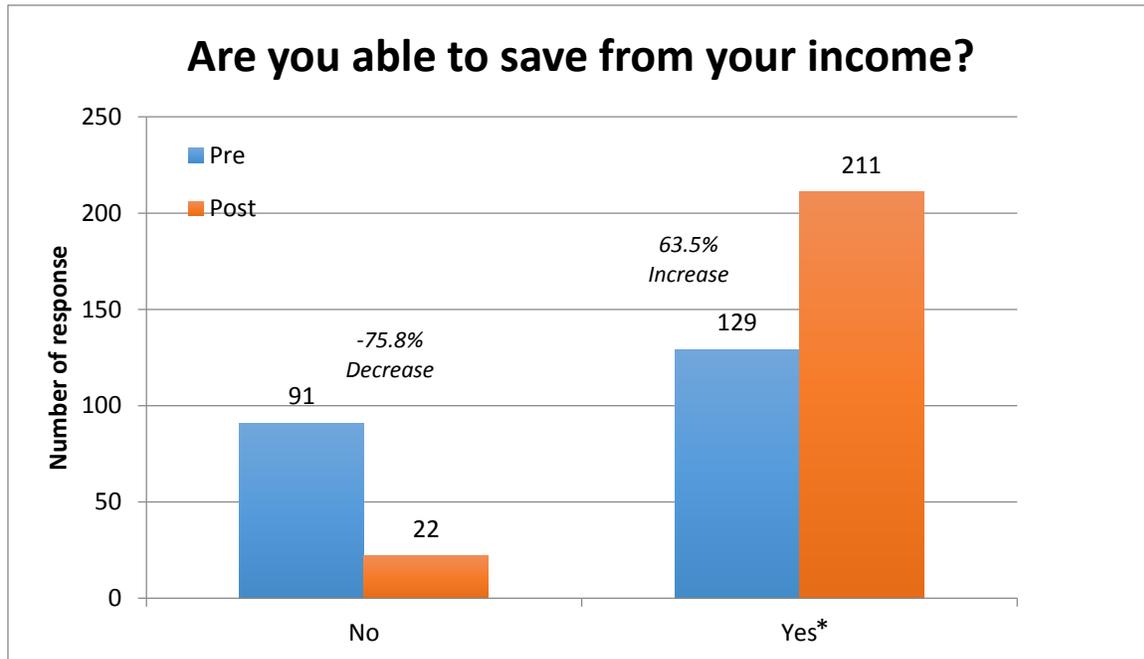
*The reported "yes" findings were statistically significant.

The nutritional status of participants was captured using the number of meals eaten within the previous 24 hours, as shown in Figure 7 below. Participants were asked how many meals they had eaten in the previous 24 hours. The corresponding question of why they did not eat was recorded but due to the large number of missing values, the data are not presented. The difference between pre and post assessment for three meals a day resulted with a z-score of -10.1 and a p-value of less than 0.05, thus the largest change in the number of meals eaten between the two assessments.

Figure 7. Number of meals eaten within the previous 24 hours
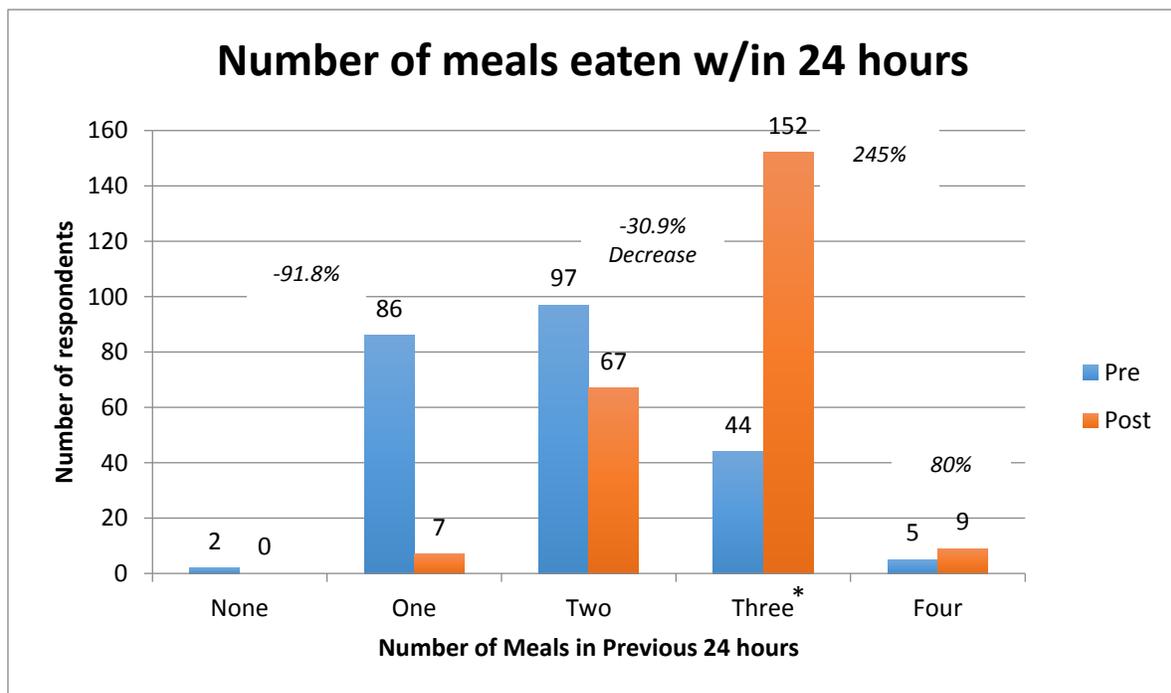
*The reported "three meals" findings were statistically significant.

Discussion

The first question posted in this Impact Evaluation was:

1. Was the use of Group Interpersonal Psychotherapy (GIPT), implemented at a scaled approach, effective in treating depression in Uganda?

The GIPT intervention appears to have had a strong impact in terms of reducing the depressive symptoms of a very large majority of the treated women patients. The analysis finds 94-97% of the patients treated by StrongMinds were depression-free after this 16-week GIPT intervention, which is roughly equivalent to the 92% success rate achieved by the RCT for GIPT conducted in Uganda in 2002. For the record, the 2002 RCT used 9 MHFs to treat 224 individuals whereas StrongMinds, using a scaled approach, used 4 MHFs to treat 244 people. The RCT staff MHFs were lay individuals with high school training only; the StrongMinds MHFs consisted of two nurses and two women with degrees in community psychology. Interestingly, for this pilot, StrongMinds set a goal of reaching depression-free status for 75% of its patients. This mark was attained in week 12, and then further exceeded by the end of the intervention in week 16.

As explained, the Impact Evaluation removed all respondents who reported at baseline either Minimal or Mild Depression and this analysis is only based upon those women who were either moderately or severely depressed at baseline, in order to avoid inflating the success of the intervention. A possibility exists that the inclusion of these Minimal and Mild Depressive patients in the group settings may have had some influence on the progress of the other more severely depressed patients in the same groups. It is not known if this influence was positive or negative.

The 94% success rate was verified in several manners. First, after the conclusion of the 16-week intervention, a post-assessment evaluation was conducted the next week, in week 17, in which group members were re-evaluated using the PHQ-9 diagnosis tool by a different MHF, to correct for any patient bias or allegiance to the MHF, and also to correct for any MHF quality issues in administering the diagnostic tool. In addition, outside mental health experts have reviewed the downward sloping trend lines and rates of improvements of our group members, and found this information to be reasonable.

The StrongMinds team of four Ugandan female MHFs who led these 26 groups comprising 244 women were all first time GIPT implementers. There is a distinct possibility that their GIPT inexperience may have led to a partially inflated success rate, by incorrectly using the depressive diagnostic tools, for example. It is important to note that these four MHFs were supervised by two experienced Ugandan GIPT experts. These two experts were trained by US personnel in 2006 and have implemented many IPT groups themselves, and during the StrongMinds intervention the experts received further supervision from the StrongMinds senior technical supervisor in the US via weekly one-hour long Skype calls.

It is interesting that the control group in this Phase One of the pilot experienced a reduction of depressive symptoms: 33% of the control group were depression-free after the intervention compared to 94% of the intervention group being depression-free. Discussions with mental health experts and program staff have led to possible explanations as to why the control group did improve, despite these members not receiving any formal treatment:

- The weekly administration of the PHQ-9 created a heightened awareness of depression symptoms among these members, which may have resulted in an awareness bias and resulting therapeutic affect

- StrongMinds MHFs, while administering the PHQ-9 to the control group every week, may have inadvertently offered some advice to the control group members on how to improve their depressive situations
- The control group members were not completely geographically isolated from intervention group members, and intervention group members may have also offered advice to the control group members on how to improve their depressive symptoms.

As explained, the StrongMinds team collected PHQ-9 data for every patient, every week from weeks 5-16 and again in week 17 for both the intervention and control groups, as an effort to ensure a deep understanding of the effectiveness of this intervention. However, there may be a number of unintended consequences in administering this diagnostic tool every week:

- There is a severe data collection burden, for both the MHFs and the patients
- For the control group, there may be a therapeutic effect
- For the intervention group, there may be a response bias which results

The second question posed in this Impact Evaluation was:

2. **What, if any, were the secondary positive impacts of using GIPT on the depressed patients?**

The GIPT intervention appears to have had a significant impact in addition to reducing the depressive symptoms of 94-97% of these women patients. The demonstrated increases in self-employment, reduction in unemployment, ability for patients to save and to consume more meals (i.e. better nutrition) collectively demonstrate that GIPT had significant secondary positive impacts on the well-being of these women.

Since depression is the number one cause of disability for women in Africa, it is logical that by reducing these women's level of depression, their level of disability is reduced. In other words, by reducing their depressive levels, the women become "enabled." Therefore, with lower disability, we see corresponding increases in employment and correlated reductions in unemployment. It is fair to assume that the improved employment situation helps to drive the increases in savings and meals consumed.

There is a possibility that some or all of these positive impacts in employment, unemployment, savings and better nutrition resulted from some other outside factor(s) non-attributed to this StrongMinds' intervention, and that these positive impacts, in turn, drove the positive improvements in the depressive states of the women patients. Future efforts by StrongMinds will need to address this issue.

Furthermore, it will be interesting in future research by StrongMinds to explore how these enabling factors for the depressed patients impact her children and family.

Recommendations

The third question posed in the Impact Evaluation was:

3. <u>What actions are necessary for StrongMinds to improve its programmatic activities in light of the impact evaluation findings?</u>

In summary, the following actions are recommended:

- Revise functionality data collection tools to reflect more appropriate indicators of patient and their family well-being, to include income, health, educational achievement, etc. and link these tools to local Uganda District Health Survey tools to allow for comparisons.
- Consider the addition of qualitative methods such as in depth interviews of random participants in order to capture context around quantitative results.
  - o Such efforts can help to better understand cause/effect, for example did reduced depression drive higher employment, or did higher employment drive reduced depression?
- Ensure functionality data collection is completed for both patient intervention group and control group.
  - o Efforts to initiate the IPT groups in May, 2014 did not permit the MHF team to collect the full range of data from the control group, which limited aspects of this Impact Evaluation.
- Consider reducing data collection frequency to limit the burden and also the number of missing data values. Consider automation of data collection efforts, using laptops/tablets/etc.
  - o Current efforts are too manually oriented and time-consuming.
- Develop new programmatic strategies for addressing depression with males.
  - o In light of the lack of success in these efforts in 2014, new approaches are required.
- Consider utilizing independent/external mental health experts to implement PHQ-9 diagnoses to 10% of participants from each intervention group in order to capture/correct any response and MHF bias, and to serve as a quality control check.
- Consider excluding Minimal or Mild cases of depression in future groups unless there are extenuating circumstances (for example, suicidality). Determine if there are other, non-GIPT methods by which StrongMinds can assist these case types.
- Consider reducing the length of GIPT interventions to less than 16 weeks, in light of the high degree of success by week 12.
- Ensure future control groups are not at risk of contamination; limit their contact with StrongMinds' MHFs and patients.

- APPENDIX -

A, B, C, D, E and F

Appendix A: StrongMinds Model Overview

The StrongMinds model for depression treatment in Uganda includes the following core features:

- Use of lay community workers as the GIPT facilitators, or Mental Health Facilitators (MHFs)
    - MHFs require at least a high-school diploma, and are employed and salaried by StrongMinds. They receive two weeks of training by a certified GIPT expert and receive on-going supervision and guidance by a mental health professional. Since they are community members themselves, they are well-received by the depressed patients. The GIPT training curriculum includes modules on mental illness in general, depression, interpersonal psychotherapy, management of suicidality, and the goals and objectives for each weekly session of the 16 total sessions that are held. The training extensively uses role-playing to recreate group meeting settings.
    - MHFs conduct several concurrent IPT groups per week, each group consisting of 8-12 members. Each IPT group meets for 90 minutes per week, for 16 weeks in total. At full-scaled implementation, each MHF treats approximately 360 patients per year.
    - In order to begin de-stigmatizing depression, the MHFs explain to patients, family members and community leaders that depression is a mental illness that can be effectively treated.
- Adult women are the primary patients, representing 80% of our total patient population, and the balance, in some cases, being adult males. These women are typically over the age of 15 years, married, have between 2-5 children and manage a daily household income of $2-5 per day.
- The tool we use to diagnose an individual with depression is the Patient Health Questionnaire (PHQ-9), which is contained within the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and supported by the World Health Organization for use in the developing world.
- We have psychiatric medical personnel on our staff to provide supervision and referrals to ensure quality care of those individuals who do not respond to GIPT or, for example, when we identify patients in the community who may have suicidal tendencies and require emergency attention.
- We anticipate a small percentage of our patients will not respond fully to GIPT and may need antidepressant medications; we will refer them to government clinics which typically have more reliable medication supplies and we will ensure they receive comprehensive treatment.

Appendix B: Depressed Patient Diagnosis Using the PHQ-9 and PHQ-9 Form

StrongMinds works in the local communities of Kampala to identify potential women and men suffering from depression. The tool we use to formally diagnose an individual with depression is the Patient Health Questionnaire (PHQ-9), which is contained within the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association and supported by the WHO for use in the developing world. The PHQ-9 is a series of 9 questions which score the severity of depressive symptoms for a patient. Scores over a certain threshold determine whether the patient suffers from depression, and also the severity of depression (mild, moderate, severe). At the conclusion of our talk therapy groups, we re-administer the PHQ-9 tool to each patient to determine the impact of our intervention. If a patient can no longer be diagnosed as suffering any level of depression after our intervention using the PHQ-9, we have successfully treated this patient.

PHQ-9 Form: Assessing Depression and its Symptoms

Over the last 2 weeks, how often have you been bothered by any of the following problems? Use a "tick" to indicate your answer.

	Not all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling sad, depressed, or hopeless	0	1	2	3
3. Trouble falling/staying asleep, sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure (worthlessness) or that you have let yourself or your family down (Guilty).	0	1	2	3
7. Trouble concentrating on things, such as work, care of your children or other activities	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed or the opposite of being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting/killing yourself in some way	0	1	2	3
For interpretation of TOTAL: Add scores to all items				

Raw Score	Depression Severity Score
1-4	0 = Minimal Depression
5-9	1 = Mild Depression
10-14	2 = Moderate Depression
15-19	3 = Moderately Severe Depression
20-27	4 = Severe Depression

Appendix C: Depressed Patient Identification and Recruitment

StrongMinds uses a variety of methods to identify community members who may be suffering from depression. Our over-arching approach, however, is to use existing groups of women and men and to sensitize those groups and create awareness about depression. Once contact is made in these groups, we can then follow-up privately with individuals to administer the PHQ-9. For example, we work with other NGO's in the community who provide livelihood or microfinance programs. For an NGO who is providing job training to 50 women to become hair-dressers, we reach agreements with that NGO to use the last 15 minutes of a training session to speak to these same 50 women about depression. We explain the symptoms and the proposed G-IPT solution that we will be implementing in their community. We have found that people are more comfortable talking about a sensitive subject like depression in a group, since they have some level of anonymity. We make contact with people who want further information in that group, and can continue discussions immediately thereafter. We also collect referrals in these groups; for example, group members can identify their sister or mother who may be suffering from depressive symptoms and our MHFs can then directly contact those individuals along with the referring member. We also implement similar approaches at local churches, where we ask ministers to discuss depression in their sermons and our staff is then available to speak with the congregation at the after-service tea/coffee meeting. Our approach to access existing groups of people provides us with a higher degree of efficiency. Similarly, we also contact potentially depressed individuals by positioning our MHF's at the local public health clinic waiting area, where there are always many people waiting for long periods.

When our staff administers the PHQ-9 to an individual, the process takes about 30 minutes. In addition to the PHQ questions, we empathetically explain at further length what depression is and how our group solution operates. At conclusion of this first meeting, we then schedule a follow-up second individual meeting, lasting another 30 minutes, where we re-administer the PHQ-9 to re-verify the depression diagnosis. Assuming the depressed diagnosis is confirmed, we then schedule a third individual meeting, lasting 60 minutes, at which our MHF will explore with the individual the triggers for her/his depression and attempt to persuade the individual to join an interpersonal psychotherapy group, explaining in detail how the group operates and the anticipated outcomes. Assuming the individual agrees to join the group, StrongMinds will have met with this person three times individually prior to their attending a talk therapy group session.

Appendix D: Group Interpersonal Psychotherapy: How does it work?

The 16 weeks of G-IPT are broken into three phases, each with distinct time-periods and objectives:

- Initial Phase: Group Sessions 1-4
    - This phase focuses on creating initial bonds between group members and getting them comfortable sharing personal information; discussing their reasons for their depression
- Middle Phase: Group Sessions 5-14
    - This phase focuses on ensuring all members are actively engaged and helping one another and making suggestions regarding one another's problems. This is also the phase where important progress is made for members to fully understand all the symptoms and triggers of depression.
- Termination Phase: Group Sessions 15-16
    - This phase focuses on preparing members to end their group meetings. Members are reminded as to how they can identify their own triggers of depression in the future and what they should do to respond, individual action plans are created and reviewed.

Our group model focuses on treating the individual's current state of depression through teaching that person the life-long skills necessary to manage his/her future depressive episodes. Depression is episodic and will continue to recur for most individuals, so these skills that we teach in the 16-weeks of group interpersonal psychotherapy are critically important. We help the individual to identify and understand the root causes/triggers of his/her depression, and then to formulate strategies to overcome those triggers. Throughout the 16-weeks, group members meet once a week for 90 minutes and commit to weekly short term goals or actions which support a single long term goal for their group experience—thus a strong goal planning orientation is instilled. These skills are learned through group facilitation, which means our mental health facilitators really only help group members to solve their problems themselves. If a group member is depressed because of a major disagreement with her spouse, for example, then our facilitator asks the entire group to make suggestions to that group member for resolution. In a group of 8-12 people, members learn a great deal of life strategies from one another over 16 weeks that can be used for the rest of their lives. Group members also learn how to self-diagnose themselves—when they feel that they are getting depressed again, they can recognize the symptoms and respond accordingly before the depressive state becomes too overwhelming by planning their short and long term goals. Lastly, while groups last just 16 weeks, and as previously mentioned, evidence suggest that most groups which have existed continue to meet informally for months and years later without a facilitator thanks to the power of group or social bonding---members continue to meet and rely upon one another for support in coaching themselves through the challenges of depression.

Appendix E: Group Interpersonal Psychotherapy: Training of the Mental Health Facilitators (MHFs)

StrongMinds completed training its initial cadre of four MHFs in March, 2014. The training lasted 10 days and was conducted by two Ugandans certified in GIPT by Columbia University. In addition, the training was monitored long-distance via Skype by our senior technical advisor who is an international expert on GIPT from Columbia University.

The GIPT training curriculum included modules on mental illness in general and depression in particular, the theory of interpersonal psychotherapy and the four triggers of depression (life change, disagreement, death of a loved one, social isolation), co-morbidity of depression and other mental and physical illnesses, management of suicidality, and modules on all pre-group and 16 group sessions. The training curriculum extensively used role-playing to recreate pre-group and group meeting settings. All suggested dialogue protocols were translated into the local language of Kampala (Luganda) by the MHFs, and verified by Makerere University, to ensure cultural adaptation.

Throughout the 2014 pilot in Uganda, our 4 MHFs will be supervised by the two Ugandan GIPT experts noted above, and our senior technical advisor will review our team's progress on a weekly basis via Skype meetings.

Appendix F: Functionality Assessment Tool

FUNCTIONALITY ASSESSMENT TOOL				
Name:		Sex:		Age:
Project Site (Parish):			Zone (Village):	
Date:				
SECTION A: PHYSICAL STATUS & HEALTH (PH)				
Sno.	Question	Response	Guidelines for skip questions	Codes
PH 1	Marital status.	Not married, below age----- 1 Single ----------------------- 2 Married -- --------------------- 3 Separated----------------------- 4 Divorced-----------------------5 Widowed----------------------6		
PH 2	Do you have children	Yes------------------------------1 No-------------------------------2	2→ PH 4	
PH 3	How many children do you have	1---------------------------------0 2---------------------------------1 3---------------------------------2 4---------------------------------3 5---------------------------------4 Over 5 (Write number)-------5 _____		
PH 4	Do you know of any chronic illness you could be having.	No------------------------------ 1 Yes ---------------------------- 2	1 → PH 8	
PH 5	Can you mention the illness?	Asthma ------------------------ 1 Sick cell ------------------------ 2 Diabetes ----------------------- 3 Leukemia ---------------------- 4 HIV/AIDS --------------------- 5 Cancer ------------------------ 6 Other (Specify)---------------- 7 _____		
PH 6	Are you on treatment for (mention the illness) Allow person to	No ---------------------------- 1 Yes ------------------ ------------2		

	recollect.			
PH 7	Where do you go for treatment?	Private Clinic ------------------ 1 Private /Charity clinic------- 2 Govt owned health unit------ 3 Local herbalist -----------------4 Other (specify)------- --------- 5 -----------------------------------		
PH 8	Have you ever been tested for HIV?	No ------------------------------ --1 Yes ----------------------------- --2	1 → PH 9 2 → **Section B**	
PH 9	Would you be interested in taking an HIV test?	Yes--------------------------------1 No--------------------------------2		
SECTION B: NUTRITION STATUS (NS)				
NS 1	During the last 24 hours how many meals did you have? Help person know that, normally in Uganda we have 12 hours day and 12 hours night	None ---------------------------- 1 One--------------------------------2 Two-------------------------------3 Three ----------------------------4 Four ------------------ -----------5 Five----------------------------- -6	1 → NS 2 2 → NS 3 3 → NS 4	
NS 2	Can you mention reasons for not eating	No appetite--------------------- 1 No food ------------------------ 2 Do not like food available --- 3 Was not able to cook- --------- 4		
NS 3	Can you mention reasons for eating only one meal	No appetite -------------------- 1 No food ------------------------ 2 Do not like food available --- 3 Was not able to cook ------- 4 Advised by physician --------- 5	*There could be multiple codes here. Code all that apply*	
NS 4	Can you mention reasons for eating only two meals	No appetite --------------------- 1 No food ------------------------ 2 Do not like food available --- 3 Was not able to cook -------- 4 Advised by physician --------- 5	*There could be multiple codes here. Code all that apply*	
NS 5	How do you obtain food consumed at home	Growing------------------------- -1 Buying ------------------------- 2 Relatives provide----- --------- 3 Neighbors provide ---- ------- 4 Govt provides ----------------- 5	1 → NS 6 2 → **Section C** *Please code*	

		Other (specify)----- - ------- 6 -------------------------------------	*main source of food*	
NS 6	Where do you grow your food	Verandah gardening ---------- 1 Own land ---------------------- 2 Rented land ------------ ----- --- 3 Use public land--------------- - 4 Other (specify) --------------- 5 ------------------------------------		
SECTION C: ECONOMIC STATUS & OCCUPATION (ESO)
ESO 1	How would you describe your work status	Employed---------------------- 1 Self-employed------------------ 2 Unemployed --- ------------- 3 Other (specify)------------------ 4 ------------------------------------	3 → ES0 3	
ESO 2	What is your routine (primary /main work person does for a living) occupation	Casual laborer ------------------ 1 Market Vendor------------------ 2 Hawker------------------------- 3 Own a kiosk -------------------- 4 Teacher ------------------------ 5 Nurse -------------------------- 6 Plumber ------- ----------------- 7 Mechanic --------- -------------- 8 Hair dresser ------ ------------- 9 Waitress ---------------------- 10 Baby Seater --------------------11 House maid -------------------12 Office clerk -------------------- 13 Doctor ------------------------- 14 Peasant farmer -------------- 15 Commercial farmer ---------- 16 Builder -------------------- ---17 Electrician --------------------1 8 Painter ---------------------- ---19 Carpenter -------------------- 20 Other (specify) ------------ --- 21 ------------------------------------		
ESO 3	Could you mention main reason for being unemployed	Not interested ------------------ 1 Dismissed from work --------- 2 Have not found work --------- 3 Pay is not good ---------------- 4		

		Partner does not allow ------- 5 Hate my profession ---------- - 6 Poor health --------------------- 7 Old age ------------------------ 8 Disability problem ------------ 9 Retired from service--------- 10 Have enough money --------- 11 Have benefactors------------- 12 Other (Specify)	7 → **End Interview**	
ESO 4	How much time in hours daily do you perform the job in ESO 2(mention it and assist person make a good estimate of hours if not in formal employment)	Btn 1- 2 hours daily----------- -1 Btn 3- 5 hours daily --------- - 2 Btn 6- 8 hours daily --------- - 3 Over 10 hours daily -----------4		
ESO 5	How much money in Uganda shillings do you make each week from your primary occupation (if not in formal employment assist person make a good average)	Btn 5,000 – 10,000 -------- ---1 Btn 15,000 – 20,000 -- --------2 Btn 25,000 – 30,000 ---------- 3 Btn 35,000 – 40,000 ---------- 4 Btn 45,000 – 50,000 ---------- 6 Over 50,000 ------------------- 7		
ESO 6	Do you find your work interesting and are happy continuing to work	No------------------------- ------ 1 Yes------------------------------2	2 → **ESO 8**	
ESO 7	What makes you unhappy with your work	Am tired of the work ---------- 1 Work is not interesting - ------2		
ESO 8	Do you find enough money from your work to meet your	No ------------------------------ 1 Yes ---------------------------- 2	2 → **ESO 10**	

	home needs			
ESO 9	How do you supplement your income	Borrow from friends ---------- 1 Borrow from banks ----------- 2 Relatives give me ------------ 3 Cash from Govt ----------------- 4 Own savings ------------------- 5 Do another job------------------ 6	6 → **ESO 10**	
ESO 10	What secondary job do you do	Casual laborer ------------------ 1 Market Vendor----------------- 2 Hawker------------------------- 3 Own a kiosk -------------------- 4 Teacher ------------------------- 5 Nurse --------------------------- 6 Plumber ------------------------ 7 Mechanic ----------------------- 8 Hair dresser--------------------- 9 Waitress -------------- --------- 10 Baby Seater --------- ---------11 House maid ----------- ---------12 Office clerk ----------- --------- 13 Doctor ------------------------- 14 Peasant farmer --------------- 15 Commercial farmer ---------- 16 Builder ---------------- ----- ----17 Electrician --------------- ------18 Painter ---------------- ------ ---19 Carpenter ---- ----- ------- 20 Other (specify) ------------ --- 21 --------------------------------------		
ESO 11	Do you make any saving from your income	No ----------------------------- -1 Yes ----------------------------- 2	1 → **End Interview, thank person**	
ESO 12	How much do you save a week (make an average) in Uganda shillings	Btn 5,000 – 10,000--------- ---1 Btn 15,000 – 20,000--- --------2 Btn 25,000 – 30,000 ---------- 3 Btn 35,000 – 40,000----------- 4 Btn 45,000 – 50,000----------- 6 Over 50,000 -------------------- 7		

Assessor's general comments: *Write your name and signature after the comment.*