Women’s Participation in a Savings Group and Depression: 
a Community-Based Financial Capability Intervention in Mozambique

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Abstract
Background As one of the fastest growing community-based financial capability approaches, village savings and loan group (VSLG) is an organized group and formal entity that creates opportunities for participants to save and access financial assets. VSLG has potentially positive impacts on increasing women’s financial resources and social support and further improves their mental health. Participation in a VSLG not only increases women’s opportunities for asset-building and income generation, but also facilitates trust and promotes social capital development. However, few studies have examined the association between the VSLG participation and women’s depression status. To fill the knowledge gap, we examined the association between the VSLG participation and depressive symptoms among low-income women in Mozambique.

Methods The data was collected as part of the VSLG program evaluation. The study applied a posttest-only comparison group quasi-experimental design and sampled female VSLG participants and non-participants from three sub-villages in the Sofala province, Mozambique. A multi-stage sampling technique was employed, and a total of 205 women were randomly selected, including 105 VSLG participants and 100 non-participants. Depressive symptoms were measured using the short version of the Edinburgh Depression Scale (EDS) with a summative score ranging from 7 to 28. Using the cutoff value at a score of 14, we created a dichotomous depression indicator. Linear and logit models were used to examine the associations of the VSLG participation and the participation duration with the depression score and the presence of depression controlling for demographic variables.

Results The VSLG participants had a statistically lower mean depression score of 12.2 (SD = 4.4) compared to non-participants (15.0, SD = 4.0, \( p < .001 \)). The regression analysis suggested that the VSLG participants had a mean depression score of 2.7 lower than the non-participants (\( p < .001 \)). Nearly 60% of the non-participants reported the presence of depression; however, this percentage is 31% for participants (\( p < .001 \)). The multivariate logit model indicated the odds of the presence of depression for participants are .34 of that for non-participants. Similar results were obtained when the VSLG program duration was used as an independent variable.

Conclusions Study findings showed a positive association between the VSLG participation and women’s mental health. Future research should further explore the intervention mechanisms and assess how the VSLG participation affects women’s mental health. Findings also provided important insights into developing community-based financial capability interventions to improve low-income women’s mental health.

Keywords Village saving and loan groups · Depression episodes · Savings duration · Women participation · Intervention · Low-income

Introduction

Depression is the leading cause of disability globally and commonly characterized by sadness, fearfulness or being scared, a feeling of guilt, tiredness, low self-worth, and disturbed sleep or appetite (Lim et al., 2018). It is associated with suicidal acts and has a broad range of effects on productivity and global health outcomes, including increasing
the risk of poverty and unemployment, absenteeism, and low workplace effectiveness. A study reported a loss of $36.6 billion per year, only in the USA, related to absenteeism and presenteeism (ineffective presence in the workplace) (Lépine & Briley, 2011). Even though the determinants of mental health were exacerbated during the COVID-19 pandemic, mental health disorders, including depression, were among the leading causes of global health burden for decades before 2020. Depression carried over 7.5% of the global burden of diseases in 2015 (Bedaso et al., 2021). A general epidemiological population survey conducted in 2011 showed a variation in lifetime prevalence of depression ranging from 10 to 15% (Lépine & Briley, 2011). One WHO report indicated that depression was associated with suicidal acts and psychiatric disorders and accounted for 39% of people who died in the South Asia region, with a prevalence ranging from 22 to 60% in the region (Hossain et al., 2017). Despite growing recognition of the burden of depression in sub-Saharan African (SSA) countries, a variety of risk factors, including social norms, lack of infrastructure, poverty, and lack of financial resources, have contributed to the fact that women with mental illness go undiagnosed and untreated (Chisholm et al., 2016).

Different intervention approaches, including community-based financial capability programs (e.g., increasing financial resources and social networks for women with depression symptoms), have been used to provide care for women who experienced depression symptoms (Christiane et al., 2021; Karasz et al., 2021). Studies and intervention practice in diverse contexts showed a potential impact of membership and participation in a village savings and loan group (VSLG) to address mental health problems. VSLG is a community-based microfinance institution that focuses on low-income individuals and households (Tura et al., 2020). This study viewed VSLG as one of the fast-growing community-based approaches that may have a potentially positive impact on increasing women’s access to financial resources, social capital, and social network, which may reduce depression experiences among women (Park, 2017; Shaikh et al., 2017). This study explored the association between participating in a VSLG and depression among women in Mozambique.

### Background

#### Depression Among Women

Empirical studies showed a gender difference in depression, and the prevalence was higher among women than men (Girgus & Yang, 2015; Kuehner, 2017). Various factors and conditions may contribute to the burden of depression, including age, education, family size, poverty, income, gender, and other characteristics. For example, a meta-analysis study in SSA and other countries indicated the burden was higher among the elderly than in other age groups; still, older women showed an increased burden compared to older men (Alonso Debreczeni & Bailey, 2021; Bedaso et al., 2021). Similarly, other studies from SSA and other countries suggested a positive link in depression with family size but an inverse correlation with education (Kilburn et al., 2018; Moeini et al., 2019). A cross-national study on the gender gap in depression from 23 European countries among adults aged 18–75 years revealed that the prevalence of depression among women was almost twice compared to men (Van de Velde et al., 2010). A study among Black and Asian males and females (N = 65,079) reported that female respondents had a higher likelihood of experiencing depression episodes than their male counterparts (Hahm et al., 2015). Depression among adult women in SSA ranged from 5% in Ethiopia to 35% in South Africa (Hailemariam et al., 2012). Although we lack national data in Mozambique to quantify the burden of depression among women, the country has the sixth highest suicide rate globally, suggesting indirect evidence of unmet mental health needs (Audet et al., 2017; Lora et al., 2020).

#### Community-Based Financial Capability Interventions to Reduce Depression Episodes Among Women

In some countries, direct intervention approaches integrated women’s mental healthcare into the existing facility-based prenatal and postnatal healthcare to address depression (Lara et al., 2010; Mao & Zhao, 2012). Direct intervention programs derived from interpersonal therapy and social support models also promoted problem-solving and self-management skills (Gao et al., 2010). Apart from the direct approaches, others have considered indirect community-based approaches for women. For example, some interventions in Jamaica, Pakistan, South Africa, and Uganda focused on educating mothers about help-seeking behavior through locally designed illustrative case studies and stories to improve mental health (Cooper, 2009; Morris et al., 2012). Although data on community-based approaches for mental healthcare are limited, community-based financial capability programs, such as VSLGs, could offer sustainable ways of caring for women who suffer from depression.

#### Micro-loan (ML) and Micro-saving Association (MSA)

The VSLG is a financial capability intervention on savings and loans often initiated by village ML and MSAs. A village ML and MSA are a community-managed microfinance organization where 15 to 30 residents come together and form a group (Tura & Licoze, 2019). Group members meet regularly to save money in a common fund. The common fund supports loans to group members with varied interest rates, which provide a return (dividend) on the savings.
Individuals who participated in ML and MSAs gained respect from their partners, spouses, and in-laws as income and accumulated assets added to the household.

The ML and MSA participation may have positive financial (increased income and assets) and non-financial outcomes (personal empowerment, increased family and neighborhood interactions, making better choices, increased health care access, increased self-efficacy, increased skills in help-seeking behaviors, ties, and reciprocity) (Van Rooyen et al., 2012). Poverty-related risk factors for women’s depression, such as material hardship and food insufficiency, are likely to be partially addressed by positive financial outcomes from program participation (Onah et al., 2017; Baker-Henningham et al., 2003; Hamadani & Grantham-McGregor, 2004; Paxson & Schady, 2007). Non-financial outcomes and group characteristics, including homogeneity, reciprocity, shared norms and values, interactions, and trust-based ties, also play significant roles in maintaining the operation of ML and MSAs (Cacioppo et al., 2009). These non-financial outcomes accounted for neighborhood social capital and protective factors against depression symptoms (Maharaj et al., 2017; Duthé et al., 2016; Uphoff et al., 2013). Despite the potential impacts of membership in village ML and MSA on mental wellbeing, little research links membership and participation in the VSLG with depression among women.

VSLG and Women’s Depression: a Conceptual Model

As presented in Fig. 1, the current study proposed a conceptual model to promote community-based financial capability interventions in decreasing depression among women through its financial and non-financial outcomes.

Household Income and Assets

There is a link between mental health outcomes and disparity in income and wealth among different populations, including a significant association between a lower household income and an increased risk of depression (Burns et al., 2017). A meta-analysis review from high-income countries showed a significant association between the high prevalence of depression and an increased income disparity (Patel et al., 2018). A study from Malaysia showed that an increased prevalence and severity of depression symptoms, anxiety, and stress level were more significant among a lower-income community than in other populations in the urban context (Lugo et al., 2021). Exiting studies from SSA also indicated an inverse link between household income and depressive symptoms. For example, low household income was one key predictor for worse depression symptoms among a household group in South Africa (Cleary et al., 2020; Dunham & Flores-Yeffal, 2021; Lund & Cois, 2018). Similarly, studies from Ethiopia and Uganda found a significant association between monthly household income and the prevalence of depression among women groups (Nabunya et al., 2021; Yousuf et al., 2020).

Beyond income, assets were viewed as financial resources and commodities that positively affect household members. Ownership of assets, including house equipment, vehicles, land, and others, could be a source of sustainable income and decreased risk against depression (Ratcliffe et al., 2016; Rothwell & Han, 2010). A cross-sectional study from 49 countries reported positive impacts from material assets in increasing treatment access for depression (N= 7870). Among this sample, variations in depressive symptoms were observed between those who have more material assets and those with fewer assets (Araya et al., 2018). Besides clinical and formal treatment methods, other studies from the same region also suggested that asset-building interventions were significant in addressing depression and improving household and individual wellbeing (Cavazos-Rehg et al., 2020; Kagotho et al., 2018). A randomized experimental study aimed to investigate the impact of household-based economic intervention in Uganda found that those respondents who received the intervention reported a decreased level of depression and a higher self-concept than their counterparts (Kivumbi et al., 2019).

Neighborhood Connectedness

Neighborhood conditions presumably remained impactful on health outcomes during a life span (Galster, 2012), even after controlling the confounding factors related to location, politics, historical migration, and topographical characteristics (Johnson, 2012). Studies showed the association between health determinants and community factors, such as social cohesion in neighborhood connections and practices (Moore & Carpiano, 2019; Carpiano, 2006). Individual perceptions of neighborhood and trust affected the quality of their life and
health (Ross & Jang, 2000). Hoogerbrugge and Burger (2018) reported that personal wellbeing, such as life satisfaction, was considerably associated with neighborhood ties, interpersonal relationships, trust, reciprocity, membership, and social engagement. A lower risk of loneliness and isolation was observed in areas with a stronger neighborhood connectedness (Domenech-Abella et al., 2017).

**Help-Seeking Behaviors**

Help-seeking is an interaction-based social action involving individuals with other assumed helpful people or groups depending on connectedness with family, friends, and community members (Okello & Neema, 2007; Segall, 1976). Recent studies widely suggested intention for help and help-seeking behaviors as a coping and intervention strategy against mental health problems (Heerde & Hemphill, 2018; Rice & Dolgin, 2008). Research from SSA and other countries indicated that the increase in the magnitude of depression in the community was associated with less intention of help-seeking behaviors.

A study on teenagers’ attitudes toward suicidality suggested those with higher adaptive help-seeking behaviors had a low-risk score for suicide compared to those with less adaptive help-seeking behaviors (Gould et al., 2004). Studies from New Zealand showed statistically a significant and inverse relationship between the lower level of help-seeking intention and higher-level suicidal ideation among youth (Carlton & Deane, 2000; Neary et al., 2021). Neary et al. (2021) also suggested the intervening effects of help-seeking in improving wellbeing by lessening depression risk among physicians and professional medical trainers.

**The Current Study**

Based on the conceptual model in Fig. 1, this study examined the association between the VSLG participation and depressive symptoms among women in Mozambique. This study used a reduced form of the conceptual framework and tested two hypotheses: (1) depressive symptoms were lower among female VSLG participants than non-participants, and (2) a longer duration in a VSLG was associated with a lower risk of depression episodes.

**Methods**

**Sample**

The data for this study were collected as part of the VSLG program evaluation conducted in Mozambique. The study sampled female VSLG participants and non-participants in three sub-villages in Manga Laforte, Sofala province of Mozambique, with a population of 64,626 (Tura & Licoze, 2019). The study was designed as a post-test-only comparison group quasi-experimental design. A multi-stage sampling technique was employed for the selection of a sampling unit. A total of 205 women were sampled to participate in the study. The study randomly selected 19 out of 31 VSLGs in three sub-villages, and four to six participants were randomly selected from each savings group. This generated a total of 105 female VSLG participants. For the comparison group, a total of 100 female non-participants were randomly selected based on a household registry, 30–35 from each of the three sub-villages. Nearly, 100% of these 205 female respondents were married. After removing the missing values, the final analytic sample included 186 respondents (99 in the intervention group and 87 in the comparison group).

The de-identified data for this study were publically available and can be downloaded from [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6534299/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6534299/) (Tura & Licoze, 2019). The original data collection for the VSLG program evaluation followed ethical procedures; participants were provided information about the study, and written consent was obtained as part of the process. The secondary analysis of the de-identified data received the IRB approval from the University of Northern Iowa (IRB ID # 201,706,782).

**Data Collection**

The original study of the VSLG program evaluation used a structured questionnaire translated into the local language. Data were collected by trained enumerators recruited from the Catholic University of Mozambique’s health science department and supervised by one external supervisor and one staff from implementing local charity organizations. Initially, the questions were written in English, translated to Portuguese, and then back to English. In the data collection process, a team of four enumerators and one supervisor were trained based on the program agency and the local standard. Incentives were provided for respondents, enumerators, and supervisors. Data were collected over 2 weeks in March 2017.

**Measurement**

**Dependent Variables**

The outcome variable for this study is depression. Depressive symptoms were measured using the short version of the Edinburgh Depression Scale (EDS). This instrument was the most widely used one to measure self-reported depression symptoms. It has been validated for use in low-income countries, including those in SSA (Choi et al., 2012). EDS demonstrated varied
internal consistency in different geographic settings, but strong internal consistency (Cronbach’s \(\alpha\) up to \(=0.88\)) was documented (Garman et al., 2019). The study used a 7-item EDS questionnaire, and for each item, women were asked to select one of four responses that most closely described how they felt over the past 7 days. Each of the respondents’ feelings of depression symptoms was assigned a value from 1 to 4 (1 = rarely or none of the time [0 days], 2 = some or a little of the time [1–2 days], 3 = occasionally [3–4 days], and 4 = most or all of the time [5–7 days]). The summative score ranged from 7 to 28, and two cut-points derived from the short version of EDS were used to stratify groups (Kabir et al., 2008; Spek et al., 2008). A score of 14 and above indicated the presence of depression, and a score of 23 and above indicated severe depression episodes among the respondents. The depression scale used for the study rated an internal consistency of Cronbach’s \(\alpha = 0.75\).

**Independent Variables**

Membership in VSLG and the duration of the membership are the independent variables. The VSLG membership was recorded with binary responses, “yes” for the VSLG participants and “no” for non-participants. To facilitate the analysis for this study, all the “yes” responses were recorded as “1,” and all the “no” responses were recorded as “0.” The duration in the savings group was determined based on self-reported responses in the data. We would then have asked them, “How long have you been a member?” The participants were given a chance to indicate their duration in the savings group.

**Control Variables**

Variables theoretically or empirically associated with the experience of depression symptoms and available in the data were included in analyses. Variables of respondents’ age (by year), education (1 = attended no school, 2 = primary, 3 = middle, 4 = secondary, and 5 = tertiary or college level), household size (ranges between 1 to 10 members), and monthly household income ($1 = 50 Mozambican currency “Metical/MZN”) were included as control variables.

**Data Analysis**

After reporting descriptive statistics of the sample by the VSLG participation, multivariate analyses were conducted in STATA version 14. Linear and logit regressions were used to examine the associations of participation and duration in a savings group with the depression score and the presence of depression. All tests were evaluated at a \(p\) value level of 0.05 to indicate whether a test is statistically significant. Regression diagnosis analyses (including the distributions of the dependent variables and error terms, multicollinearity test, outlier analysis, and homoscedasticity test) show that overall the models satisfy regression assumptions.

**Results**

**Sample Characteristics**

In Table 1, sample characteristics for the whole sample and the intervention and comparison groups are described. Among the total sample (\(N = 186\)), 53.2% (\(n = 99\)) were participants in a local women’s savings group, and 46.8% (\(n = 87\)) were non-participants. On average, the intervention group participated in the savings group for about 12.4 months (SD = 8.4). The intervention group had a mean depression score of 12.2 (SD = 4.4), which was statistically lower than that of the comparison group (15.0, SD = 4.0, \(p < 0.001\)). Based on their depression scores, nearly 60% of the comparison group reported the presence of depression (depression score greater than 14), while this percentage was 31% for the intervention group (\(p < 0.001\)). However, both groups had a very low likelihood of reporting severe depression. Female respondents in both groups reported similar age, household size, and education levels. Those in the intervention group had a monthly average household income (4517.9 MZN) statistically higher than that of the comparison group (3115.5 MZN; \(p < 0.05\)).

**Regression Results**

In Table 2, four regression models (Models 1–4) examined the association between women’s depression and participation in the savings group. In Model 1, after controlling for demographic and socioeconomic characteristics, the intervention group had a mean depression score 2.7 points lower than the comparison group (\(p < 0.001\)). This mean difference between two groups was more than 50% of the standard deviation of the depression score for the whole sample. More specifically, in Model 2, a 1-month increase in program participation was associated with a reduction of 0.18 in the depression score (\(p < 0.001\)). It indicated that 1-year program participation was associated with a reduction of the depression score by 2.2 points.

Models 3 and 4 assessed the associations between the presence of depression and the participation of the savings group in logit models. Odds ratios were reported in Table 2 for these two models. After controlling for other variables in the model, the odds of having depression for the savings group participants were only about 0.34 of the odds for those in the comparison group (\(p < 0.01\)). A 1-month increase in
program participation was associated with about an 8% reduction in the odds of having a presence of depression.

Among control variables, respondents’ age was positively associated with their depression score but was only statistically significant in Models 1 and 2. Both household size and education had negative associations with women’s depression. While the intervention group had a statistically higher household income, household income was not related to women’s depression status in this sample.

### Discussion

The study examined the association of depression among women in Mozambique with their VSLG participation. The correlation analyses based on a posttest-only comparison group quasi-experimental design showed a strong and positive association between community-based financial capability interventions and women’s mental health. With a quasi-experimental design, respondents of the intervention group had a statistically higher household income, and household income was not related to women’s depression status in this sample.

### Table 1 Sample characteristics by VSLG participation status (N=186)

| Variables                        | Whole sample (N=186) F (%) or M (SD) | VSLG participants (n=99) F (%) or M (SD) | Non-VSLG participants (n=87) F (%) or M (SD) | p value |
|----------------------------------|--------------------------------------|------------------------------------------|---------------------------------------------|---------|
| Savings group members (yes)      | 99.00 (53.23%)                       | 99.00 (100.00%)                          | 0.00 (0.00%)                                |         |
| Participation duration for the savings group (continuous, by month)**   | 6.51 (8.70)                          | 12.42 (8.44)                             | 0.00 (0.00)                                | <0.001 |
| Depression scale score (continuous)**   | 13.51 (4.39)                         | 12.21 (4.42)                             | 14.98 (3.90)                               | <0.001 |
| Presence of depression (yes)**     | 81 (43.55%)                          | 31 (31.31%)                              | 50 (57.47%)                                | <0.001 |
| Severe depression (yes)           | 4 (2.15%)                            | 1 (1.01%)                                | 3 (3.45%)                                  | 0.25    |
| Age (continuous)                 | 32.78 (11.83)                        | 33.47 (11.55)                            | 32.00 (12.16)                              | 0.40    |
| Household size (continuous)       | 5.36 (1.61)                          | 5.43 (1.68)                              | 5.28 (1.54)                                | 0.51    |
| Education                        |                                      |                                          |                                            | 0.59    |
| No school                        | 24 (12.90%)                          | 12 (12.12%)                              | 12 (13.79%)                                |         |
| Primary school                   | 70 (37.63%)                          | 34 (34.34%)                              | 36 (41.38%)                                |         |
| Middle school                    | 61 (32.80%)                          | 36 (36.36%)                              | 25 (28.74%)                                |         |
| Secondary school                 | 30 (16.13%)                          | 17 (17.17%)                              | 13 (14.94%)                                |         |
| Tertiary or college              | 1 (0.54%)                            | 0 (0.00%)                                | 1 (1.15)                                   |         |
| Education (continuous)           | 2.54 (0.93)                          | 2.59 (0.91)                              | 2.48 (0.95)                                | 0.45    |
| Household income (continuous; MZN; $1 = 50 MZN) * | 3861.94 (4404.39)                    | 4517.88 (5490.15)                        | 3115.52 (2514.59)                          | 0.03    |

Frequency and mean are reported in the table; percentage and standard deviation are reported in parentheses. The p values of t tests and Chi-square tests are reported in the last column. *p < 0.05; **p < 0.001.

### Table 2 Multivariate regression analysis of depression among women (N=186)

| Variables                        | Depression score B (CI) | Presence of depression OR (CI) |
|----------------------------------|-------------------------|--------------------------------|
|                                 | Model 1                 | Model 2                        | Model 3 | Model 4 |
| Savings group members (yes)      | −2.68***                | −0.18***                       | 0.34**  | 0.92***  |
|                                 | (−3.83, −1.53)          | (−0.24, −0.11)                 | (0.18, 0.65) | (0.87, 0.96) |
| Participation duration for the savings group (by month) | 0.07*                  | 0.07*                          | 1.03    | 1.03    |
|                                 | (0.02, 0.12)            | (0.02, 0.12)                   | (0.99, 1.06) | (1.00, 1.06) |
| Age                              | −0.52**                 | −0.58**                        | 0.81*   | 0.79*   |
|                                 | (−0.87, −0.16)          | (−0.92, −0.23)                 | (0.65, 0.99) | (0.64, 0.98) |
| Household size                   | −0.095**                | −0.93**                        | 0.67*   | 0.67    |
|                                 | (−1.62, −0.26)          | (−1.59, −0.26)                 | (0.45, 0.98) | (0.45, 1.00) |
| Household income (MZN)           | −0.00                   | −0.00                          | 1.00    | 1.00    |
|                                 | (−0.00, 0.00)           | (−0.00, 0.00)                  | (1.00, 1.00) | (1.00, 1.00) |
| Sample size                      | 186                     | 183                            | 186     | 183     |

*p < 0.05; **p < 0.01; ***p < 0.001. B, regression coefficient; CI, confidence interval; and OR, odds ratio.
and comparison groups were selected from three villages, and they shared similar demographic and socioeconomic characteristics. The study design provides a relatively strong support for the internal validity of tested hypotheses. The potential positive impacts of the VSLG participation have a large effect size (about 50%) on women’s depression, and the association between the independent and dependent variables is larger for female participants with longer program durations. These results imply the potential of community-based financial capability programs for women’s health and mental health. There is still a gap in the literature that asserts an investigation on the intervention, such as VSLG, particularly in low-income countries, including Mozambique. In that regard, this study is a valuable addition to and could bridge the gap in the literature. It also furthers the understanding of the impact of participation in VSLG on depression.

The study hypothesizes that financial (increased income and assets) and social capital outcomes (increased skill in help-seeking behaviors and connectedness) are the underlying mechanisms generating a lower risk of depression episodes among the VSLG participants compared to non-participants. The longer the VSLG members maintain their participation, the more likely they could keep the savings pattern and take a loan for investment. The savings group participation also offers opportunities for experience sharing, learning better decision-making choices, enriching self-efficacy, and sharing stressful emotions and concerns. These non-financial outcomes likely play roles in reducing the burden of depression. Studies suggest that a sense of mutual proximity and connectedness predicts fewer risk factors for mental illness (Shin, 2002; Townsend & McWhirter, 2005; Williams & Galliher, 2006). Making better choices and solving serious challenging problems were associated with neighborhood connectedness and accessing communal resources in promoting wellbeing (Irwin et al., 2008; Putnam, 2000). Nexus to social services and other support systems can be explored and utilized through interactions and relationships.

Low-income VSLG participants in Mozambique often have low financial capability and face barriers to be fully included in formal financial systems and services (Ezzahid & Elouaourti, 2021). There is a clear connection between financial exclusion and economic instability in low-income SSA areas (Mushtaq & Bruneau, 2019). Individual and household financial stability can be through opportunities to access the VSLG participation and its financial outcomes (e.g., savings and assets). Increased income and assets can help in coping with unexpected shocks and adversities. Strong future orientation and a higher self-efficacy are also associated with increased household/individual income and assets (Han & Yang, 2013; Ssewamala et al., 2009). Multiple studies found associations of improved financial outcomes with reduced physiological distress and increased life satisfaction and happiness (Wu et al., 2020; Cairney & Boyle, 2004). Individuals with savings and assets have more flexible resources to address health care needs and other living challenges (Ettman et al., 2021). Financial inclusion strategies, including microfinance institutions and self-help groups, empower vulnerable women to increase their economic power, decision-making, and overall social status (Prashar, 2017; Shaikh et al., 2017; Park, 2017). Studies also show a significant association between the duration of financial empowerment exposure, social capital, and mental health (Goodman et al., 2022).

The study findings support previous research on women’s village savings group practice and their mental health. Different intervention approaches, including facility-based (direct approach) and community-based (indirect method), are used to provide care for women who experience depression (Christiane et al., 2021; Karasz et al., 2021; Mao & Zhao, 2012). The current study aligns with South African, Jamaican, Pakistani, and Ugandan studies, which indicate the association and impacts of community and facility-based approaches toward mental health, such as depression among women (Cooper, 2009; Morris et al., 2012). Evidence also shows that women participating in a savings group gain respect from partners, spouses, and family members. They also economically contribute to the household and personal wellbeing, and their decision-making power increases as they interact and share personal experiences (Gash & Odell, 2013).

**Limitations**

Despite its contribution to the evidence regarding community-based approaches to women’s mental health, this study has limitations. First, the study is based on cross-sectional data, and it does not establish causality between the VSLG participation and reduced risk of depression episodes. It may not be possible to entirely attribute the low depression episodes among the VSLG participants to the membership due to the lack of a randomized experimental design; there is no baseline data to compare the intervention and comparison groups. Secondly, due to the limited information in the original survey, this study does not include extensive demographic and socioeconomic control variables. However, the findings of this study are significant and contribute to intervention science and practices that aim to decrease depression symptoms among women using community-based financial capability approaches.

**Contribution and Implication**

This study provides a unique contribution to the depression literature by examining community-based financial capability intervention (i.e., participation in VSLG). It also contributes
to the design of intervention strategies by evaluating the effect of duration in the VSLG participation on depression symptoms among women. It provides supporting evidence on the association between depression and financial capital initiatives among low-income women’s groups in SSA and other low-income population conditions. Besides these contributions, study offers recommendations for further research regarding the intervention mechanisms connected with initiatives that utilized financial capability and financial inclusion strategies targeting mental health burdens, particularly depression. Promoting VSLG interventions contributes to individual wellbeing through financial stability and facilitating an environment utilizing relationships in which they feel the proximity of connectedness (Shin, 2002). Connections could provide better networks and relationships to access social capital resources, including learning skills in helping-seeking behaviors that may positively impact mental wellbeing. Participating in micro-loan and savings associations facilitates a better opportunity to increase savings, assets, income, wealth, and access to social capital (Shaikh et al., 2017). Mental health policies and practices should consider integrating VSLG interventions in addressing mental health issues as part of a comprehensive strategy. In future research, a comprehensive and rigorous research design should be developed to further explore the mechanisms targeting depression.

Declarations

Conflict of Interest The authors declare no competing interests. Dr. Huang is grateful for the funding support from the Kauffman Foundation (G-201806-4478).

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