Improving the Quality of Life of Women Living With Anxiety in Northern Kenya: Psychoeducation Treatment

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Anxiety symptoms are rampant among women in resource poor settings in Northern and Kenya, which negatively affect their quality of life (QoL). Psychoeducation (PE) could be effective in mitigating and treating anxiety disorders in resource poor settings, due to its cost-effective nature. This research aimed to improve the QoL of women with anxiety symptoms through an eclectic model of psychoeducation treatment. The quasi-experimental research design with an experimental group (EG) and a control group (CG) was adopted. A sample size of 200 was selected for the study (EG, \( N = 100 \); CG, \( N = 100 \)). Beck’s Anxiety Inventory (BAI) was used to screen for anxiety while the EUROHIS eight-item index was used to evaluate the QoL indicators. Chi-square tests conducted at baseline established no variations in anxiety levels in the two groups (\( p = 0.05 \)). Psychoeducation was introduced as an intervention treatment to the EG two weeks after the baseline and then after six weeks at midline studies. At baseline, there was no statistical difference in the levels of anxiety. Endline studies showed that the PE treatment significantly improved anxiety symptoms (\( p = 0.000 \)) of EG respondents, leading to significant improvements in their QoL. Data were analysed by using SPSS Version 21.0.

Keywords: anxiety, psychoeducation, quality of life, women, Northern Kenya

Background and Introduction to the Study

Quality of life (QoL) refers to the subjective well-being, which is a general evaluation of one’s QoL (Deiner, 2009). The concept has been theorised as comprising three components, such as the cognitive assessment that one’s life is good (life satisfaction), experiencing positive levels of pleasant emotions (happiness), and experiencing relatively low levels of negative moods (Deiner, 2009). The World Health Organization defined QoL as “an individual’s perception of their position in life (in the context of cultural and value systems) in relation to their goals, standards and expectation…” (WHO, 1997, p. 1). It is therefore a broad range and complex concept influenced by a person’s physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to relevant features of their environment (Oort, 2005). It has a bearing on individuals’ life situations, including their perceptions of their economic and social situation (Ondigi & Mugenda, 2011). Another term that is used to imply QoL is...
well-being (Ferrell, 1995). This is because its presence has a bearing on a person’s physical, mental, social, and spiritual wellbeing. Nussbaum and Sen (1993) noted that sometimes QoL has also been used interchangeably with standard of living (SoL). However, these two concepts should not be confused because SoL is primarily based on income, while QoL includes not only wealth and employment but also environmental, physical and mental health, education, recreation, leisure time, and social belonging (Nussbaum & Sen, 1993).

The prevalence of common mental health disorders is high with reports of up to 30% in the general population (Kessler, Demler, & Frank, 2003). In South Africa, a study indicated lifetime prevalence for any mental disorder as 30.3% (Herman et al., 2009). Further, the study indicated that anxiety disorders were the most prevalent in 12-month and lifetime mental disorders. In Western Kenya, a study conducted in primary health care settings found out that anxiety is a common mental health disorder among adults in the region, with a prevalence of 26.3% (Aillon et al., 2014). Another study indicated the prevalence of common mental health disorders in resource poor settings in Kenya as 10.8% (Jenkins et al., 2012), further anxiety symptoms were found rampant among women in resource poor settings in Northern Kenya, with a prevalence of 79.4% (Mwangi, 2018). This evidence shows that anxiety disorders are widespread in Kenya and that there is need for appropriate screening interventions to screen for identify and treat the same.

Anxiety symptoms are associated with poor physical and social functioning (DeBeurs, Beekman, & Van Balkon, 1999; Brens, Pennix, & Judd, 2007). They are also associated with significant impairment in multiple domains of QoL (Olfsen, Broadhead, & Weissman, 1996; Mwangi, 2018). People with untreated anxiety disorders are at risk of descending into other mental disorders, since the anxiety symptoms interfere with social and occupational functioning and therefore lowers their self-esteem (Ndetei, Khasakhala, Mbwayo, & Mutiso, 2011). A comprehensive global review of available data revealed that 8-12% of children, youth, and adults suffered from anxiety symptoms that are severe enough to interfere with QoL and daily functioning (Murray & Lopez, World Health Organization, World Bank, & Harvard School of Public Health, 1996).

Studies have shown that psychoeducation (PE) could play an essential role in reorienting, rebuilding, and treating people with anxiety disorders, improving their overall well-being (Mwangi, 2018). It refers to the interventions that are offered to people or groups with mental health conditions including anxiety disorders, to impart healing, cognitive and social benefits. To achieve this, it uses education, goal setting, skill teaching, challenging thinking patterns and enhancing social interaction (Morse, 2004). In this study, the same definition was used to guide the eclectic model of psychoeducation that was developed and administered to women with anxiety symptoms.

Research has shown that most PE interventions are not preceded by psychological assessments. Further, the mental or psychological needs that they are intended to address are often not diagnosed in line with the previous Diagnostic & Statistical Manual of Mental Disorders (DSM-IV) (Bartels, 2004) and DSM-V (Mwangi, 2018) criterion. Further, they are mostly implemented based on assumptions of the symptoms that are observed (not tested) at first presentation (Bartels, 2004). In this regard, it appears as though only a few of PE content that are implemented in resource poor settings meet the precise psychological needs of communities or groups, for which they are formulated.

In the past, there was a general belief that PE interventions are passive not productive and (Donker, Griffiths, Cuijpers, & Christensen, 2009). However, a global meta-analysis of literature on psychoeducation interventions showed that PE interventions for psychological distress and anxiety could positively improve these symptoms (Donker et al., 2009). However, the authors noted that the quality of the content of
psychoeducation is critical. However, it needs to be matched to the requirements of individuals and groups in the community. Further psychological assessments could form the basis of all PE programs (Mwangi, 2018).

This study aimed to examine the effectiveness of an eclectic model of psychoeducation (developed for this study) in treating anxiety symptoms amongst Maasai women living in resource poor settings in Northern Kenya and thereby improving their quality of life. The Beck’s Anxiety Inventory (BAI) tool was used to assess for anxiety symptoms among the participants. The PE treatment was administered to respondents in the EG ($N = 107$) and not provided to the CG ($N = 101$), during the first (midline) and second endline interventions. The first intervention was a four-day session, provided two weeks after the baseline, and the second and final intervention was a four-day session conducted six weeks after the first intervention.

However, due to ethical obligations, the intervention was also provided to the CG at the end of the study after the data collection process was complete. This was also provided to alleviate the escalating symptoms of anxiety among the respondents in the CG.

The PE intervention developed for treating symptoms of anxiety in resource poor settings could be adopted by both development and mental health professionals, working in resource poor settings, to identify, treat, and mitigate anxiety symptoms among women. It is important to ensure that psychological tests used assess symptoms and the ensuing PE intervention is specifically tailored to address the specific needs of individuals and community members participating in the treatment (Mwangi, 2018). Such an approach could be used in future to collect indicators and data on mental health indicators that are needed to inform SDG (3), which focuses on “ensuring healthy lives and promoting well-being for all…” particularly in resource poor and hard to marginalised reach areas.

Study Methods and the Intervention Treatment

The objective of the research, the research question and the hypothesis were as follows:

Research Objective

The objective of the study was to find out if psychoeducation would lead to a reduction of anxiety symptoms, leading to an improvement in QoL.

Research Question

Would PE help to improve the overall QoL after reducing anxiety symptoms?

Null Hypothesis

Psychoeducation does not improve QoL after reducing anxiety symptoms.

Study Design

The quasi-experimental research design was adopted for this study, because the researcher deemed it feasible for an experimental study in the field setting, such as the remote and marginalised Northern Kenya one, where the study was conducted. In this research design therefore, although the independent variable is manipulated, respondents were not randomly assigned to their environments (Cook & Campbell, 1979). The lack of random assignment then made it likely that there would be some anticipated differences of the conditions between of the EG and the CG. Such a quasi-experimental research does not eliminate the problem of confounding variables (Cook & Campbell, 1979). In terms of internal validity, therefore, quasi-experiments lie between correlational studies and true experiments. The population for this study was 686 female members
of conservation enterprise groups (CEG) in Laikipia North.

A sample size of 200 for both the experimental (EG, \(N = 100\)) and control group (CG, \(N = 100\)) was selected at 80% power and 30% effective size (Chan, 2003). A study conducted in Kenya showed that PE had a 29% effect on respondents with anxiety (Muriungi & Ndetei, 2013). In relation to this study, the PE intervention was anticipated to have a successful and clinical relevance of 30% (effect size) translating to 70% of the subjects participating in the study (Chan, 2003). Further, the study was also interested in measuring the reduction in the symptoms of anxiety in both the control and experimental groups. In this regard, for a two-sided test of 5% (significance) and a standard deviation of two units, the required sample size was determined by the following formula:

\[
m (\text{sample size}) = \frac{c \star \pi_1(1-\pi_1) + \pi_2(1-\pi_2)}{(\pi_1-\pi_2)^2}
\]

Where \(c\) (confidence interval) = 7.9 for 80% power and \(\pi_1\) and \(\pi_2\) are the proportion estimates for the effective size of 30%. Thus, from the above illustration, \(\pi_1 = 0.3\) (The probability that the psychoeducation treatment would have a 30% impact) and \(\pi_2 = 0.7\) (That the treatment would effectively cure anxiety and depressive symptoms of at least 70% of the respondents in the study). Therefore, the required sample for 80% power is as follows (Chan, 2003):

\[
m (\text{size per group}) = 7.9 \star \frac{[0.3 (1-0.3) + 0.7 (1-0.7)]/(0.3-0.7)^2}{(0.3-0.7)^2}
\]

\[
= 33.18
\]

Hence, 33 X 2 = 68 respondents were required for both the control and experimental groups (Chan, 2003). However, to cater for attrition and low response rates, the researcher marked up the required sample size for both the experimental and control groups to 200 respondents, which translated to 100 respondents for each arm (100 for the experimental and 100 for the control group) of the study.

The Beck’s Anxiety Inventory (BAI), developed by Aaron Beck in 1988. It is a standardised tool that is used for assessing anxiety and was used to collect data on anxiety symptoms. The inclusion criteria for those selected to participate in the study included those who tested positive for mild to moderate scores for anxiety (10 to 29), as assessed by the BAI. Those with minimal and severe anxiety scores (10 > x > 29) were not eligible to participate in the study. However, as part of the ethical requirements, the researcher referred all the respondents in the EG who presented with severe anxiety symptoms to the Nanyuki Teaching and Referral Hospital for clinical treatment. This inclusion and exclusion criteria were used to identify participants for the CG as well and the ethical principle for those found with severe depression was also applied for the same group.

This study also administered the EUROHIS-QOL eight-item index—QOL measure, which is a shortened version of the World Health Organization’s Quality of Life Instrument—Abbreviated Version (WHOQOL-BREF). The reason for the choice of this tool is that it is a cross-cultural instrument that harmonises a wide range of QoL determinants and outcomes, which makes it possible to analyse the association between indicators (Schmidt, Muhlan, & Power, 2005). The scales for assessing overall QoL using the EUROHIS-QoL eight-item index was scored as follows: 1-8 = “Very poor”, 9-16 = “Poor”, 17-24 = “Neither Poor nor Good”, 25-32 = “Good”, and 33-40 = “Very good”. Further, the domains for QoL that were measured included: self-rating for QoL; satisfaction with health status; having enough energy for everyday life; satisfaction to perform daily activities; satisfaction with self; satisfaction with personal relationships; and enough income to satisfy its needs and satisfaction with living place. The BAI and EUROHIS eight-item index
tools were re-phrased into simple Swahili language, to aid the respondents understanding the questionnaires and to also help with the data analysis. These same tools were used to collect baseline, midline, and endline data. At the end of the study, changes in anxiety symptoms and QoL levels were assessed at midline and endline periods and were then compared and analysed throughout the three timelines to assess changes in the same.

A hundred and seven female participants who met the criteria for minimal to moderate depressive symptoms were recruited to participate in the experimental group (EG) (treatment group) and 101 women were recruited to participate in the control group (CG). These women either were active members of or were affiliated to the community enterprise groups (CEGs). The reason why more respondents were recruited to participate in the study beyond the specified sample size is because, after the announcement about the study was made, women turned up in large numbers because they indicated that anxiety disorders were critical and affected many women in the community. Further to this, the region where the study was conducted is highly marginalised and remote and majority of the women had travelled from very far places to be a part of the study. Out of ethical considerations, the researcher therefore felt obliged to include them in the study. The PE treatment was only administered to the EG. Data were analysed by using SPSS Version 21.0.

The study was cleared by the Nairobi Hospital Ethical Review Board Study Protocol No. TNH/ADMIN/ERC/29/07/15 and the National Commission for Science, Technology and Innovations (NACOSTI). After recruitment, the participants were consented.

The Treatment Intervention

The treatment intervention for this study was an eclectic model of psychoeducation, provided to women with anxiety symptoms. The first intervention was a four-day session, provided two weeks after the baseline, and the second and final intervention was conducted a four-day session six weeks after the first intervention. During the entire study period, only the respondents in the EG received the PE treatment. The same intervention was wait-listed for the CG and was provided at the end of the study, when all the data for comparative purposes and analysis had been collected. This model of psychoeducation borrowed from various approaches and was not modelled on a specific approach. Below are summarized sessions of the intervention.

Level One Treatment

**Session One: Introduction to anxiety disorders.** During this session, participants were introduced to the bio psycho-social definition, causes and treatment for anxiety, its different forms of presentation and manifestations. Participants were also introduced to QoL concept and its various indicators. Further, the participants were equipped with knowledge and basic skills of identifying symptoms of anxiety.

**Session Two: Narrative models.** In this session, participants were divided into smaller groups and encouraged to discuss how they defined and perceived anxiety in their context. They were also encouraged to share their experiences of anxiety symptoms. The same process was used for definitions, perceptions, and experiences of QoL. The discussions were reported and synthesized at plenary level, so that at the end of the session, the participants had a greater awareness of their day to day relationship between anxiety and QoL. Further, these discussions allowed participants to relate the knowledge acquired in session one to their practical circumstances. The respondents were given homework and asked to pay specific attention to the thoughts they had when they experienced anxious feelings and the responses that followed the same. They documented and
shared these during the second intervention treatments.

**Level Two Treatment**

**Session Three: Motivational interviewing (MI) and social skills.** This session was administered as group therapy. The research applied clinical experience to develop a collaborative, person-centered form of guiding to elicit and strengthen motivation for change from the respondents. This approach focused on exploring and resolving ambivalence emerging from irrational thoughts and beliefs that caused anxiety symptoms, after which the focus shifted to motivational processes within the respondents that support and facilitate change (Lawson, Wolever, Donovan, & Greene, 2009). Participants were also introduced to Beck’s cognitive triad to help them understand the relationship and connection between their thoughts, emotions, and behavior.

This session was conducted in groups where participants were encouraged to share and explore why they felt the impetus to change the irrational thoughts or beliefs that they had identified in the previous session and why they were motivated to change. The facilitators used open ended questions affirmations and reflections (OARS), to draw out the respondent’s ideas of a change-geared towards collaboration, evoking while respecting the autonomy of the client.

**Session Four: Social, coping skills and problem-solving techniques.** During this session, cognitive-behavioral techniques (CBT), such as problem-solving, and role-play were applied. This helped to enhance the presentation of didactic material that allowed the participants to rehearse, review new information and skills in a safe environment. These were broadened through specific attention to the development of stress management and other coping techniques (Anderson, Hartley, Bye, Harber, & White, 1986; Mc Farlane, Dixon, Lukens, & Lucksted, 2003). Other skills and techniques that were taught to participants during in this session included stress inoculation techniques (SIT) including deep relaxation breathing and progressive muscle relaxation (PMR) exercises. Time management and communication skills were also taught. They were asked to practice especially the SIT and PMR on a day to day basis and to take note of their thoughts, behavior, and feelings during and after the exercises. They would then share this during the final intervention.

At the end of the session, the participants were provided with homework where they were asked to reflect on, identify and list three key action points that they would commit to implementing at a personal level, that would help them to manage their stress and anxiety levels. They were asked to report the progress on this homework during the final session when the endline data will be collected.

During this session, participants were also asked to provide three main recommendations for improving access to pharma-psychotherapeutic services for those that tested positive for anxiety symptoms. At the end of the study, the researcher shared these recommendations with the Minister for Health and part of his health team within the Laikipia County Government. Further the same were shared with the head of the psychiatric unit and the team at the Nanyuki teaching and referral hospital.

**Psychoeducation for Spouses Provided to Both the EG & CG**

In summary, there were two PE sessions for the spouses of the respondents. They included the following:

**Session One: Introduction to anxiety disorders.** During this session, participants were introduced to the bio psycho-social etiology for anxiety and depression disorders, their presentation and manifestations and their impact on QOL, which was also introduced separately as a concept. Further, the participants were equipped with knowledge and basic skills of identifying symptoms of anxiety and depression. This session was very
similar to the one provided to the respondents in the EG & CG.

Session Two: Critical areas of support for spouses with anxiety disorders. During this participatory session, spouses were introduced to the following topics, which were then discussed in plenary jointly with participants. However, this session was conducted only for purposes of equipping spouses of the participants with knowledge and skills to support their female spouses who participated in the study.

Working together with your spouse. Working together ensures that the goals for treatment and care are understood and agreed by the treatment team which includes the family. This would help to overcome the isolation that is experienced by both the person with the disorder and her families.

It is insufficient to focus exclusively on medication management. Needs for appropriate accommodation, employment or alternative occupation, economic support, recreation and a supportive social network must be considered.

Other topics discussed in these sessions included the following:
(1) The need to pay attention to the social, as well as the clinical needs of the patient; (2) identifying the family’s strengths and difficulties to help care for the spouse suffering from anxiety; (3) help resolve family conflict by providing sensitive response to emotional stress to the spouse address feelings of loss; (4) provide an explicit response plan for access (contacts to treatment and crises especially where relapse occurs; (5) encouraging clear communication (listening and including the spouses with anxiety) among family members; (6) problem-solving (cognitive behavioral) techniques; and (7) the need for spouses to expand their social support networks to deal with stigma and tap onto multi-family problem solving groups.

At the end of the sessions, the respondents were provided with information of contacts of the mental health unit at the Nanyuki Teaching and Referral Hospital where they could take any not only their spouses but members of the family and community who had anxiety.

Results

Prevalence of Mild Anxiety

The study established that 19.6% of individuals in the EG had mild anxiety compared to 41.6% in the CG, at baseline. After the first psychoeducation intervention or treatment this figure increased to 39% in the EG. The prevalence also dropped to 33.7% in the CG. However, after the second and final psychoeducation intervention, the prevalence in the EG substantively dropped to 1.9% in the EG and dropped to 24.8% in the CG. The drop in prevalence in the CG after the first and second treatments was attributed to the fact that anxiety symptoms among respondents in that group became worse and more of them tested positive for moderate or severe anxiety (see Table 1).

On the other hand, the increase in prevalence in the EG after the first psychoeducation treatment could be attributed to increased awareness amongst group members that the symptoms associated with anxiety were disorders and not a norm.

Prevalence of Moderate Anxiety Symptoms

At baseline, 79.4% respondents in the EG had moderate anxiety compared to 55.4% in the CG, however, the rate in the experimental group dropped to 2.9% after the first psychoeducation treatment and to 0% after the second and final treatment. However, the prevalence for the CG rose to 60.4% at midline and slightly dropped to 57.4% at the endline data. The reason for the drop in prevalence could be accredited to more members of the
Improving the quality of life of women living with anxiety

Group-testing positive for severe anxiety symptoms and hence lowering the prevalence there (see Table 1).

**Prevalence of Severe Anxiety Symptoms**

It is worthwhile to note that the number of respondents with severe symptoms in the CG was 5% at midline and this prevalence rose to 15.8% at endline studies. No case of severe anxiety was noted in the EG. This finding indicates that the psychoeducation treatment reduced the prevalence of anxiety in the EG.

The significant drops in prevalence of moderate and severe anxiety levels in the EG at both midline and endline studies could be attributed to the components of the PE that imparted stress inoculation skills (SIT) and progressive muscle relaxation (PMR) skills to respondents, which they were asked to do when they experienced any symptoms of anxiety, which they had been already familiarized to in the initial sessions of the PE treatment. The effectiveness of these techniques was reported by respondents during the narrative sessions in the focus group discussions (FGDs), in which they said that they practiced the techniques regularly and that these helped them to feel more relaxed and less anxious. Further, they also indicated that the cognitive behavioral therapy (CBT) techniques for problem-solving helped them to prioritize and solve problems through dialogue and sharing.

Table 1

*Prevalence of Anxiety in EG and CG*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Midline</th>
<th>Endline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 107</td>
<td>N = 101</td>
<td>N = 105</td>
</tr>
<tr>
<td></td>
<td>N = 101</td>
<td>N = 105</td>
<td>N = 101</td>
</tr>
<tr>
<td></td>
<td>N = 105</td>
<td>N = 101</td>
<td></td>
</tr>
<tr>
<td>EG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence mild anxiety</td>
<td>21</td>
<td>19.6</td>
<td>42</td>
</tr>
<tr>
<td>Prevalence moderate anxiety</td>
<td>85</td>
<td>79.4</td>
<td>56</td>
</tr>
<tr>
<td>Prevalence severe anxiety</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Regression analyses conducted showed that there were some slight variations in the socio-demographic factors for the EG and CG sites. This could be attributed to the research quasi-experimental research design adopted for this study where the groups were considered non-equivalent because they were not randomly assigned to their groups. According to Cook and Campbell (1975), when participants in a quasi-experimental research (in field settings) are not randomly assigned to conditions, the resulting groups are likely to be dissimilar in some ways. For this reason, researchers consider them to be non-equivalent.

**Bi-Variate Analysis on the Co-relationship Between Anxiety and QoL**

Bi-variate analysis conducted at 95% confidence level highlighted that there was a weak negative but significant relationship ($p = 0.00$) between anxiety and QoL. This was indicated by co-relation coefficients $R = -0.487$ on Pearson’s scale and $R = -0.633$ on Spearman Correlation Scale. This finding indicated that anxiety influenced QoL negatively meaning that the women who had high anxiety levels also had poor levels of QoL (and vice versa) in resource poor settings in Laikipia County.
Table 2
Bi-variate Analysis on the Correlation Between Anxiety and QoL

<table>
<thead>
<tr>
<th>Analysis Type</th>
<th>R Scale</th>
<th>Asymp. std. errora</th>
<th>Approx. T b</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval by interval</td>
<td>Pearson’s R</td>
<td>-0.487</td>
<td>-13.668</td>
<td>0.000</td>
</tr>
<tr>
<td>Ordinal by ordinal</td>
<td>Spearman correlation</td>
<td>-0.633</td>
<td>-20.049</td>
<td>0.000</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>602</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes. a: Not assuming the null hypothesis; b: Using asymptomatic Standard Error assuming the Null hypothesis; c: Correlation Significant at 0.05 level (2-tailed test).

The Effect of Psychoeducation on Anxiety Disorders Leading to an Improvement of Overall QoL

The independent-samples t-test was used to compare the means between the EG and CG at each level of assessment, such as: (i) at baseline; (ii) at midline treatment/intervention one; and (iii) at treatment/intervention two (endline). Further, analysis of variance (ANOVA) tests were used to establish differences or otherwise of the CG and EG at baseline. These findings are enumerated in the following sections.

T-test for Equality of Means

Further, t-tests to measure the equality of means, indicated scores of anxiety \( p = 0.00 \), and QoL \( p = 0.576 \). These results indicate that there was no difference in the means for anxiety symptoms for both EG and CG at baseline. However, the \( p \)-value for QoL \( p = 0.576 \) indicated that there was no statistically significant difference in the means of the QoL in the EG and CG (see Table 3).

Since there was no intervention at the baseline, the study concluded differences in QoL among the EG and CG, were more likely due to chance and not likely due to the differences in the two group’s characteristics. In this regard, the study therefore adopted t-test for equality of means; to test for differences in the means of the EG and CG.

Table 3
Levene’s and T-test at Baseline

<table>
<thead>
<tr>
<th></th>
<th>Levene’s test for equality of variances</th>
<th>T-test for equality of means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( F )</td>
<td>( p )-value</td>
</tr>
<tr>
<td>Anxiety scores</td>
<td>Equal variances assumed</td>
<td>34.375</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>-3.735</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>Equal variances assumed</td>
<td>0.768</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>0.558</td>
</tr>
</tbody>
</table>

Note. Level of assessment = Baseline.

Independent Samples Test at Psychoeducation Treatment/Intervention One (Midline)

After the first intervention treatment, the independent sample tests for the EG and CG showed scores for anxiety and QoL as follows; anxiety \( p = 0.00 \) and QoL \( p = 0.00 \). Therefore, the study concluded that there was a statistically significant difference between the means of anxiety, and QoL scores for both the EG and CG after the first PE treatments. This finding establishes that PE had an impact of effectively reducing anxiety symptoms leading to an improvement in the QoL, of the women in the EG, after the first treatment or
intervention (see Table 4).

Table 4  
*T-test After Psychoeducation Treatment/Intervention One*  

<table>
<thead>
<tr>
<th></th>
<th>t-test for equality of means</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
<td>df</td>
<td>p-value</td>
<td>Mean difference</td>
<td>Std. error difference</td>
<td>95% confidence interval of the difference</td>
<td></td>
</tr>
<tr>
<td>Anxiety scores</td>
<td>Equal variances assumed</td>
<td>14.910</td>
<td>0.000</td>
<td>1.209</td>
<td>0.081</td>
<td>1.049</td>
<td>1.368</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>14.920</td>
<td>0.000</td>
<td>1.209</td>
<td>0.081</td>
<td>1.049</td>
<td>1.368</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>Equal variances assumed</td>
<td>-6.448</td>
<td>0.000</td>
<td>-0.640</td>
<td>0.099</td>
<td>-0.835</td>
<td>-0.444</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>-6.446</td>
<td>0.000</td>
<td>-0.640</td>
<td>0.099</td>
<td>-0.835</td>
<td>-0.444</td>
</tr>
</tbody>
</table>

**Independent Samples Test at Treatment/Intervention Two (Endline)**

At the endline studies of PE treatment intervention two, independent sample tests for both EG and CG indicated *p*-values for anxiety, and QoL as follows; anxiety scores (*p* = 0.00) and QoL scores (*p* = 0.00). Therefore, the study concluded that there was a statistically significant difference between the overall means of anxiety and QoL scores for the EG and CG after the second and final PE treatment intervention. This finding showed that PE significantly reduced anxiety symptoms leading to a significant improvement in the QoL of the women in the EG (see Table 5).

Table 5  
*T-test After Psychoeducation Treatment /Intervention Two*  

<table>
<thead>
<tr>
<th></th>
<th>t-test for equality of means</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
<td>df</td>
<td>p-value</td>
<td>Mean difference</td>
<td>Std. error difference</td>
<td>95% confidence interval of the difference</td>
<td></td>
</tr>
<tr>
<td>Anxiety scores</td>
<td>Equal variances assumed</td>
<td>10.482</td>
<td>0.000</td>
<td>2.049</td>
<td>0.195</td>
<td>1.663</td>
<td>2.434</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>10.695</td>
<td>0.000</td>
<td>2.049</td>
<td>0.192</td>
<td>1.669</td>
<td>2.429</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>Equal variances assumed</td>
<td>-17.957</td>
<td>0.000</td>
<td>-1.549</td>
<td>0.086</td>
<td>-1.719</td>
<td>-1.378</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>-18.072</td>
<td>0.000</td>
<td>-1.549</td>
<td>0.086</td>
<td>-1.718</td>
<td>-1.379</td>
</tr>
</tbody>
</table>

**ANOVA Tests for the Control Group**

For the test of homogeneity of variances, anxiety scores (*p* = 0.56) and QoL (*p* = 0.08). This designates that there was no statistically significant difference in anxiety symptoms and QoL scores for the CG across the three timelines, which seemed to worsen among the women during the three timelines (see Table 6). This finding indicates that due to the absence of the PE treatment in the CG, anxiety symptoms became worse among the women in the same group, which negatively affected their QoL.
Table 6
ANOVA Tests to Measure Anxiety Symptoms in the Absence of the Psychoeducation Treatment for the Control Group

<table>
<thead>
<tr>
<th></th>
<th>Levene statistic</th>
<th>df1</th>
<th>df2</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety scores</td>
<td>0.573</td>
<td>2</td>
<td>300</td>
<td>0.564</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>2.511</td>
<td>2</td>
<td>299</td>
<td>0.083</td>
</tr>
</tbody>
</table>

ANOVA Scores for the Experimental Group

For the EG, ANOVA tests showed the following p-values for anxiety symptoms (p = 0.00) and QoL scores (p = 0.00), demonstrating that the PE treatment led to a significant reduction in anxiety symptoms, which led to a significant improvements in QoL ratings among the women in the EG.

Table 7
ANOVA Tests to Measure Anxiety Symptoms After the Psychoeducation Treatment in the Experimental Group

<table>
<thead>
<tr>
<th></th>
<th>Levene statistic</th>
<th>df</th>
<th>df2</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety scores</td>
<td>141.970</td>
<td>2</td>
<td>298</td>
<td>0.000</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>10.078</td>
<td>2</td>
<td>297</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Overall QoL Scores

For the overall QoL, respondents in the EG showed improvement from “Neither good nor poor” at baseline to “Good” after the first psychoeducation treatment and eventually to “Very good” after the second and final psychoeducation treatment. This was indicated by mean scores of 2.94, 3.74, and 4.35 respectively, for the three timelines. However, for the CG, overall QoL remained at “Neither good nor poor” from baseline through midline to endline, as indicated by mean scores of 2.94, 3.10, and 2.80 respectively for the three timelines (see Table 8). These findings illustrate that the first and second psychoeducation treatment intervention helped to improve the actual and the perceived QoL, as evidenced by improvements in the EG on the various measures of QoL (see Table 8).

Table 8
Overall QoL Scores for Both EG and CG at Baseline, After Treatments One and Two

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Midline</th>
<th>Endline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall QoL</td>
<td>EG</td>
<td>CG</td>
<td>EG</td>
</tr>
<tr>
<td>Quality of life scores</td>
<td>2.94</td>
<td>2.99</td>
<td>3.74</td>
</tr>
</tbody>
</table>

Discussion

The study found that the overall mean scores for anxiety symptoms significantly reduced after the first and second psychoeducation treatments or interventions for the EG. This finding is similar to those of Donker et al. (2009), which meta-analysis of PE interventions, showed that PE had a significant effect on anxiety. Further, findings of this study were similar to those done by other scholars in Tanzania (Kaaya et al., 2013), countries in Sub-Saharan Africa (Wu & Li, 2013) and in Kenya (Muriungi & Ndetei, 2013), which found that psychoeducation interventions significantly reduced symptoms of anxiety and depression among similar groups. This finding indicated that PE has a positive impact on improving anxiety symptoms and QoL while. Therefore, based on this finding, the psychoeducation treatment model adopted for this study was effective in treating the
anxiety symptoms among women in the EG.

**Summary of Key Findings**

Anxiety symptoms are prevalent among Maasai women in Northern Kenya (Mwangi, 2018). Qualitative data collected during the focus group discussions (FGDs), the women identified with and defined symptoms of anxiety as a condition they referred to as “Uraureushio” in their local language. This awareness helped the respondents to relate with and share their experiences of anxiety disorders and the impact it had on their wellbeing and livelihoods. The study established that other socio-cultural and environmental factors, such as having many children, having co-wives, and having access to water without having to compete with wildlife, helped to mitigate anxiety. Among some older female respondents, the FGD narratives revealed that they viewed polygamy as a positive cultural practice, which helped to reduce anxiety.

Further, the FGD discussions showed that the respondents also had different perspectives regarding what a good quality of life means for them in their communities. In this community, they live in domes made of cow dung mixed with soil called “manyatta”. For them, living in a manyatta that does not leak when it rained indicated that one had a good QoL and so does owning plenty livestock and having many children. This made the researcher to conclude that there is need for research to explore the different culturally perceived definitions of QoL that exist in this community.

Through the narrative sessions, the study subsequently established that there exist cultural practices that were used to treat people exhibiting anxiety symptoms. They named a cactus like plant known as “muneshoi” in the local maasai dialect as one that was boiled and traditionally administered to help calm those exhibiting anxiety symptoms. The respondents alluded that it worked. They also indicated that women also provided social support for each other when one of them was suffering from anxiety. They would visit and allow those affected with anxiety to talk freely about the issues causing anxiety and come up with solutions for the problems they faced. This helped to mitigate, reduce or completely deal with some of the symptoms. This is critical and concurs with findings of other research which emphasized the need to facilitate processes in communities, which help individuals to recognize their personal and communal strengths and resources and generate possibilities for action (Lawson et al., 2009) for individuals faced with anxiety.

Respondents cited that most thoughts and emotions that were associated with escalated anxiety symptoms among women included environmental factors such as lack of water or food, lack of income, fear of the women or their children being attacked by wild animals, inability to fulfill domestic chores especially if the woman had few children or had no co-wives and fear of domestic violence from their spouses.

Finally, during the FGD narrative sessions, respondents indicated that the skills that they received on PMR and SIT were very helpful in calming them down in stressful situations and were useful in reducing any anxiety symptoms that they experienced. They reported that they practiced these techniques at least three times a day, every day as they were taught during the PE sessions. Respondents also indicated that the CBT problem solving techniques were very useful in helping them plan and prioritize important and urgent issues that needed to be dealt with, which helped them not to feel overwhelmed by circumstances. This they said alleviated and helped to mitigate some of their general fears and worries.
Conclusions

The prevalence of anxiety symptoms is high (79.4%) among Maasai women in Laikipia County in Northern Kenya and this in turn affect their quality of life. Psychoeducation treatments could significantly reduce the same and improve the QoL of women living in resource poor settings. Time series tests conducted to assess the overall means of anxiety after the psychoeducation treatment revealed a significant reduction of anxiety symptoms in the EG, which led to an overall QoL levels of the women in that group. This approach could be applied in areas that are resource poor, because it is easy to administer and also cost effective. Further, it could also be used as an avenue to improve access to mental health care for underprivileged women and the general community.

Psychoeducation techniques could be taught to community members in resource poor areas, by trained psychologists. They could then in turn use the skills taught to identify, mitigate and refer members of the community who are found with anxiety symptoms to health care facilities for professional treatment. The community interventions could then be linked and integrated to mental health services in primary healthcare facilities to enhance access to comprehensive mental healthcare for underprivileged women.

Further, the study also established that other socio-cultural factors, such as being in a polygamous marriage where the husband had many wives, having many children, absence of conflict over scarce water resources between humans and wildlife and lack domestic violence, played an important role in amplifying the presence or absence of anxiety symptoms and also determined and defined what a good or poor QoL is. These need to be interrogated further in future through research.

Recommendations

There is need for national and international mental health strategies, to integrate psychological measures such as the BAI, to evaluate and assess anxiety symptoms as a precursor to providing PE treatment. Further, there is need for policy makers to integrate measures for QoL that could help to collect data that inform national and international data on wellness to inform SDG (3). This data could be used to complement data on standard of living (SoL), which is mostly used to infer to QoL indicators in Kenya and some other developing countries.

There is also need for global and regional organizations, as well as academic institutions to, in future adopt or improve on the PE model that was used in this study. This could help to improve mental health outcomes of women in resource poor settings. On the other hand, it is critical to involve the women’s spouses (for the married women) in PE interventions, so as to enhance their support at home.

Recommendations for Further Research

Future research could investigate other socio-economic and cultural factors that could trigger anxiety disorders among women in resource poor settings. Further, there is need for further research to understand cultural aspects and indicators, which define QoL in resource poor communities, which are not captured by global QoL tools and measures. Finally, the researcher recognized the necessity for further research to understand culturally based traditional methods and practices that currently exist or that existed in the past to treat people with anxiety (and other common mental health issues). This could help policy-makers to develop cost effective strategies for addressing mental health needs among women living in communities that are resource poor. In the same breath, it is essential to identify, that could be explored in future treatment of anxiety.
References


