Prevalence of depression and associated factors among the patients with diabetes type 2 and hypertension in selected district hospitals in Rwanda

Presented by :

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Introduction & Background

• Various studies have found a greater prevalence of depression in patients with chronic illnesses than in the general population (Gunn, Ayton, Densley, Pallant, Chondros, Herrman et al., 2012; Al-Amer, Sobeh, Zayed, & Al-domi, 2011; Na, Kim, Lee, Chae, Kim, Kim et al., 2007)

• Example: Depression is found to co-occur in 17% of cardiovascular cases, 23% of cerebrovascular cases, and with 27% of diabetes patients and more than 40% of individuals with cancer in America (AHA, 2012).
Introd & Background cont.....

- Also, a WHO world health survey including 60 countries representing all regions of the world revealed that an average of between 9.3% and 23.0% of participants with one or more chronic physical disease had comorbid depression (Moussavi, Chatterji, Verdes, Tandon, Patel, & Ustun, 2007)

- This co-morbidity is associated with major health consequences including high rate of mortality and morbidity, disability, reduced quality of life and increased health costs (Moussavi et al., 2007; Lin, Katon, Von Korff, Rutter, Simon, Oliver et al., 2004)
Introd & Background cont....

- the World Health Organization (WHO) has recommended the regular screening of depression among chronically ill patients (NICE, 2009).

- However, despite this recommendation for all countries depression continues to be less detected in chronic illnesses.

- Largely because many health professionals are being more concerned with the physical disorder which is usually the reason for the consultation, and may not be aware of the accompanying depression (Goldberg, 2010).
Background cont....

- Rwanda is one of developing countries experiences an increase of non-communicable diseases (Commonwealth, 2013).

- While statistics from WHO (2009) show that communicable diseases constitute 90% of chief complaints in health care facilities in the country, depression estimated to prevail between 15% and 25% in the Rwandan population constitutes another significant health burden (Karinganire, 2012).
The estimated co-morbidity of depression with NCDs in Rwanda is alarming where the prevalence of depression among diabetic and hypertensive patients is considered to be 27% and 29% respectively (Karinganire, 2012).

However there is no research based evidence that has been done in Rwanda to establish the co-morbidity of depression with NCDs.

The aim of this presentation is to present the results from the study which explored depression among diabetic and hypertensive patients in three selected district hospitals in Rwanda. The study was done in 2015.
2. Methodology

- This presentation presents the part of the findings of a larger study which aimed to adapt the collaborative care model to manage the co-morbidity of depression and chronic non-communicable diseases in Rwanda.

- Action research (AR) design using a Classical Action Research approach was used in the larger study. The study was therefore conducted in three cycles adapted from Action research cycles (Speziale et al., 2011) and used mixed method approach.
Methodology cont...

• The first was the Exploratory cycle which explored the prevalence of co-morbid depression and chronic NCDs namely diabetes and hypertension. In this cycle quantitative approach was used. And it is this exploratory cycle that is being presented.
Methodology cont....

- For this exploratory cycle which used the quantitative approach:
  - A Cross-sectional quantitative descriptive design was used.
  - A total of 385 participants was targeted but only 339 participated making the response rate of 88%.
  - A systematic random sampling was used to choose the sample from the larger population which was all diabetic and hypertensive patients aged 21 years and above attending three selected district hospitals.
  - Among these three hospitals, two of them were district hospitals from urban area and one from rural area with endocrinology and mental services.
Methodology cont....

• A Socio-demographic and medical information questionnaire was constructed by the researchers to collect demographic data.

• Depression was screened using the PHQ-9. The PHQ-9, contains 9 items, it offers psychologists’ concise, self-administered tool for assessing depression.

• The PHQ-9 is a brief self-report instrument that is commonly used for screening and diagnosing depression (APA 2010).

• This questionnaire was chosen as it has been recommended as a tool for primary care systems to help accurately diagnose depression and to monitor progress of treatment (Katon, 2008).

• It has also been used in different studies to screen depression in patients with chronic NCDs ((American Psychiatric Association, 2014; Katon, 2008).
Methodology cont.....

- Data was collected over a period of one month and 20 days.

Data analysis

Stata 13.0 was used to analyse data

- The prevalence of depression was estimated with 95% confidence intervals and was calculated using the PQH-9 table of score.

- After obtaining people’s information about their mood, we calculated every participant’s score over 9 items and we obtained the total mark over 27 \((9 \times 3 = 27)\),

- Then every participant was put under depression category based on the PHQ-9 score.
Methodology cont...

- The Interpretation of total score of PHQ-9

<table>
<thead>
<tr>
<th>Total score</th>
<th>Depression severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>Minimal depression</td>
</tr>
<tr>
<td>5-9</td>
<td>Mild depression</td>
</tr>
<tr>
<td>10-14</td>
<td>Moderate depression</td>
</tr>
<tr>
<td>15-19</td>
<td>Moderately severe depression</td>
</tr>
<tr>
<td>20-27</td>
<td>Severe depression</td>
</tr>
</tbody>
</table>
Methodology cont....

- Categorical factors associated with depression were assessed using the standard Pearson’s chi-square (χ²) test.

- The fisher’s exact test was used to measure this association if an expected cell count in the cross tabulation was less than 5 (sparse numbers).

- The ethical clearances for the study were obtained from the University of KwaZulu Natal, Rwanda Ministry of Health and College of Medicine Health Sciences Institutional Review Board.
Results

1. Socio-Demographic data

• 339 people out of 385 targeted participated in the study making the response rate 88%.

• The findings revealed that all participants 100% (n=339) had diabetes; however a small number of participants 6.2% (n=21) also had hypertension.

• The majority of participants was over 60 years 34% (n=116). More than a half of participants 56% (n=190) have been diagnosed with diabetes and/or hypertension between 1 and 5 years.

• The majority of participants 56.9% (n=193) were married.

• The high number of participants 78.5% (n=266) were not employed and the majority of participants were living with their family members 87.6% (n=297). Also the majority of participants 34.8 (n=198) never schooled.
2. Prevalence of depression using PHQ-9 SCORE

<table>
<thead>
<tr>
<th>Depression categories</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No depression</td>
<td>55</td>
<td>16.2</td>
</tr>
<tr>
<td>Minimal depression</td>
<td>56</td>
<td>16.5</td>
</tr>
<tr>
<td>Mild depression</td>
<td>95</td>
<td>28.0</td>
</tr>
<tr>
<td>Moderate depression</td>
<td>72</td>
<td>21.2</td>
</tr>
<tr>
<td>Moderately severe depression</td>
<td>39</td>
<td>11.5</td>
</tr>
<tr>
<td>Severe depression</td>
<td>22</td>
<td>6.4</td>
</tr>
</tbody>
</table>

The results have shown that a vast majority of participants 83.8% (n=284) had depression. Among them 17.9% (n=61) had moderately severe to severe depression and the big number of participants had minimal to moderate depression 81.9% (n=223). Only 16.2% (n=55) did not have depression.
3. Socio-demographic factors associated with depression

• A statistically significant association was found between age and depression (p=0.01). The relative risk for depression was almost twice among respondents aged between 31-40 years old compared to those aged between 21-30 years old [odds ratio (OR) = 1.5 and 95% CI=0.51-4.54];

• Also the relative risk was more higher among respondents aged between 41-50 years old compared to those aged between 21-30 (OR = 14.9 and 95% CI = 1.73-129).
Results cont...

• Similarly, a significant association was found between gender and depression (p=0.02). Depression was higher in females than males.

• The relative risk of depression was twice among females respondents compared to males (OR = 2.02 and 95% CI = 1.07-3.82).

• However there were no significant associations found between depression and other demographic factors.
The findings with other literature... Some examples

• The results revealed that the majority of respondents 83.8% (n=284) had depression ranging from minimal to severe depression corroborating what was reported in an international study of a one year prevalence of depression among 245,400 patients in 60 countries.

• In the international study it was found that patients with two or more chronic physical disorders experienced a prevalence of depression of 23% (Moussavi et al., 2007). Likewise in another study done by Ali, Stone, Peters, Davies and Khunti (2006) rates of depression in patients with diabetes were estimated to be 12% to 18% and coronary heart diseases to be 15% to 23%.

• Furthermore Maharaj, Reid, Misir, and Simeon (2005) found a prevalence rate of 28.3% of depression among patients with one or more chronic illnesses.
In the current study, the results found that 6.4% (n=22) had severe depression.

In his study Aboshaiqah (2014) found that 18.4% (n = 83) of participants had severe depressive symptoms.

AHA (2012) reported that major depression is found to co-occur in 17% of cardiovascular cases, 23% of cerebrovascular cases, and with 27% of diabetes patients and more than 40% of individuals with cancer.

Raval et al., (2010) found that 23% of patients with type 2 met the criteria for severe depression.

Compared to the above mentioned findings, our study found a smaller percentage of severe depression.
Cont....

• This may be because diabetes and hypertension were well controlled in our participants and our sample excluded participants with diabetes/hypertensive complications.

• However, these results are in accordance with those found by Patten (2001) who reported that major depression was found at the low prevalence rate of 4% in patients with chronic medical disorders.
A statistically significant association between age, gender, and depression was found.

However, no significant association was found between relationship status, employment status, who lived with the respondents, educational level, duration of diabetes/hypertension, types of medication used, and depression.

The results are in agreement with those found by Nasser, Habib, Hasan, and Khalil (2009): a significant association between gender and depression ($p=0.004$). No significant association was found between duration of diabetes and depression as well as between depression and educational level ($p=0.1$).

Also in their study, Maharaj et al. (2005) found that there were statistically significant differences in the level of depression by age, and gender ($p < 0.05$).
Cont. 

- However, the results are not in accord with the results from the study done by Igwe et al., (2013) who found a significant association between educational level and depression ($p=0.001$). They found that depression was higher in patients with no education.

- The same authors found a significant relationship between relationship status and employment status with depression ($p<0.001$); they found that depression was higher in respondents with diabetes mellitus if they were not married, and were not employed.

- Similarly, in his study Aboshaiqah (2014) found that there was no significant difference between male and female patients in their depressive symptoms ($t = -0.69, p = 0.488$).
Conclusion and recommendations

- A very high prevalence rate 83% (n=284) of depression among diabetic and hypertensive patients was found in our study.

- Age and gender were associated with depression.

- Based on these findings support we recommend for routine screening in Rwanda for depression in patients with diabetes and hypertension as well as other non-communicable diseases especially for those attending district hospitals to reduce the number of the depressed or the misrecognized depressed patients and consequently offer them a better quality of life.
Thank you