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Screening for Mental Disorders Using GMHAT-PC Among Chronic Disease Patients at a Primary Health Center in Guyana

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Abstract

Mental health issues such as depression, anxiety, and stress are highly reported among chronic disease patients. One of the associated screening tools is the Global Mental Health Assessment Tool (GMHAT) for primary care. This is a digitalized tool that assists in the mental health assessment of patients. The aim of the study is to assess the prevalence of mental illness using The Global Mental Health Assessment Tool - Primary Care Version (GMHAT–PC) among diabetic and hypertensive patients visiting the chronic disease clinic at the Industry Health Center, Georgetown, Guyana from July to October 2024. A quantitative, cross-sectional design was utilized. A purposive sample of 106 diabetic and hypertensive patients were interviewed. The IRB, Ministry of Health, Guyana gave ethical approval. SPSS version 30.0 was used to analyze the data. The findings of the study are as follows: 45.28% of patients were between 65 to 75 years. 74.5% were females, 67.9% were East Indians, 52.8% had secondary education, 51.46% were married, and 86.8% were living with the family members. The GMHAT detected a 4.7% of anxiety and depression, whereas physicians diagnosed higher rates of depression (15%). 72.6% of patients were satisfied with the interview. The physician was satisfied with the tool. The findings suggest that the GMHAT-PC is feasible for screening mental illness among chronic disease patients in primary care. A similar study can be done where more health care professionals use the GMHAT-PC tool to screen chronic disease patients at various health centers in Guyana.

Keywords

Diabetes1, GMHAT-PC tool 2, Hypertension 3, Mental disorders 4.

INTRODUCTION

The Mental Health Disease Burden in Guyana

There has been an increased Mental, Neurological, Substance Use Disorders and Suicide (MNSS) burden amongst people 10 to 40 years of age which leads to 16% of all disabilities. Anxiety, depression, self-harm, and somatic symptom disorders (53%) start at the age of 20 years and continue through adulthood. MNSS reports show that suicide among 15 to 35 years old is more than one third, 18% are substance use disorders, 13% are headaches and 5% are severe mental disorders. Whereas Alzheimer's disease (50%) is common among the elderly [1].

The prevalence of mental health illness in mild, severe or acute forms among people in Guyana is approximately 15 to 20 percent [2].

Relationship Between Chronic Disease and Mental Health

Non communicable diseases such as cancer, diabetes, and cardiovascular disease affect the body and the mind as well. Chronic disease patients are more prone to anxiety and depression due to hospitalization, the nature of their disease, and also increased worrying and hormonal disturbances [3].

Mental health in terms of how one thinks and feels, handles stress, relates to others, and makes choices is important in daily life. Health of the body is affected by thoughts, feelings, beliefs and attitudes. Depression occurs 2 to 3 times more among people with diabetes. However, half of those with diabetes and depression get diagnosed and treated. If mental health issues are not treated on time, diabetes can progressively get worse. Similarly, anxiety occurs 20% more frequently among people with diabetes [4].

There are also standard screening tools for depression and anxiety that can be routinely administered, just like other medical screening tools. One such tool is the Global Mental Health Assessment Tool (GMHAT). The GMHAT-PC tool for primary care is a digitalized tool with questions that screen the mental health of patients [5].

Significance of the Research of the Research

Investigating comorbid conditions such as mental health among chronic disease patients is significant for the following reasons:

Chronic illnesses and mental disorders are comorbidities, as proven in epidemiological studies. Nearly fifty percent of people with mental health issues have chronic illnesses. Diabetic patients with mental health issues had challenges in maintaining blood glucose levels, in exercising, in controlling their weight gain, and they developed long-term complications as reported by the American Diabetes Association [3].

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Evidence shows that depression exists among diabetic people, however it often goes undiagnosed and physicians are unable to identify depression in their patients. To improve the quality of life and decrease the disability caused by the disease and reduce the mortality a multidisciplinary approach is required [6].

Guyana has public and private hospitals and primary health centers. Regional and district hospitals coordinate health care in all 10 regions of Guyana. The health care system in Guyana has a total of 22 District Hospitals, 70 Health Centers, 4 Regional Hospitals, 32 Health Posts and 1 Psychiatric Hospital.

Primary health centers are often the first line of contact where people visit for their health issues. Chronic disease patients regularly pay visits to medical clinics at health centers in their respective communities. So, if health care professionals screen and detect mental health issues among these chronic disease patients during their regular visits, it will be more beneficial to treat them accordingly and counsel the patients to prevent further deterioration of their condition [1].

A meta-analysis study done in Ethiopia showed an estimated high prevalence of depression among diabetic patients (39.73%). The study recommended that early screening with relevant mental health assessments and treatment procedures should be a routine practice in diabetic clinics in Ethiopia [7].

A similar study was done in Trinidad using the Zung Depression Scale to assess the affective, behavioral and physiological aspects of depression among type 2 diabetic patients. The study revealed that out of a total of 128 type 2 diabetic patients, 17.6% had mild to moderate levels of depression, more females were depressed, and higher rates of depression were seen in diabetic patients with complications [8].

The GMHAT screening tool has been proven effective as evidenced in several studies. For example, GMHAT was used to screen mental health among chronic disease patients in a clinic. Primary care physicians reported that the tool was easy to use and effective in early diagnosis [9].

The GMHAT has assisted health care personnel in identifying and managing mental disorders at the community level and has enhanced the mental health services across nations. It was found that GMHAT covers a range of topics and one can use it with ease [10].

The following are the characteristics of the GMHAT/PC:

1. Health care professionals found it feasible in clinical practice.
2. It identified common mental disorders.
3. It involves a feature of follow-up services [11].

A literature review proves the fact that depression, anxiety and stress are more common among chronic disease patients. Literature also shows that one of the screening tools such as GMHAT/PC tool is proven for validity, reliability and a user-friendly approach in early detection of mental health issues. This tool was used in India, UK, Asia and Columbia and was proven to be highly effective.

This study seeks to assess the feasibility of using the GMHAT/PC tool in screening patients with diabetes and hypertension for mental health issues at the Industry Health Center. These findings will contribute significantly to filling the gap in psychiatric services at primary health centers.

There are several chronic diseases, however, in this study, the focus will be on diabetes and hypertension. These patients come to the clinic for routine tests and medical treatment at health centers in Guyana. Occasionally, health care professionals may ask a few questions related to their mental health. However, patients with diabetes and hypertension are not screened for mental health issues routinely. There are several benefits of early detection of mental issues, for example it reduces the disease burden and increases the productivity of these people. So, it is better to use a screening tool to identify mental health issues among these patients. Early screening for mental health issues will promote well-being for all ages and help nations to achieve sustainable development goals.

Research Questions

1. What is the prevalence of mental health issues among diabetic and hypertensive patients at the Industry Health Center?
2. Is it feasible to use the GMHAT-PC to screen mental health issues among patients with diabetes and hypertension at the Industry Health Center?

Aim

To assess the prevalence of mental illness using the GMAHT–PC among diabetic and hypertensive patients visiting the chronic disease clinic at Industry Health Center, Georgetown, Guyana from July to October 2024.

OBJECTIVES

1. To determine the demographics and socio-economic factors of patients with diabetes and hypertension.
2. To identify mental illness in hypertensive and diabetic patients using GMHAT-PC tool.
3. To assess the primary care physician and patients' perceptions towards use of GMHAT-PC tool at the Industry Health Center.

METHODS

Study Design

A quantitative, descriptive and cross-sectional study design was used.

Location

The study was conducted at Industry Health Center, Georgetown in Guyana.

Period of Data Collection

From July to October 2024.

Population

Diabetic and hypertensive patients visiting the chronic disease clinic at Industry Health Center, Georgetown, Guyana.

Sampling Technique

Purposive sampling was used.

The sample size was estimated to be 108 based on a confidence level of 95% and a margin of error of 5%. Approximately 150 patients with diabetes and hypertension attend the health center every month.

The sample size (n) is calculated according to the formula: n = [z2 * p * (1 - p) / e2] / [1 + (z2 * p * (1 - p) / (e2 * N))]

Where: z = 1.96 for a confidence level (α) of 95%, p = proportion (expressed as a decimal), N= population size, e = margin of error. z = 1.96, p = 0.5, N = 150, e = 0.05

n = [1.962 * 0.5 * (1 - 0.5) / 0.052] / [1 + (1.962 * 0.5 * (1 - 0.5) / (0.052 * 150))]

n = 384.16 / 3.5611 = 107.878

n=108

Inclusion Criteria

1. Those over the age of 18 years (adults).
2. Those diagnosed with either diabetes or hypertension or both for more than six months.
3. Those attending the chronic disease clinic for more than six months.
4. Those that are available during the time of data collection.
5. Those who are willing to participate (and give informed consent).

Exclusion Criteria

1. Hypertensive and diabetic patients whose primary language is not English.
2. Patients diagnosed with chronic diseases other than diabetes and hypertension.
3. New patients attending the clinic.

Data Collection Instrument

The GMHAT is a digitalized tool to assess and identify mental health issues in both clinical and health center settings.

It consists of questions related to worries, anxiety and panic attacks, concentration, depressed moods, sleep, appetite, eating disorders, hypochondriasis, obsessions and compulsions, phobias, mania/hypomania, thought disorders, psychotic symptoms, disorientation, memory impairment, alcohol and drug misuse, and personality problems and stressors, which are asked sequentially. A digital final report with a list of mental health problems along with scores is produced after the GMHAT interview. The total duration of the interview by GMHAT is 15 to 20 minutes.[12]

Ethical Considerations

1. This research was carried out under the ethical principles that govern all research as provided for in the 2006 Helsinki Declaration.
2. The IRB, Ministry of Health, Guyana gave ethical approval on 5th June 2024.
3. The GPHC Research Committee also approved the research proposal, and an official permission was obtained on 8th July 2024.
4. Each participant was explained the project and then written informed consent was obtained.

Data Collection Procedure

Data collection was done during the period of July to October 2024 at the Industry Health Center, Georgetown, Guyana.

Medical Registrar Dr. Saskia Sertimer oversees Industry Health Center. She was trained in Mental Health Gap Action (mH GAP) by the Ministry of Health, and she conducted all the GMHAT/PC interviews.

Diabetic and hypertensive patients regularly visit health centers for their routine checkup. During such a visit, Dr. Sertimer approached patients and determined whether they were willing to participate in a mental health interview. Once they showed willingness, they were informed of the purpose of the interview and informed consent was obtained.

Individual patients' interviews were conducted using GMHAT/PC and recorded simultaneously on the computer as Mdb files which were converted to excel sheets and then to SPSS. Each interview took approximately 8 to 15 minutes.

The total number of patients interviewed using the GMHAT-PC tool was 110. However, while compiling data, two patients' interviews were not recorded in the tool. Another two patients' data were recorded incomplete. So, four patients' data were removed from the database. So, the total was 106 patients.

After each interview, participants were also instructed to express their perception about the GMHAT/PC interview and questions, and it was recorded. This data was entered into an excel sheet and later transferred to SPSS.

RESULTS

Table 1: Baseline VariablesN=106

S. No.	Variable	Category	Number	Percentage
1	Age group (years)	35 -40	1	0.9
		40-45	2	1.9
		45-50	4	3.8
		50-55	6	5.7

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S. No.	Variable	Category	Number	Percentage
		55-60	11	10.4
		60-65	15	14.2
		65-70	23	21.7
		70-75	25	23.6
		75-80	13	12.3
		80-85	5	4.7
		85-90	1	0.9
2	Gender	Male	28	26.4
		Female	78	73.6
3	Ethnicity	African	19	17.9
		East Indian	72	67.9
		Mixed, Caribbean	15	14.2
4	Education	Primary	41	38.7
		Secondary	56	52.8
		Tertiary	9	8.5
5	Marital status	Single	23	22.3
		Married	53	51.5
		Widowed	27	26.2
6	Living circumstance	Alone	13	12.4
		Living with the family	92	87.6
7	Diagnosis	Hypertension	38	35.8
		Diabetes Mellitus	2	1.9
		Hypertension & Diabetes Mellitus	66	62.3
8	Duration of Chronic disease	1 to 6 years	27	25.5
		7 to 12 years	59	55.7
		13 to18 years	15	14.2
		19 to 24 years	5	4.7

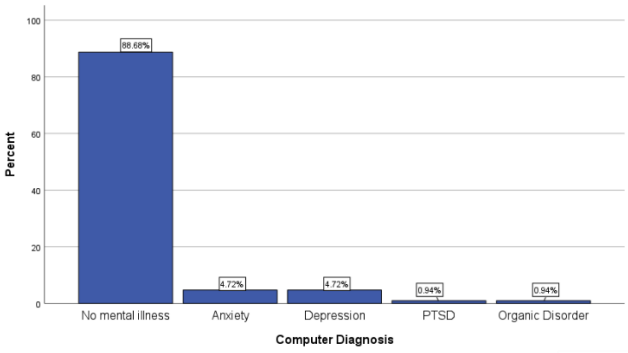

Figure 1. Computer Diagnosis of the Participants N=106

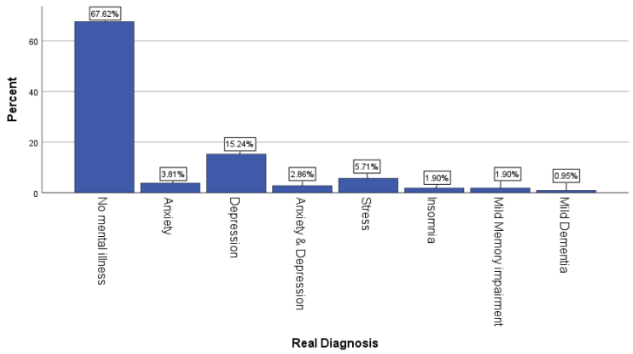

Figure 2. Real Diagnosis of the Participants N=106

Table 2: Association Between Gender and (Computer Diagnosis) Anxiety & Depression N=106

Gender		No mental illness	Anxiety & Depression	Total	Pearson Chi square	Likelihood ratio	Fishers Exact test
Male	Count	26	1	27	1.375 df (1)	2.090 df (1)	0.283
	Expected count	24.2	2.8	27.0			

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Gender		No mental illness	Anxiety & Depression	Total	Pearson Chi square	Likelihood ratio	Fishers Exact test
Female	Count	69	10	79			
	Expected count	70.8	8.2	79			
Total	Count	95	11	106			
	Expected count	95.0	11.0	106.0			

The table above shows that there is no statistically significant association between gender and computer diagnosis of anxiety and depression**.**

Table 3: Patients Perception of GMHAT/PC Interview N=106

Item	Category	Number	Percentage
Satisfaction	Satisfied	77	72.6
	Neutral	29	27.4
Interview Duration	Time consuming	2	1.9
	Reasonable time	104	98.1
Comfortability	Comfortable	99	93.4
	Neutral	7	6.6
Ease	Easy	88	83
	Neutral	18	17
Understandability	Yes, I understand	98	92.5
	Some understand and some don't	8	7.5
Preparedness	Well prepared	21	19.8
	Neutral	85	80.2
Necessity	Very necessary	99	93.4
	Neutral	7	6.6
Helpful	Very helpful	76	71.7
	Neutral	30	28.3
Burden lightened	Very much	52	49.1
	Same	54	50.9

Perception of the Primary Care Physician in Relation to the Feasibility of the GMHAT-PC Tool:

The physician expressed the following perception:

1. Neutral in terms of satisfaction.
2. It is time consuming in terms of duration for the interview.
3. Comfortable with using GMHAT-PC tool.
4. The tool was easy to use.
5. GMHAT-PC tool is comprehensive in screening mental health issues.
6. Neutral in terms of preparation to use the GMHAT-PC tool.
7. Resources such as computers and internet accessibility are available.
8. GMHAT-PC is applicable in the local context.
9. GMHAT-PC tool was feasible in screening mental health issues in patients.
10. The physician's overall experience in the use of GMHAT-PC tool in her own words is as follows:

"I am satisfied with the tool. It is a little time consuming as regular visits take approximately 15 minutes per patient, and then an additional 10 minutes for the GMHAT-PC interview.

This tool can be used in health centers and private settings as well. GMHAT/PC tool is easy to use after interviewing around 10 -15 patients. One must focus and concentrate while interviewing. Sometimes patients keep talking and get diverted from the topic. So, the interviewer must control the situation. Overall, the GMHAT-PC tool is a good one."

DISCUSSION

Prevalence of Mental Health Issues Among Diabetic and Hypertensive Patients:

The present study findings indicated that the prevalence of mental illness among diabetic and hypertensive patients

visiting the chronic disease clinic is very low at the Industry Health Center in Georgetown, Guyana from July to October 2024. The GMHAT-PC interview report indicated that less than five percent of patients had anxiety and depression and the physician assessment indicated that less than five percent of diabetic and hypertensive patients had anxiety and fifteen percent had depression. As this is first ever time, physician and patients were exposed to the tool.

Similar findings were observed in Colombia, South America where only 4.8% out of 455 patients had a mental illness as identified by GMHAT/PC interview [13].

This is in contrast with previous studies findings in India where prevalence was 47.4% and those with diabetic complications had a prevalence rate of retinopathy (44.4%), neuropathy (56.5%) and nephropathy (70%) [11]. In Ethiopia it was found to be 39.73% [7] and anxiety (57%), severe depression (4%) and stress (20%) were also found among hypertensive patients in Ghana. [9]. Additionally, 17.6% of diabetic patients had mild to moderate levels of depression in Trinidad [8].

The prevalence of depression among diabetic patients in Turkey was 18.9% [14], 33.8% of participants had depression in Saudi Arabia [15] and more than two thirds (74.4%) of patients were depressed in Egypt [16].

This might be because present study participants were able to manage stress and anxiety as the majority lived with family members. Family support and healthy relationships are essential factors for mental well-being.

People living in Latin America and in the Caribbean are ranked among the happiest in the world and they are friendly. This can be attributed to their culture, family and social values. However, the mental health burden is increasing among these countries [17].

People in Colombia maintain mental health with the help of family support [18].

Another reason could be that mental, neurological, substance use disorders and suicide (MNSS) are highly prevalent between the ages of 10 to 40 years. So, depression and anxiety in Guyana is more common among younger age groups compared to the elderly age groups. In the present study, most patients are between 65 - 75 years, thus falling under older age groups [3].

The top three psychosocial conditions reported in Guyana are depressive disorders, major depressive disorders and anxiety disorders according to Disability Adjusted Life Years rate (DALYs) [19].

Feasibility of Using the GMHAT-PC App to Screen Mental Health Issues

The present study findings are in full agreement with the primary care physician's assessment report, with only a slight variation. The primary care physician in this study was trained in the mhGAP program. This suggests that the GMHAT-PC tool identified mental illness correctly and the use of GMHAT-PC is feasible in primary health centers in Guyana.

Consistent findings were seen in several studies done in Colombia and Latin America, where trained General Practitioners used GMHAT-PC -Spanish version and identified mental disorders correctly and it was feasible [13]. Studies done in India showed that computer diagnosis of GMHAT/PC interviews and consultant psychiatrists ICD-10 criteria-based clinical diagnoses were similar.[9] In UK, both general practitioners and the psychiatrists were able to identify mental disorders accurately in primary care [20].

According to a systematic study, primary care physicians as well as front line health care workers found that GMHAT-PC tool was very useful in identifying and managing mental health disorders at the community level [10].

A little more than half of the patients in this study took approximately 7 or 8 minutes to complete the GMHAT-PC interview. Contrastingly with the GMHAT-PC study in Colombia, the average duration for the completion of interview was 12.5 minutes [13].

In India, the average duration for the interview was 23 minutes in the initial stages. As health care personnel gained confidence, the duration reduced to 15 to 17 minutes [11]. In a UK study, the interview took 14 minutes [9].

Similarly, a GMHAT-PC feasibility study was done among cardiac patients in the UK, where most of the patients expressed satisfaction [9]. The assessment was helpful as it covered more aspects of their mental health than the usual consultation in primary care in the UK as well [20]. GMHAT-PC was feasible in Colombia and Latin-America [13] as well as in India [11].

The primary care physician in this study was satisfied with the GMHAT-PC tool and opined that it was easy to use. The physician also suggested that the GMHAT-PC tool can be used in public and private health care settings.

Similarly, UK nurses were comfortable using GMHAT-PC and incorporated it into regular checkups. However, though it took an average of 14 minutes to complete one interview, it did not increase overall assessment time [9].

South American general practitioners in Colombia accepted the use of GMHAT-PC tool and showed interest in continuity [13].

Practical Implications of the Study

The present study data suggests that the GMHAT-PC tool can be used to screen for mental illness among chronic disease patients at primary health care settings by primary care physicians as well as other health care professionals who are trained in mental health.

GMHAT-PC tool is very user friendly. Chronic disease patients are satisfied with the interview.

Limitations of the Study

1. This study used a small sample size and was confined to one health center. So, the generalizability of the findings is limited.
2. One primary care physician alone carried out all GMHAT-PC interviews. So, one physician's

perception was considered.
3. The study was cross sectional in nature.
4. The data collected was self-reported.
5. This study did not find significant association between baseline variables of patients and depression and anxiety.
6. Socioeconomic factors and complications of diabetes were not considered.

Recommendations

1. Similar studies can be done in various primary care centers across the ten regions of Guyana.
2. A larger sample size can be studied to generalize the findings.
3. Longitudinal studies can be done to follow up with chronic disease patients.
4. There is a need for training more health care professionals on how to use GMHAT-PC tool and incorporate them in regular hospital visits.
5. A similar study can be done where more health care professionals use GMHAT-PC tool to screen chronic disease patients at various health centers in Guyana.
6. A study can be done to screen for mental illness among heart disease and kidney disease patients as well using GMHAT-PC tool.

CONCLUSION

The results of the study indicate that the prevalence of mental illness among diabetes and hypertensive patients attending the chronic disease clinic was very low from July to October 2024 at the Industry Health Center Georgetown, Guyana. The findings of this study also suggest that the GMHAT-PC tool can be used to screen for mental illness among chronic disease patients at primary health care centers by primary care physicians as well as other health care professionals. It does require training. The GMHAT-PC is very user friendly and chronic disease patients are satisfied with the interview, so it is feasible to use it in primary health care centers in Guyana.

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