ADHERENCE TO THE ROUTINE NON-PHARMACOLOGIC INTERVENTIONS AMONG PATIENTS WITH CHRONIC ILLNESSES AT A RURAL HEALTH FACILITY SETTING OF UGANDA. A CROSS-SECTIONAL STUDY.

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Abstract

Background:

The study aimed at determining the prevalence of adherence to routine non-pharmacological interventions such as counseling, diet, and regular physical exercises among patients in a rural health facility setting in Uganda.

Methodology:

A cross-sectional survey design was used to study 328 Patients who had spent at least 2 years with Chronic Illnesses such as Diabetes, HIV, and hypertension accessing services at Luweero Health Centre IV. A simple random sampling technique was used to select the patients during visiting hours at the respective clinics from the 20th of June 2018 to the 20th of July 2018. The data was entered and analyzed using Statistical Package for Social Sciences (SPSS-Version 20).

Results:

A total of 326 patients with Chronic Illnesses were studied. 236 (72.4%) were having HIV, 54 (16.6%) were hypertensive, 25 (7.7%) were diabetic, and 11(3.4%) were having both HIV and hypertension. The prevalence of adherence to routine counseling is 69.6%, and this is highest among patients with hypertension (81.5%) and lowest among patients with Diabetes (56%). The prevalence of adherence to a special diet is 71.5% and is highest among patients with HIV and hypertension and those with HIV alone (91.1%) and lowest among patients with Hypertension (20.4%). The prevalence of adherence to routine physical exercises is 23.0%. This is highest among patients with Diabetes (48%) and lowest among patients with HIV (17.7%).

Conclusion:

The majority (71.5%) of patients with chronic illnesses adhered to a special diet, followed by counseling (69.6%), and only 23% of the patients adhered to physical exercises.

Recommendation:

The non-pharmacologic interventionists should design and institute group visiting mechanisms, especially among patients that are unmarried if routine adherence is to be improved.

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1. BACKGROUND OF THE STUDY.

There is scanty evidence on the prevalence of adherence to routine non-pharmacological interventions among chronically ill patients around the world. However, the World Health Organization (2016) finds that adherence to routine non-pharmacological treatment is approximately 12% of patients around the world. The organization however reports the rates of adherence to routine non-pharmacological treatment in the developed countries along a range of between 42% and 82%. In developing countries and Sub-Saharan Africa, the prevalence rates for non-pharmacological adherence ranges from 58% and 84%. The study aimed at determining the prevalence of adherence to routine non-pharmacological interventions such as counseling, diet, and regular physical exercises among patients in a rural health facility setting in Uganda.

2. METHODOLOGY.

2.1. Study area.

This study was conducted at Luweero Health Centre IV located in Luweero District, Uganda.

2.2. Research Design.

In this study, a cross-sectional survey design was adopted. This design was chosen because it samples a population and makes measurements at one single point in time (Suresh, et al., 2012). The design in addition was chosen because it saves time and also resources. Per the likes of Howe, et al., (2013), the attrition rates are eliminated in comparison to cohort studies. Data was collected from the 20th of June 2018 to the 20th of July 2018.

2.3. Study population.
Patients with Chronic Illnesses accessing services at Luweero Health Centre IV.

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2.4. Inclusion & exclusion criteria.
2.4.1. Inclusion:
All out-patients with all Chronic Illnesses who have spent at least 2 years in care that consent to the study were included to participate. Patients below eighteen 18 years with an adult caregiver were also included.

2.4.2. Exclusion:
All those that were too sick to respond were excluded.

2.4.3. Sample size.
The total target population of the total Patients with Chronic Illnesses visiting Luweero Health Centre IV for non-pharmacological interventions is 82 per week. This translates to 328 patients in the month in which the data was collected. The determination of the sample size (n) from this population followed a sample determination formula as put by Kish Lislie (1965).

$$n = \frac{n_1}{1 + \frac{n_1}{N}}$$

$$Where\ n_1 = \frac{Z_{\frac{a}{2}}^2 pq}{e^2}$$

$Z_{a/2}$ is the standard normal variate at 95% confidence interval = 1.96

N is the total Patients with Chronic Illnesses visiting Luweero Health Centre IV 4 weeks that constitutes a month of the study time 82*4= 328.

e is the level of precision that's 5%. This significance level is chosen because it is the most used for such health related public health studies.

P = 42% which is the prevalence of patients with chronic illnesses that adhere to routine Non-Pharmacological Interventions (Nakayaga et al., 2014).

$$Where\ n_1 = \frac{1.96^2 * 0.58 (1 - 0.58)}{0.05^2}$$

= 374.325504

≈ 374

Then I used Cochran's formula for finite population to calculate the study sample size. I took

into consideration that the total number of clients attending chronic care clinics are 328

n 328 patients with chronic illnesses visiting Luweero Health Centre IV.

2.5. Sampling Technique.

In this study, a simple random sampling technique was used to select the patients visiting Luweero Health Centre IV. In this case, patients with chronic illnesses were continuously enrolled from the 20th of June 2018 to the 20th of July.2018 as they visited Luweero health center for chronic care. During the process of enrolling, only patients that met the inclusion criteria (all outpatients with chronic illness for two years in care) were consecutively enrolled until the sample size was reached. This sampling approach was chosen because it permits the inclusion of all available since the respondents were within a finite population.

2.5.1. Purposive sampling.

This study also used purposive sampling to select 5 healthcare service providers in charge of the units or departments where chronic care is provided. This group of respondents provided qualitative data on factors related to routine non-pharmacological intervention among patients with chronic illness. This method was of choice because it permits obtaining information from only participants with the necessary knowledge about Non-Pharmacological Interventions that patients with chronic illnesses are receiving.

2.6. Data collection instruments.

2.6.1. Questionnaire.

In this study, the questionnaire was adopted as a data collection tool. This questionnaire was designed according to the study objectives and was researcher-administered to patients with chronic illnesses. The first section of the questionnaire constituted the demographic characteristics while the other sections constituted questions concerning the study objectives. The motivation for this tool was that it permits the collection of a large amount of data in a relatively short time. Blood

glucose monitoring and Physical activity were the interventions recommended to manage diabetic, and hypertensive patients, but they are other non-pharmacological interventions like dietary modifications and social interaction for HIV patients.

2.7. Quality control.

A pre-test was undertaken among 20 Patients with Chronic Illnesses visiting Mityana Hospital to keep the main study respondents from Luwero health center IV intact. Feedback on the tools resulted in refining it removing ambiguous questions and thus enhancing validity. In addition, the questionnaires were given to healthcare experts who rated the relevance of each of the questions in the instrument to the study objectives. The Content Validity Index (CVI) will then be computed from the following formula.

$$CVI = \frac{x}{N}$$

Where x is the total number of questions in the questionnaire that was declared valid by judges and N is the total number of questions in the questionnaire. After each of the experts has rated 4 or 5 for each of the questions, a computed CVI equal to or above 0.7 implied that the tool captures what it professes to capture.

In addition, two research assistants were recruited and trained on data collection techniques and meanings for each technical term clarified for them for uniformity. For purposes of maintaining consistency and minimizing interview bias, the Principal investigator was the only interviewer of the Key informants. Upon completion of each interview, the responses were transcribed.

Different from validity, the reliability of the questionnaire was determined by measuring the internal consistency among questions on the questionnaires using Cronbach'sAlph. Cronbach's Alpha coefficient was determined as the measure of the extent to which all the variables in the scale are positively related to each other as per the following formula:

$$\alpha = \frac{(N \ x \ r)}{(V + (N ˘ 1) \ x \ r)}$$

Table 1: **Data collection methods, sources and tools for data collection.**

Objective	Variable	Source of data	Data collection method	Tool for data collection
To determine the prevalence of adherence to routine non-pharmacologic interventionsamong patients with chronic illnesses	Prevalence of adherence to the routine non-pharmacologic interventions	Patients attending clinic with chronic illness	Interviews	Semi-structured interviews-for 374 patients
To determine the individual person factors related to adherence to routine non-pharmacologic interventions	Individual person factors related to adherence to routine non-pharmacologic interventions	Patients attending clinic with chronic illness	Interviews	Semi-structured interviews-for 374patients
To determine the health system factors related adherence to routine non-pharmacologic interventions	Health system factors related to adherence to routine non-pharmacologic interventions	Patients attending clinic with chronic illness Health workers in chronic illness clinic	Interviews KI	Semi-structured interviews-for 374 patients KI guide
To determine the societal specific factors related to adherence to routine non-pharmacologic interventions among patients with chronic illnesses	Societal specific factors related to adherence to non-routine non-pharmacologic interventions among patients with chronic illnesses	Patients attending clinic with chronic illness Selected community members	Interviews FGD	Semi-structured interviews-for ....patients FGD guide

Where N is the number of questions in the questionnaire and r is the average correlation among all pairs of variables, and v is the average variance. The values of α, ranged from 0 to 1, and a value of alpha greater than 0.7 indicated that the tool is reliable.

2.8. *Data Analysis and presentation of results.*

2.8.1. *Quantitative data analysis.*

The data was entered and analyzed using Statistical Package for Social Sciences (SPSS-Version 20). For the demographic characteristics of the patients with chronic illnesses, frequency tables

were used at the Univariate analysis level.

Pearson Chi-square analysis alongside cross-tabulations was undertaken. All predictors that showed a p-value less than 5% level of significance were considered significant and thus the associated at bivariate analysis level.

2.9. *Ethical adherence and approval.*

In undertaking this study ethical approval was sought from the Uganda Martyrs University. During this process, an introductory letter after certification that the research study requirements had been met was provided. The process continued by seeking permission from the Administration of

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Luweero Health Centre IV. Thereafter patients with chronic illnesses were informed about the purpose of the study and their consent to participate in the study was also sought. To ensure confidentiality data collected was in such a way that identification numbers were used instead of names of the patients with chronic illnesses. The respect for participants was ensured by informing the participants that their participation is highly voluntary and they are free to withdraw from the study at any point they feel without any penalty. The data collected was kept in a securely locked Ward rope.

3. RESULTS.

The study targeted 374 patients with Chronic Illnesses but received responses from 326 representing an 88% response rate. The study was based on 326 patients with Chronic Illnesses, 236 (72.4%) were having HIV, 54 (16.6%) were hypertensive, 25 (7.7%) were diabetic, and 11(3.4%) were having both HIV and hypertension.

From table 2 most of the patients with chronic illnesses were females 193(59.2%), aged 36& above years 245(40.8%), married 170(53.15%). with the majority living in monogamous marriages 186(57.1%). The results also show that most patients with chronic illnesses were educated 236(72.39%) but informally employed 287(88.9%) with many of them earning an income of more than 10,000/= a day 213(65.34). The study results also revealed that the majority of patients with chronic illnesses were Catholics by religion 230(70.55%) and Baganda by tribe 151(46.3%).

Table 3 shows the different chronic diseases used for the study and the different proportions for each. The diseases studied were; HIV, Hypertension, and Diabetes. The majority of the patients were HIV positive 236(72.39%), followed by those with hypertension 54(16.56%), then those with Diabetes 25(7.67%), and lastly those with both HIV and hypertension 11 (3.37%).

3.1. *Prevalence of adherence to routine non-pharmacologic interventions among patients with chronic illnesses at Luweero HC IV.*

From table 4 the prevalence of adherence to routine counseling among patients with chronic illnesses was 227 out of 326 (69.6%). The prevalence of adherence to routine counseling among diabetic patients was 56%, among HIV patients was 72.1%, and among patients with both HIV and hypertension (54.5%). Therefore, it was highest among patients with hypertension (81.5%) and lowest among patients with Diabetes (56%).

The prevalence of adherence to routine special diet among patients with chronic illnesses was 233 out of 326 (71.5%). The prevalence of adherence to a routine special diet among diabetic patients was 44%, among HIV patients was 91.1%, and among patients with both HIV and hypertension (45.5%). Therefore, it was highest among patients with HIV and hypertension and those with HIV alone (91.1%) and lowest among patients with Hypertension (20.4%).

The prevalence of adherence to routine physical exercise among patients with chronic illnesses was 75 out of 326 (23.0%). The prevalence of adherence to physical exercise among diabetic patients was 48%, among HIV patients was 17.7%, and among patients with both HIV and hypertension (36.4%). Therefore, it was highest among patients with Diabetes (48%) and lowest among patients with HIV (17.7%).

4. DISCUSSION.

In this study, it was observed that the prevalence of adherence to routine non-pharmacologic interventions was 55% (Counseling=69.6%; Special diet= 71.5% Physical exercise =23%). These results are comparable to those earlier found by World Health Organization (2016) that adherence to routine non-pharmacological treatment is somewhere between 42% and 82%.

The study also found that there was no significant difference in the prevalence of adherence to non-pharmacological interventions among the different demographic groups of gender, age, mari-

Table 2: **Demographic characteristics of the Patients.**

Demographic characteristics	Variable Proportions Frequency (n=326)	Percent
Gender		
Female	193	59.2
Male	133	40.8
Age (Groups)		
18-35	81	24.85
36 & above	245	75.15
Marital status		
Single	150	46.01
Married	170	53.15
Divorced	6	1.84
Type of marriage		
Monogamous	186	57.1
Polygamous	139	42.6
Level of Education		
Un-educated	90	27.61
Educated	236	72.39
Occupation		
Formal	26	7.98
Informal	287	88.04
Unemployed	13	3.99
Monthly income		
>= 10,000 shs a day	213	65.34
< 10,000 shs a day	113	34.66
Religion		
Catholic	230	70.55
Protestant	91	27.91
Pentecostal	1	0.31
Moslems	4	1.23
Tribe		
Acholi	12	3.7
Alur	5	1.5
From Tanzania	1	0.3
Muganda	151	46.3
Mugishu	7	2.1
Iteso	11	3.4
Kakwa	2	0.6
Mukiga	32	9.8
Mukonjo	1	0.3
Langi	10	3.1
Lugbara	8	2.5
Muluri	38	11.7
Munyankole	34	10.4
Munyarwanda	9	2.8
Musoga	5	1.5

Source: Field data, 2018

Table 3: **Frequencies and proportions of patients for each of the chronic diseases.**

Chronic disease	Frequency (Percentage)- N=326
Hypertension	54 (16.56%)
HIV	236(72.39%)
Diabetes	25 (7.67%)
Both HIV and Hypertension	11(3.37%)

Source: Field data, 2018

Table 4: **Prevalence of adherence to routine non-pharmacological interventions among patients with chronic illnesses.**

Inter-vention	Disease	Number of Patients	Number of patients that adhered	Percentage of patients that adhered (%)
Counsel-ing	Diabetes	25	14	56
	HIV	226	163	72.1
	HIV and Hy-pertension	11	6	54.5
	Hyperten-sion	54	44	81.5
	ALL	**326**	**227**	**69.6**
Special diet	Diabetes	25	11	44
	HIV	226	206	91.1
	HIV and Hy-pertension	11	5	45.5
	Hyperten-sion	54	11	20.4
	ALL	**326**	**233**	**71.5**
Physical exercise	Diabetes	25	12	48
	HIV	226	40	17.7
	HIV and Hy-pertension	11	4	36.4
	Hyperten-sion	54	19	35.2
	ALL	**326**	**75**	**23**

Source: Field data, 2018

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tal status, education level, occupation, monthly income, and religion of diabetic patients and patients with both HIV and hypertension. Similarly, those studies done by Ghods and Nasrollahzadeh, 2010)establish no relationship between gender and compliance to treatment intervention, and Vic et al., (2012) find that gender has not got any influence on compliance to non-pharmacological treatment. Caspard et al, (2011).

There was no significant difference among demographic groups of hypertensive patients and adherence to routine counseling and routine physical activity, however, there was a significant difference in the prevalence of adherence to a special diet among the married and single. The prevalence of adherence to the special diet was higher among the married (26.9%) than the single (14.3%), similar to the study done by Abel Tibebu, et al, (2017)

There was no significant difference among demographic groups of HIV patients and adherence to routine counseling and routine special diet, however, there was a significant difference in the prevalence of adherence to Physical activity among the married and single. The prevalence of adherence to physical activity was higher among men (17.1%) than women (16.8%); the prevalence of adherence to physical activity was highest among those in the formally employed (31.6%), followed by the unemployed (16.7%) and lastly the informally employed (15.6%), similarly to the study done by NegassieBerhe, et al, 2013.

5. CONCLUSION.

The majority (71.5%) of patients with chronic illnesses adhered to a special diet, followed by counseling (69.6%), and only 23% of the patients adhered to physical exercises.

6. RECOMMENDATION.

The non-pharmacologic interventionists should design and institute group visiting mechanisms, especially among patients that are unmarried if routine adherence is to be improved.

7. ACKNOWLEDGMENT.

8. LIST OF ABBREVIATIONS.

AIDS: Acquired Immune Deficiency Syndrome
COPD: Chronic Obstructive Pulmonary Disease
HC: Health Centre
HC IV : Health Centre four
HIV : Human Immune Deficiency Virus
WHO: World Health Organization.

9. Source of funding.

10. Conflict of interest.

No conflict of interest was declared.

11. Acknowledgments.

12. Publisher details:

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Author biography

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David Serunjogi is a researcher with an interest in contributing to the control of the growing burden of NCD in Africa particularly focusing on designing public health interventions aimed at improving the quality of life among infected people and delaying the new infections of Diabetes and Hypertension in Africa. His current work is focusing on understanding the challenges that come with transforming the available public health information and evidence into practice among people infected with Diabetes and Hypertension in Africa and designing well-tailored interventions. He has trained in 1). Biomedical Laboratory Technology, and 2). Public Health-Health Promotion from the Faculty of Health Sciences at Uganda Martyrs University, 3).Fundamentals

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