

## PERSONAL FACTORS RELATED TO ADHERENCE TO THE ROUTINE NON-PHARMACOLOGIC INTERVENTIONS AMONG PATIENTS WITH CHRONIC ILLNESSES ATTENDING LUWEERO HC IV. A CROSS-SECTIONAL STUDY.

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### Abstract

#### Background

The aim of this study is to document the personal factors related to adherence to the routine non-pharmacologic interventions among patients with chronic illnesses attending Luweero HC IV. Non-pharmacological interventions refer to science-based and non-invasive interventions on human health that aim to prevent, treat, or cure health problems; Chronic illnesses refer to diseases that cannot be prevented through vaccination or cured by medication neither can they just disappear but take lasts for three or more months or even for life. There are specific interventions for each of the chronic disease are recommended. Personal factors like marital status are key in this study. Therefore, the study seeksto assess thepersonal factors related to adherence to the routine non-pharmacologic interventions among patients with chronic illnesses attending Luweero HC IV.

#### Methodology

The study adopted a cross-sectional survey design in which quantitative data were collected using a questionnaire from 326 patients with chronic illnesses visiting Luweero Health Centre IV.

#### Results

The study shows that adherence to routine non-pharmacologic interventions is highest amongst the married patients with chronic illnesses 65.6% and lowest amongst the unmarried patients 39.2%. This difference is statistically significant (OR=0.338; 95% CI:  $p = 0.001$ ). Similarly adherence to routine non-pharmacological interventions was highest amongst educated patients 63.2% and lowest amongst the uneducated 34.0%. The variation in adherence statistically significant (OR=0.299; 95% CI: 0.591-0.151;  $p = 0.000$ ).

#### Conclusion

Patients who visit the health Centre's with different background and thoughts about the illness they have, perceived severity, benefits and threats remain high and barrier low.

#### Recommendation

non-pharmacologic interventionists and government through its line ministry of health should put in place education sensitive information giving mechanisms as to permit patients at different educational levels to make use of non-pharmacologic interventions.

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#### keywords

Personal Factors, Adherence, Non-Pharmacologic Interventions, Chronic Illnesses, Luweero.

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#### Background of the study

Non-pharmacological interventions refer to science-based and non-invasive interventions on human health that aim to prevent, treat, or cure health problems; Chronic illnesses refer to diseases that cannot be prevented through vaccination or cured by medication neither can they just disappear but take lasts for three or more months or even for life. Routine adherence is used to refer to act of sticking to the recommended schedules /tasks when

enrolled on a Non-pharmacological intervention. Non-Routines Adherence is an activity or set of activities that are not generally performed on a routine basis. In Uganda, non-Pharmacological interventions known to reduce complications that would curtail morbidity and mortality rates are in existence (Rimland, et al., 2016). These interventions have proved to provide knowledge about relevance of diet, exercises, self-management in

prevention of chronic illness like diabetes, HIV, and hypertension. For example for HIV clients only 38.5 % adhere to the dietary recommendations (Berhe, et al., 2013), physical activity only 25% meet the recommended guidelines (Fillipas, et al., 2017; Andrea Petroczi, et al., 2010). For diabetic patients only 35.2 adhered to physical activity (Advika, et al., 2017), 21.0% adhered to dietary recommendations (Alhariri, et al., 2017), there was significant change after counseling (Elizabeth Mampally Mathew and Kingston Rajiah., 2013). For hypertensive patients only 23% adhered to dietary recommendation (Abel Tibebe, et al, 2017), 54.3 % adhered to physical activity recommendation (GlaubeRiegel, et al.,2019). In the rural areas, the situation may be worse but scanty information is available to inform better service delivery. The aim of this study is to document the personal factors related to adherence to the routine non-pharmacologic interventions among patients with chronic illnesses attending Luweero HC IV.

### Methodology

The methodology documented here is similar to one described by (Nakimera and Serunjogi, 2023) in a study about adherence of Non- pharmacological interventions.

### 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. The design in addition was chosen because it saves time and also resources.

### Study area

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

### Study population

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

### Inclusion & exclusion criteria

**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.

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

### Sample size

The total target population of the total Patients with Chronic Illnesses visiting Luweero Health Centre IV for non-pharmacological interventions is 82per week. This translates to 328 patients in a 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 Lislle (1965).

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

$$\text{Where } n_1 = \frac{Z_{\alpha/2}^2 pq}{e^2}$$

$Z_{\alpha/2}$  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.

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

$$= 374.325504$$

$$\approx 374$$

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

$n \approx 328$  patients with chronic illnesses visiting Luweero Health Centre IV

### Sampling Technique

In this study 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 20<sup>th</sup> of June 2018 to 20<sup>th</sup> 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 out patients with chronic illness two years in care) were consecutively enrolled until the sample size was reached. This sampling approach was chosen because it permits inclusion of all available since the respondents were within a finite population.

### Data collection instruments

**Questionnaire:** In this study, the questionnaire was adopted as data collection tool. This questionnaire was designed according to the study objectives and was researcher-administered to the patients with chronic illnesses. The first section of the questionnaire constituted the demographic characteristics while the other sections constituted questions with respect to the study objectives. The motivation for this tool was because it permits collection of a large amount of data in a relatively short period of time. Blood glucose monitoring, and Physical activity were the interventions recommended to manage the diabetic, and hypertensive patients but they are other non-pharmacological interventions like dietary modifications and social interaction for HIV patients.

**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 interventions among 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

### Quality control

A pre-test was undertaken among 20 Patients with Chronic Illnesses visiting Mityana Hospital as to keep the main study respondents from Luwero health centre IV intact. Feedback in the tools resulted in refining it removing ambiguous questions and thus enhancing validity. In addition, the questionnaires were given to health care experts who rated the relevance of each of the questions in the instrument with respect 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 questionnaire that was declared valid by judges and N is the total number of questions in the questionnaire. After each of the experts

have rated 4 or 5 for each of the questions, a computed CVI equal 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 terms 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 through measuring the internal consistency among questions on the questionnaires using Cronbach's Alpha. 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:

$$\alpha = \frac{(N \times r)}{(V + (N - 1) \times r)}$$

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  $\alpha$ , ranged from 0 to 1, and a value of alpha greater than 0.7 indicated that the tool is reliable.

## Data Analysis and presentation of results

**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 Univariate analysis level.

For objectives 2 to 4, 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. The binary logistic regression analysis was undertaken at multivariate analysis level to establish the independently associated factors related to adherence to routine non-pharmacological interventions among patients with chronic illnesses.

## Qualitative data analysis

The qualitative data from the tape-recorded key informant interviews was transcribed. Following transcription, content analysis was adopted in process of data analysis in which relevant transcribed narratives were highlighted and thus treated as codes. The groups of related codes were sorted into categories which describe the issue under study. During the analysis each code was clearly defined

independently from other codes, while categories were mutually exclusive and exhaustive such that all units examined fit in an appropriate category. These categories in actual sense were called sub themes, an implication that sub-themes capture several interrelated codes. In simple terms the analysis of the qualitative data started with the identification of codes from the narratives of the interviewees, related codes were grouped together into Sub themes which related sub themes were grouped into main themes. The presentation of the main themes, sub themes as per the study objectives were illustrated using quotations from the interviewees.

## 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 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 securely locked Ward rope.

## Study Limitation

Non response from some participants however, they were replaced with some other study participants who were willing to respond to the questions.

## Results

**Table 2: The table showing Demographic characteristics of the Patients**

Variable Proportions		
Demographic characteristics	Frequency (n=326)	Percent
<i>Gender</i>		
Female	193	59.2
Male	133	40.8
<i>Age (Groups)</i>		
18-35	81	24.85
36 & above	245	75.15
<i>Marital status</i>		
Single	150	46.01
Married	170	53.15
Divorced	6	1.84
<i>Type of marriage</i>		
Monogamous	186	57.1
Polygamous	139	42.6
<i>Level of Education</i>		
Un-educated	90	27.61
Educated	236	72.39
<i>Occupation</i>		

Formal	26	7.98
Informal	287	88.04
Unemployed	13	3.99

**Table 3: The table showing Demographic characteristics of the Patients**

<i>Monthly income</i>		
>= 10,000 shs a day	213	65.34
< 10,000 shs a day	113	34.66
<i>Religion</i>		
Catholic	230	70.55
Protestant	91	27.91
Pentecostal	1	0.31
Moslems	4	1.23
<i>Tribe</i>		
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
Munyakole	34	10.4
Munyarwanda	9	2.8
Musoga	5	1.5

Source: Field data, 2018

From table 4.0 above most of the patients with chronic illnesses were females 193(59.2%), aged 36& above years 245(40.8%), married 170(53.15%). with 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 patients with chronic illnesses were Catholics by religion 230(70.55%) and Baganda by tribe 151(46.3%).

**Table 4: The table showing 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

The table4 shows the different chronic diseases used for the study and the different proportions for each. The diseases studied were; HIV, Hypertension and Diabetes. 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%).

### Personal factors and adherence to routine non-Pharmacological interventions

The study established for the Individual factors interventions among patients with the results shown influencing adherence to the routine non-pharmacologic below.

**Table 5: The table below showing personal factors and adherence to routine non-pharmacologic interventions**

Demographic factors	Outcome	Adherence to Routine non-Pharmacological interventions		O.R (95%CI)	P-Value
		Yes (%)	No (%)		
Gender	Male	59.2	40.8	1.452 (2.673-0.788)	0.231
	Female	50.0	50.0		
Age in years	18 to 35	60.7	39.3	1.514 (2.860-0.801)	0.201
	36 & above	50.5	49.5		
Marital status	Unmarried	39.2	60.8	0.338 (0.180-0.633)	<b>0.001**</b>
	Married	65.6	34.4		
Marriage type	Monogamous	65.9	34.1	0.694 (1.885-0.256)	0.473
	Polygamous	73.5	(26.5)		
Education level	None educated	34.0	66.0	0.299 (0.591-0.151)	<b>0.000**</b>
	Educated	63.2	39.7		
Occupation	Formal	52.6	47.4	0.935 (2.432-0.360)	0.890
	Informal	54.3	45.7		
Religion	Christians	53.1	46.9	0.850 (1.717-0.421)	0.650
	Others	57.1	42.9		

Source: Field data, 2018

The study results in relation to individual factors shows that adherence to routine non-pharmacologic interventions is highest amongst the married patients with chronic illnesses 65.6% and lowest amongst the unmarried patients 39.2%. This difference is statistically significant (OR=0.338; 95% CI:  $p= 0.001$ ). Similarly

adherence to routine non-pharmacological interventions was highest amongst educated patients 63.2% and lowest amongst the uneducated 34.0%. The variation in adherence statistically significant (OR=0.299; 95% CI: 0.591-0.151;  $p = 0.000$ )

### Discussion

The study showed that most of the patients with chronic illnesses perceived the severity of their disease as high (62.7%), perceived the barriers to taking on the intervention as high (75.46%), perceived the threats as high (68.71%), and their perceived benefit from the non-pharmacological interventions as low (78.83%). These findings are comparable to those earlier established by Vlasnik et al., (2011) that patients who are suffering from diseases with fluctuation or absence of symptoms (at least at the initial phase), such as asthma and hypertension, might have a poor compliance. These findings however not comparable to those earlier found by Spikmans et al (2014) and Kaona et al., (2016) that marital status is not found related to patient's compliance.

Also the study results in relation to demographic factors shows that adherence to routine non-pharmacologic interventions is highest amongst the married patients with chronic illnesses (65.6%) and lowest amongst the unmarried patients (39.2%). This difference is statistically significant (OR=0.338; 95% CI:  $p= 0.001$ ). Similarly adherence to routine non-pharmacological interventions was highest amongst educated patients 63.2% and lowest amongst the uneducated 34.0%. The variation in

adherence statistically significant (OR=0.299; 95% CI: 0.591-0.151;  $p <.001$ ). The study results at multivariate indicate that education level (AOR=0.268; 95% CI: 0.966-0.075;  $p = 0.044$ ) was the only demographic factor independently associated with adherence to the routine non-pharmacologic interventions among patients with chronic illnesses.

### Conclusion

Patients who visit the health centre's with different background and thoughts about the illness they have, perceived severity, benefits and threats remain high and barrier low.

The patients who had not attended any educational level were likely not to adhere to routine non-pharmacological interventions.

### Recommendation

The health facility management in collaboration with the non-government organizations should source for human resources fit in the implementation of non-pharmacologic interventions as to check on the unavailability of health workers during some patients' visits.

**Study Limitation;** Non response from some participants however, they were replaced with some other study participants who were willing to respond to the questions.

I want to recognize and appreciate the almighty God for providing me with wisdom, knowledge and good health that everything has been successful for my completion. My sincere thanks go to my supervisor for the constructive criticism.

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**List of Abbreviations**

**Table 6: Table showing the list of abbreviations**

AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted Odd Ratio
CD4	Cluster of Differentiation 4
CI	Confidence Interval
COPD	Chronic Obstructive Pulmonary Disease
FGD	Focus Group Discussion
HC	Health Centre
HC IV	Health Centre four
HIV	Human Immune Deficiency Virus
ICF	International Classification of Functioning, disability and health.
KI	Key Informant
KM	Knowledge Management
OR	Odds Ratios
UBOS	Uganda Bureau of Statistics
UGSH	Unsolicited Grant Synchronization Header
WHO	World Health Organization.

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**Conflict of interest**

The author declares not conflict of interest.

**Author Biography**

Irene Nakimera is a lecturer at Destiny University Juba South Sudan.

David Serunjogi is a public Health Consultant and researcher at Public Health Corps Africa

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