Viral Suppression and Medication-related Burden Among HIV-infected Adults in a Secondary Care Facility

*[1]Erick Wesley Hedima; [2]John David Ohieku; [1]Emmanuel Agada David; [3]Nasiru Yakubu Ikunaiye; [1]Abdulrahman Nasir; [1]Mustapha Ahmed Alfa; [4]Safinat Abubakar; [4] Ismail Kalifas Bwiyam; [5]Bitrus Tang'an Zhugumnan

[1]Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmaceutical Sciences, Gombe State University, [2]Department of Clinical Pharmacy and Pharmacy Administration, Faculty of Pharmacy, University of Maiduguri. [3]Department of Pharmaceutical Services, University of Maiduguri Teaching Hospital, Borno State, [4] Department of Pharmaceutical Services, Specialists' Hospital, Gombe State, [5]Department of Pharmaceutical Services, Federal Teaching Hospital, Gombe State

*Erick Wesley Hedima (wehedima316@gmail.com).

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Background

- HIV/AIDS is a long-term illness and a major cause of morbidity and mortality in sub-Saharan Africa.
- Maintaining low levels of HIV RNA viral load is associated with to better health outcomes, including decreased morbidity and mortality and enhanced quality of life, making it a prognostic marker of HIV treatment.
- A crucial factor in optimizing medicine use in individual patients is understanding their experiences, including any concerns or worries regarding their medication.
- Patients' attitudes, experiences, and issues with medications are crucial for successful interventions.
- Hence, it is imperative to measure the patient's subjective experience with medicine through quantitative methods for the purpose of enhancing pharmaceutical care.

Aim

To assess the virologic response and medication-related burden of adult PLHIV.

Method

- **Study Design**: Cross-sectional
- **Study area**: State Specialist Hospital, Gombe
- **Study population**: HIV-infected adults who were receiving HAART and were attending HIV clinic.
- **Ethical consideration:** Ethical approval with the reference MOH/DM/621/V.1/337 was obtained from the Ethics and Research Committee of the Gombe State Ministry of Health

Sampling Technique: Systematic random sampling was employed in this study

Study instrument: The burden of long-term medicine was assessed using the Living with Medication Questionnaire version 3 (LMQ-3)

Data Collection: Data were collected during the patient drug refill at the ARV Unit of the Pharmacy Department. Viral suppression was defined as viral load <1000 copies/ml and undetectable levels as viral load < 20 copies/ml according to WHO guidelines.

Data management and Analysis:

Independent t-tests or one-way analysis of variance (ANOVA), was employed to identify factors that may explain the correlates of treatment response (viral suppression), while multivariable regression analyses were carried out to identify predictors of medication-related burden and viral load suppression. A *P*-value < 0.05 was considered statistically significant (95% Confidence Interval).

Results

Table 1: Demographic and medicines use characteristics on total LMQ-3 score (n=417)

Characteristics	† LMQ-3 Score	
	Mean (SD)	P value
Gender		
Female	92.98 (9.29)	<0.0005**
Male	89.31 (9.48)	
Marital status		
Currently married	92.09 (8.85)	0.22
Not currently married	91.71 (10.0)	
Tuberculosis at ART initiation		
Yes	91.48 (10.34)	0.69
No	91.96 (9.31)	
ART line at viral load		
First-line	91.89 (9.40)	0.90
Second-line	91.68 (10.59)	
Disclosure status		
HIV status disclosed	91.72 (9.55)	0.33
HIV status not disclosed	93.13 (9.08)	
Virologic status		
Virally suppressed	11.45 (1.18)	0.01*
Virally unsuppressed	12.04 (1.15)	
Employment		
Employed	91.75 (9.41)	0.003
Unemployed	92.31 (9.83)	
Formal education status		
No formal education	92.80 (8.69)	0.57
Had formal education	91.54 (9.75)	
Presence of comorbidity		
No	92.20 (8.85)	<0.001*
Yes	90.13 (12.27)	
WHO clinical stage at enrolment		
Stage I	91.95 (9.23)	0.64
Stage II	91.32 (9.88)	
Stage III and IV	93.0 (9.93)	
Years on ART		
1 – 5	92.23 (9.10)	0.19
6 – 10	92.49 (9.12)	
>10	90.54 (10.35)	

Table 2: Predictors of viral suppression (n=417)

Parameter	Category	Viral suppression		Multivariate		
		Yes	No	aOR	95% CI,	P value
Gender	Male	117	9			
	Female	274	19			
Age	18 – 25	20	6			
	26 – 35	106	7	3.83	0.86, 16.96	0.07
	36 – 45	162	9	6.6	1.19, 36.51	0.031*
	46 - 55	79	3	12.69	1.36, 118.40	0.026*
	≥ 56	24	1	10.72	0.60, 191.36	0.11
Tuberculosis at ART initiation	Yes	69	4			
	No	322	22			
ART line at viral load	Firstline	359	23			
	Second-line	32	3			
Number of tablets taken in a day	1 – 3	385	25			
	>3	6	1			
Discontinuing ART for any other reason	Yes	59	332			
	No	7	19	1.93	0.72, 5.20	0.19
HIV status disclosure	Disclosed	350	20			
	Not disclosed	41	6	0.45	0.16, 1.27	0.13
Having a formal education	Yes	289	19			
	No	102	7			
Employed	Yes	309	18			
	No	82	8	1.54	0.61, 3.91	0.37
Marital status	Currently married	217	12			
	Not currently married	174	14			
Income	<40,000	329	24			
	41,000 – 65,000	37	1			
	>66,000	25	1			
Comorbidity	Yes	61	5			
	No	330	21			
WHO clinical stage	Stage I	254	17			
	Stage II	102	7			
	Stage III and IV	35	2			
Degree of medicine burden	No/minimum burden	118	5			
	Moderate burden	264	18	0.69	0.24, 1.97	0.49
	High burden	9	3	0.15	0.02, 0.82	0.028*
Age at ART initiation (Years)	< 10	5	2			
	10 – 25	102	8	2.81	0.31, 25.44	0.36
	26 – 35	166	10	1.69	0.15, 19.38	0.67
	>35	118	6	1.14	0.08, 16.55	0.93

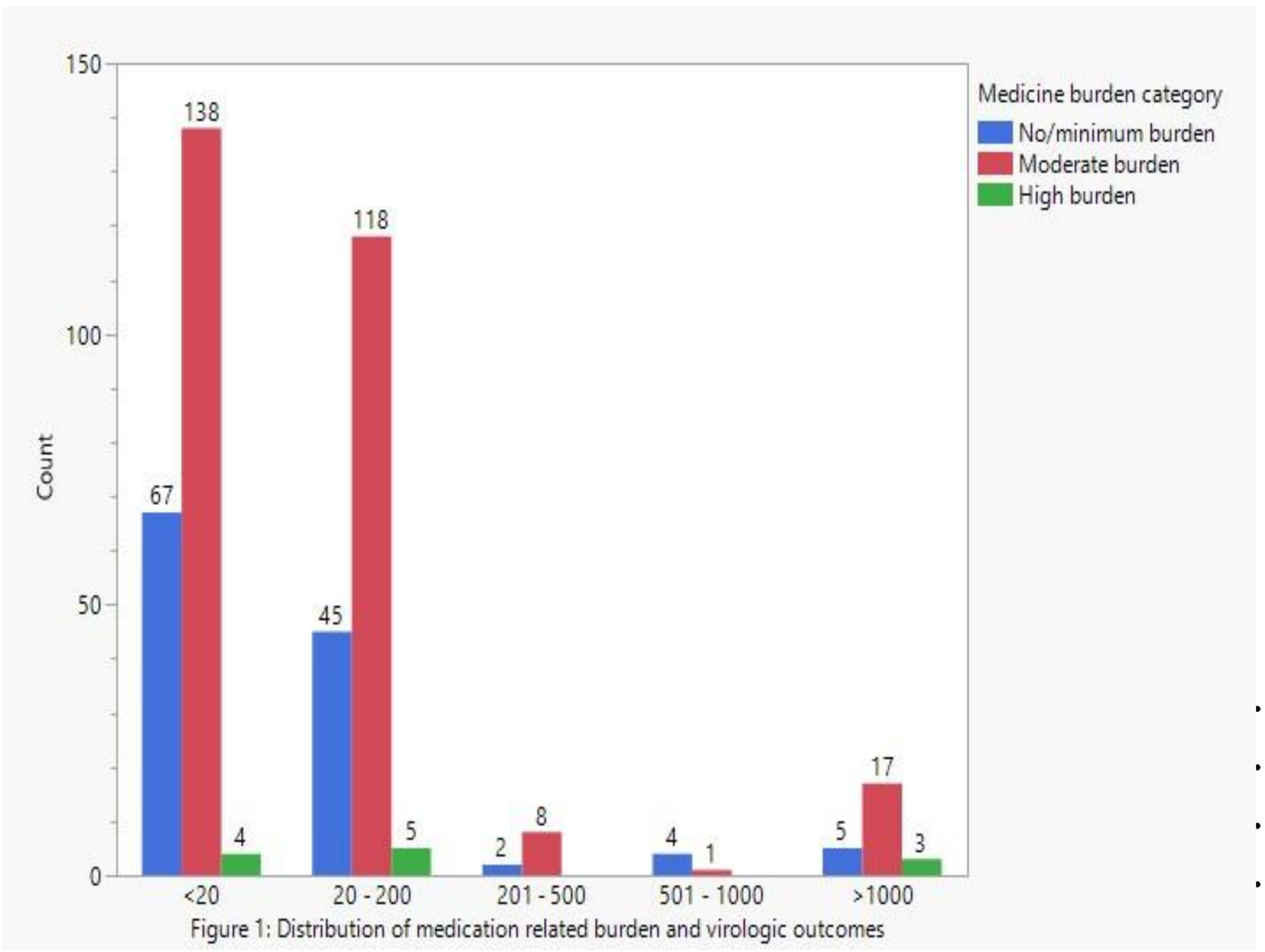

Figure 1: Distribution of medication related burden and virologic outcomes

Table 3: Predictors of medication-related burden

Variable	Standard error	95%, CI	P value
Female	0.14	0.16, 0.69	0.002**
Virally unsuppressed	0.24	0.14, 1.08	0.01*
Less than 30 years	0.16	-0.24, 0.38	0.67
Greater than 45 years	0.15	-0.36, 0.21	0.61
Second line ART	0.21	-0.51, 0.33	0.66
Civil servant	0.23	-0.48, 0.43	0.91
Police/armed forces	0.40	-0.84, 0.73	0.89
Self-employed	0.17	-0.15, 0.49	0.29
Retired	0.57	-0.74, 1.50	0.50
Private sector	0.47	-0.57, 1.28	0.46

Conclusion

- The findings from this study revealed that majority of the patients have achieved viral suppression with moderate degree of medication-related burden.
- Female gender, unsuppressed viral load, second line ART, Tuberculosis at ART initiation and employment were factors associated with medication related burden.
- Unsuppressed viral load and female gender predict having high medication-related burden while age and high medication-related burden were predictors of viral load suppression.
- Targeted interventions should be geared toward younger patients, females and patients with unsuppressed viral loads.