Outcome of a multidimensional intervention for insomnia in a cohort of people living with HIV

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BACKGROUND

- No studies specifically assessed interventions for improving sleep quality (SQ) in people with HIV (PWH). We introduced a multidimensional program for SQ in the routine management at our outpatient clinic and assessed its impact on PWH suffering from insomnia.

METHODS

- Following up a study on sleep disorders[1] in our cohort we implemented an interventional study in adult PWH with subthreshold (≥8), moderate (≥15), or severe (≥22) insomnia at the Insomnia Severity Index (ISI). Quality of sleep, depression (PHQ9), and well-being were assessed at baseline and after 6 months. Participants received sleep hygiene counselling and underwent tailored interventions as shown in the study flow (Fig1A). Participants were categorized into three groups based on their adherence to prescribed interventions: fully adherent, partially adherent (attended at least one intervention when more than one was prescribed), and non-adherent (FA-PA-NA). The impact of interventions on insomnia was assessed by mixed-effects models for repeated measures and paired tests for longitudinal data (e.g., Wilcoxon, Friedman).

RESULTS 1/2

- Among 730 PWH screened, 277 had altered ISI score, and 175 eventually participated (Figure 1A). 65.7% were male, median age and CD4+ T cell count were 51 years and 650 cell/μL, 95.4% PWH had HIV-RNA<50 cp/mL (demographic and clinical data in Table 1).
- 94.8%, 91.0% and 2.8% of participants were referred to psychologist, psychiatrist, and neurologist, and 30.3% and 20.5% had indication to hypo-inducing drugs/antidepressants and psychotherapy/cognitive-behavioral therapy.
- Seventy-seven participants (44.0%) were NA, 16 (9.1%) PA, and 82 (46.9%) FA, with no relevant baseline differences detected in demographics and clinical parameters among them.

Table 1. Main demographics and clinical characteristics of study population at baseline

Variable		Study population (n=175)
Age, years, median (IQR)		51 (44-59)
Male gender, n (%)		115 (65.7)
Caucasian, n (%)		150 (85.7)
Route of acquisition, n (%)	Males who have sex with males	85 (48.6)
	Heterosexuals	63 (36.0)
	Past intravenous drug users	27 (15.4)
Years with HIV, years, median (IQR)		17 (9-27)
Antiretrovirals, n (%)	Dual	61 (34.8)
	INI-based	51 (29.1)
	NNRTI-based	45 (25.7)
	PI-based	17 (9.7)
	Others	1 (0.6)
Current CD4+ count, cells/mmc, median (IQR)		650 (487-798)
Nadir CD4+ count, cells/mmc, median (IQR)		290 (171-462)
Previous AIDS, n (%)		36 (20.6)
HIV-RNA <50 copies/ml, n (%)		167 (95.4)
Positive HBsAg, n (%)		16 (9.1)
Positive HCV-RNA, n (%)		11 (6.3)
Polypharmacy, n (%)		43 (24.6)
Comorbidities, n (%)	Cancer	34 (19.4)
	Chronic kidney disease	11 (6.3)
	Ischemic heart disease	8 (4.6)
	Lipodystrophy	24 (13.7)
	Hypertension	57 (32.6)
	Obesity	37 (21.1)
	Cirrhosis	8 (4.6)
	Diabetes	15 (8.6)
	Chronic obstructive pulmonary disease	18 (10.3)
	Anxiety	87 (49.7)
	Depression	67 (38.3)
	Central nervous disorders	29 (16.6)
N. comorbidities per subject, median (IQR)		3 (2-5)
Multimorbidity, n (%)		137 (78.3)

Legend to table 1. INI= integrase inhibitor, PI= protease inhibitor, NNRTI= non-nucleos(t)ide reverse transcriptase inhibitor, NRTI= nucleos(t)ide reverse transcriptase inhibitor, IQR=interquartile range, n= number

Figure 1A. Study flow chart from the sampling frame, through the screening/enrolment, and the interventions prescribed and eventually attended

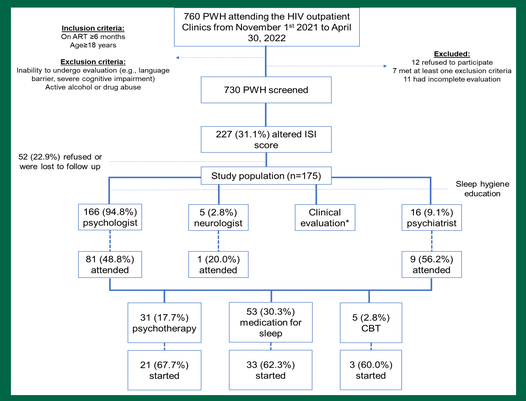
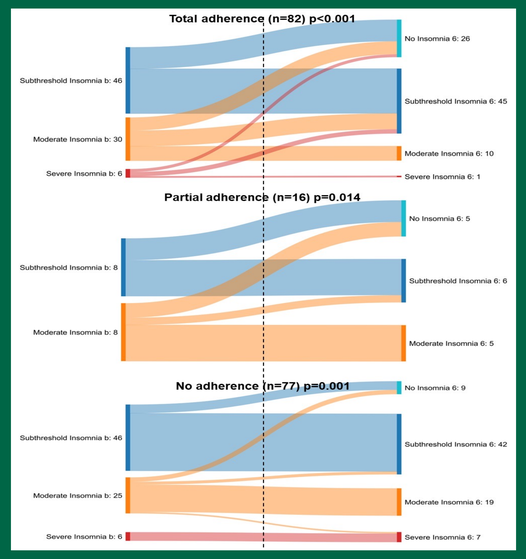


Figure 1B. Trajectories from baseline to follow-up of ISI score according to intervention adherence.



RESULTS 2/2

- Baseline ISI categories and their trajectory over time are shown in Figure 1B: all the groups had an improvement in ISI score and in the distribution of insomnia categories; the highest effect size was in FA (Z=-5.8, p<0.001 vs -2.1, p=0.035 in PA, and -2.6, p=0.010 in NA). Perceived wellness and sleep hours per night increased in all individuals but more relevantly in FA (Z=4.3 and Z=4, both p<0.001).
- After adjusting by age, sex, and baseline ISI, PHQ9 and adherence to interventions were the only independent factors associated with ISI overtime: compared to NA, ISI decreased in FA (aβ -1.24 [-2.09; -0.38], p=0.005) and showed a trend of reduction in PA (aβ -0.71 [-2.21; 0.78], p=0.349).

Sleep quality may significantly influence everyone's quality of life. That is why screening for sleep disturbances and implementing targeted multidimensional services (psychologists, psychiatrists, pneumologists, neurologists, medications) aiming at improving conditions such as insomnia can greatly enhance the PWH well-being.

CONCLUSIONS

A real-life outpatient multidimensional management of SQ based on sleep hygiene and individual-tailored interventions proved to be effective in improving the overall SQ and wellness in PWH suffering from insomnia. Therefore, such kind of approach should be integrated into daily clinical practice with specific multidisciplinary services in HIV clinics.

REFERENCES

1. Mazzitelli M. et al. Sleep disturbances and their correlation with cardiovascular risk, obesity, and mood disorders in people with HIV. AIDS, 2023 May 1;37(6):925-934. doi: 10.1097/QAD.0000000000003493