

The impact of insomnia disorder on the night and the day in older and younger adults

Mariana Fernandes¹, Antonio Olivieri², Orestis Briasoulis², Johann Laurent², Claudio Liguori^{1,3}

¹Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy; ²Idorsia Pharmaceuticals Ltd, Allschwil, Switzerland; ³Sleep Medicine Centre, Neurology Unit, University Hospital of Rome Tor Vergata, Rome, Italy.

Introduction

- The burden of insomnia increases with age¹; however, it remains unclear whether differences exist in subjective and objective sleep parameters between older and younger adults.
- Furthermore, data on how insomnia disorder affects the day of older and younger adults are limited.
- The large dataset of screened patients with insomnia disorder from the daridorexant phase 3 clinical program² provides comprehensive data, both subjective and objective, to address these gaps.

Study objective

To assess the nocturnal and diurnal clinical characteristics of patients with insomnia disorder aged ≥65 years (“older adults”) and those <65 years (“younger adults”).

Methods

- Post hoc analyses by age group (≥65 years; <65 years) were performed on data from screened patients from two global, randomized, double-blind, placebo-controlled phase 3 trials (NCT03545191, NCT03575104).²
- Screened patients:**
- Adults aged ≥18 years
 - Insomnia disorder according to DSM-5 criteria³
 - Insomnia severity index (ISI) score ≥15
 - Self-reported history of ≥30 min to fall asleep, wake time during sleep ≥30 min, and subjective total sleep time [sTST] ≤ 6.5 h on ≥ 3 days/week and for ≥ 3 months.
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- This analysis included all subjects screened with data records on selected parameters.
 - Subjects with significant sleep comorbidities (obstructive sleep apnea, periodic limb movements, restless legs syndrome, circadian rhythm disorder, rapid-eye-movement sleep behavior disorder or narcolepsy) were excluded.

Assessments during the screening period (7-18 days)

One-night polysomnography (PSG) in the sleep laboratory.

- PSG measurements included: wake after sleep onset (WASO), latency to persistent sleep (LPS), total sleep time (TST), rapid eye movement (REM) quantity, number of awakenings and number/duration of wake bouts.

eDiary, completed daily by the patient, which included:

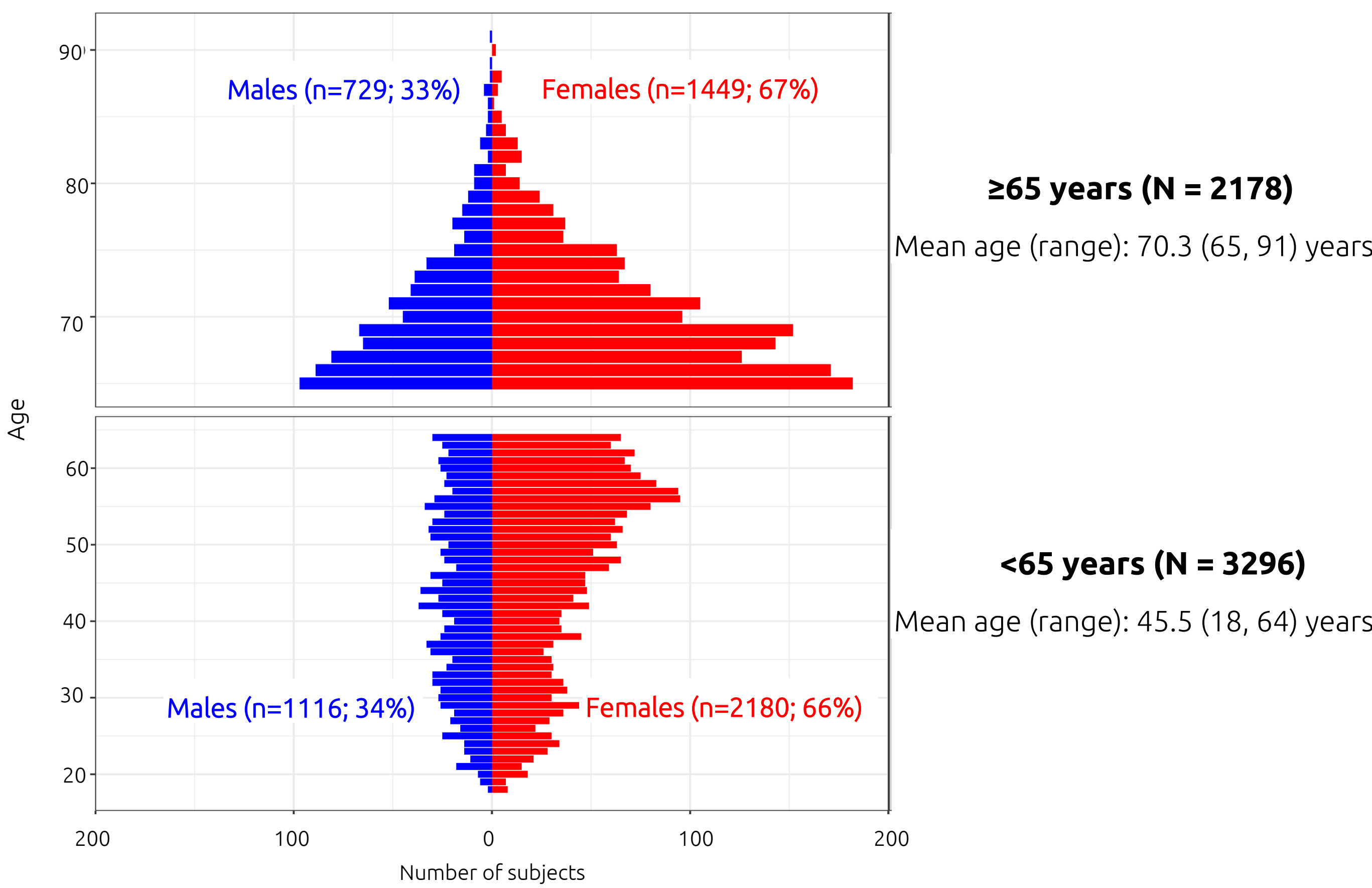
- Morning and evening visual analog scales (VAS) to assess quality and depth of sleep, morning sleepiness, ability to function and daytime alertness.
VAS scores range: 0-100; higher scores indicate better outcomes.
- Insomnia Daytime Symptoms and Impacts questionnaire (IDSIQ) completed every evening to assess daytime functioning.
IDSIQ total score range: 0-140; lower score indicates better daytime functioning.
- ISI scale to assess the severity of insomnia.
ISI total score range: 0-28; higher scores indicate more severe insomnia.
- Morning questionnaire to assess self-reported TST (sTST), self-reported WASO (sWASO) and self-reported latency to sleep onset (sLSO).

Results

Patients

- 5474 screened subjects were included in the analysis of which 2178 (40%) were aged ≥65 years and 3296 (60%) were aged < 65 years.
- The age distribution in each subgroup was similar for both male and female adults (Figure 1).

Figure 1. Age distribution by sex in each age subgroup



Sleep parameters in older and younger adults with insomnia disorder (Table 1)

- At screening, mean ISI total scores were 19.5 and 20.6 in older and younger adults, respectively, indicating moderate/severe insomnia in both subgroups.
- Among objective PSG measures, older vs younger adults had numerically:
 - shorter TST (298 vs 335 min), due to a greater mean WASO (123 vs 90 min).
 - shorter REM sleep duration (53 vs 63 min).
 - greater total duration of long wake bouts (>6 minutes; 93 vs 68 min)
- Older and younger subjects reported a similar mean sTST (326 vs 325 min), indicating that older adults tend to overestimate sleep duration while younger adults quantify it more accurately.
- Despite poorer objective sleep, VAS scores for quality and depth of sleep were numerically higher (i.e. better) in older vs younger adults.

Daytime functioning in older and younger adults with insomnia disorder (Table 2)

- IDSIQ total and domain scores and VAS scores for ability to function, daytime alertness, and morning sleepiness indicated moderate/severe daytime impairment in both age groups.
- However, the level of daytime impairment was greater in younger vs older adults as reflected by numerically higher IDSIQ scores and lower VAS scores.

Table 1. Objective and subjective nighttime sleep characteristics of screened subjects

	<65 years		≥65 years	
	n	Mean (SD)	n	Mean (SD)
Objective (PSG) sleep parameters				
TST, min	2432	334.5 (76.9)	1497	297.9 (82.7)
LPS, min	2427	62.4 (60.3)	1481	64.4 (64.0)
WASO, min	2427	90.4 (52.7)	1481	122.7 (59.4)
WASO per quarter, min	2427		1481	
Quarter 1		9.4 (11.5)		13.4 (13.8)
Quarter 2		22.7 (22.3)		31.6 (26.4)
Quarter 3		25.7 (24.7)		35.8 (29.9)
Quarter 4		34.6 (28.8)		45.0 (30.5)
REM sleep duration, min	2432	62.7 (27.4)	1497	53.4 (26.9)
REM sleep latency, min	2401	154.5 (80.1)	1454	159.8 (87.9)
Number of awakenings	2431	12.0 (5.3)	1490	13.1 (5.6)
Wake bouts	2436		1462	
Total number		29.1 (12.6)		30.9 (14.0)
Mean duration, min		3.8 (4.6)		5.7 (12.2)
Number >6 min ^a		2.5 (1.8)		3.4 (2.0)
Total duration of wake bouts >6 min ^a , min		67.9 (50.6)		93.1 (60.4)
Subjective sleep parameters				
sTST, min	2535	325.4 (69.2)	1527	325.7 (66.6)
sWASO, min	2535	77.2 (64.0)	1527	88.1 (68.7)
sLSO, min	2535	63.5 (50.0)	1527	59.7 (48.5)
VAS depth of sleep (0-100) ^b	2535	37.6 (17.2)	1527	42.4 (16.7)
VAS quality of sleep (0-100) ^b	2535	36.8 (16.8)	1527	41.9 (16.5)
Total ISI score	2969	20.6 (3.5)	1905	19.5 (3.6)

^a>6-min defines a long wake bout³; ^bhigher VAS scores indicate better quality and depth of sleep. ISI, insomnia severity index; LPS, latency to persistent sleep; REM, rapid eye movement; sLSO, self-reported latency to sleep onset; sTST, self-reported total sleep time; sWASO, self-reported wake after sleep onset; TST, total sleep time; VAS, visual analog scale; WASO, wake after sleep onset.

Table 2. Subjective daytime characteristics of screened subjects

	<65 years		≥65 years	
	n	Mean (SD)	n	Mean (SD)
IDSIQ scores				
Total (0-140)	2498	74.9 (22.2)	1497	66.3 (21.9)
Alert/cognition domain (0-60)	2498	32.2 (9.3)	1497	28.8 (9.1)
Mood domain (0-40)	2498	19.8 (8.1)	1497	16.9 (7.9)
Sleepiness domain (0-40)	2498	22.8 (6.4)	1497	20.6 (6.3)
VAS scores (0-100)				
Ability to function	2498	40.5 (18.4)	1497	47.6 (17.9)
Daytime alertness	2498	38.7 (18.6)	1497	46.5 (18.2)
Morning sleepiness	2535	36.7 (17.1)	1527	44.4 (17.2)

IDSIQ, Insomnia Daytime Symptoms and Impacts Questionnaire; VAS, visual analog scale. Lower IDSIQ scores indicate better patient-perceived daytime functioning; Higher VAS scores indicate better scores.

Disclosures

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Conclusions

- **These descriptive data indicate that insomnia disorder negatively impacts sleep and daytime functioning in younger and older adults, but with older adults showing more severe alterations in objective sleep parameters, and younger adults reporting more severe daytime dysfunction.**