Insomnia-related cognitive and behavioural factors in adolescents with delayed sleep-wake phase disorder

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Introduction

- Delayed sleep-wake phase disorder (DSWPD) shares phenomenological experiences with chronic insomnia disorder.
- The conceptual understanding of DSWPD was predominantly focus on its chronobiological basis, such as longer intrinsic circadian period and sensitivity to evening light[1,2].
- It has been suggested some cognitive factors in insomnia, namely hyperarousal, maladaptive beliefs about sleep, and selective attention, also processed in people with DSWPD.
- These cognitive factors may contribute to the maintenance and relapse of DSWPD[3].
- The present study examined several insomnia-related cognitive and behavioural factors in adolescents with DSWPD.

Methods

Three groups of adolescents were included (Total N = 78, % female = 52.5%, age = 20.2 ± 1.7). Clinical groups were diagnosed according to the ICSD-3 criteria.

DSWPD (n = 25) **Insomnia (n = 28)** **Healthy (n = 25)**

All completed the following measures:

- Insomnia Severity Index (ISI)
- Morningness-Eveningness Questionnaire (MEQ)
- Depression Anxiety Stress Scales
- Pre-Sleep Arousal Scale (PSAS)
- Ford Insomnia Response to Stress Test (FIRST)
- Dysfunctional Beliefs and Attuites about Sleep (DBAS-16)
- Sleep Hygiene Practice Scale (SHPS)

Between groups differences were tested using ANCOVA with age and sex as covariates.

Summary of Findings

- Individuals with DSWPD showed significantly more insomnia symptoms compared to healthy control. They also showed more depression and anxiety problems compared to healthy and people with insomnia **[Table 1]**.
- Compare to healthy control, individuals with DSWPD showed greater pre-sleep arousal (PSAS; Cohen's d = 1.36-2.31) **[Fig. 1]**, dysfunctional belief about sleep (DBAS; d = 1.59) **[Fig. 2]**, sleep reactivity (FIRST; d = 1.73) **[Fig. 3]**, and poorer sleep hygiene practices (SHPS; d = 2.62) **[Fig. 4]**. However, these differences were not significantly observed between DSWPD and insomnia groups.
- Regarding to dysfunctional beliefs, differences were only observed regarding to the consequences of insomnia and sleep-related worries **[Fig. 2]**.

Conclusion

- Several insomnia-related cognitive and behaivoural factors are evidenced in people with DSWPD.
- The lack of differences between DSWP and insomnia suggested substantial overlapping in the pathophysiology of both disorders.
- This also highlighted the importance in addressing these factors beyond chronotherapy when treating DSWPD.
- Further research should investigate how insomnia treatment (i.e., CBT for Insomnia) could also benefit individuals with DSWPD.

Table 1: Sleep, circadian, and mood characteristics

	Healthy	Insomnia	DSWPD		Pair-wise Effect Size (d)		
	mean (s.d.)			*p*	*HC vs INS*	*HC vs DSWPD*	*INS vs DSWPD*
ISI	2.8 (2.0)	14.1 (3.5)	15.4 (3.5)	<.001	1.89	3.92	*ns*
MEQ	48.1 (10.6)	42.1 (7.4)	34.4 (6.0)	<.001	0.66	1.59	1.14
DASS-D	2.5 (3.1)	7.6 (6.8)	13.3 (6.3)	<.001	0.96	2.18	0.87
DASS-A	2.4 (2.7)	5.6 (3.8)	9.2 (7.4)	<.001	*ns*	1.22	0.61
DASS-S	5.0 (3.9)	11.9 (8.7)	16.0 (9.0)	<.001	1.02	1.59	*ns*

Abbreviation: DASS-D = depression subscale; DASS-A = anxiety subscale; DASS-S = stress subscale; ns = not significant at post-hoc test

Fig. 1 - PSAS

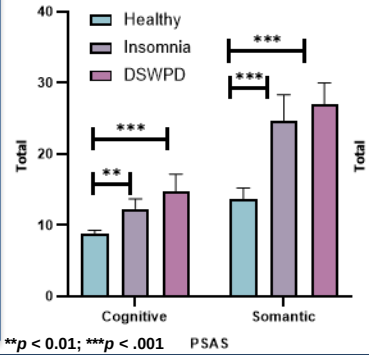


Fig. 2 - DBAS

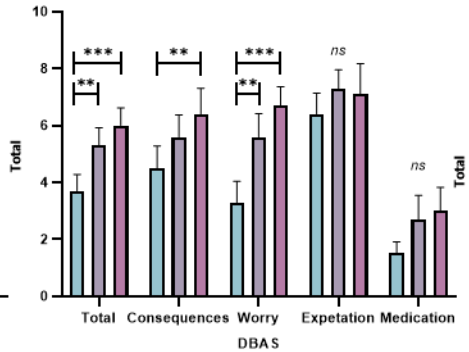


Fig. 3 - FIRST

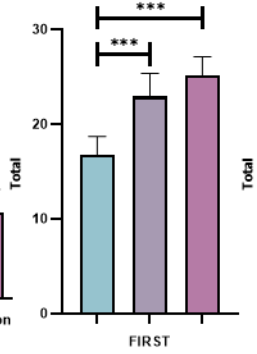
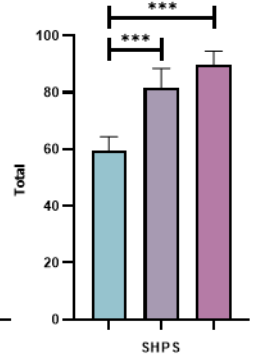


Fig. 4 - SHPS



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