Features of nightmares during in-lab video polysomnography

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INTRODUCTION

Nightmares are characterized as repeated dysphoric dreams with awakening from sleep causing significant distress and impairment.

Nightmares are rarely captured in the sleep lab and previous literature highlights subjective nightmare characteristics.

The purpose of this study is to attempt characterizing nightmares and sleep in patients reporting a nightmare during in-lab video polysomnography (PSG).

The primary outcome is to reveal prevalence of nightmare during PSG study.

The secondary outcome is to provide objective data in characterizing nightmare.

METHODS

Study Sample: We reviewed 2571 post-PSG questionnaire performed in our laboratory between December 2017 and September 2018

Nightmares and Trauma-Related Nightmares:
A single item from the PSQI was used to assess nightmare frequency. A response of bad dreams at least weekly is consistent with NDO.
A single item from the PSQI-A was used to assess TRN. For the diagnosis of TRN, individuals were required to have at least weekly bad dreams on the PSQI and memories/nightmares of traumatic experiences on the PSQI-A.

OSA: Patients with a PSG demonstrating apneas or hypopneas with an apnea-hypopnea index (AHI) > 5 events/h were rendered a diagnosis of OSA, and (AHI) >15 events/h were identified as moderate/severe OSA.

Mental Health Disorders and Traumatic Brain Injury: Diagnoses of interest to include depression, anxiety, and PTSD were obtained from each patient's EMR.

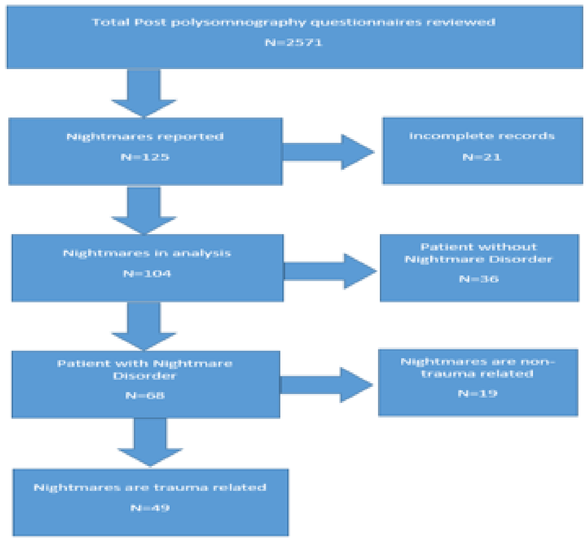
PSG Data:
Level 1 PSG tests were performed in accordance with American Academy of Sleep Medicine (AASM) standards within an AASM accredited laboratory.

PSG was performed with 16 channels, including: EOG, EEG, ECG, EMG, airflow measurements oronasal thermal sensors and nasal air pressure transducers, transtracheal sounds via microphone, rib cage and abdominal movement by thoracoabdominal belts, and continuous pulse oximetry.

Studies were scored utilizing the 2012 AASM scoring guidelines. PSG-measured variables, to include sleep onset latency (SOL), rapid eye movement (REM) sleep latency, total sleep time (TST), SE, sleep stages (stage N1, stage N2, stage N3, stage R sleep), wake after sleep onset (WASO), arousal index, AHI, and maximal desaturation were analyzed.

All test results were reviewed and adjudicated by a board-certified sleep medicine physician.

RESULTS



125 nightmares were reported from screening 2571 post PSG questionnaires. 21 were excluded due to incomplete records. Among remaining 104 patients, there are 67 males and 37 females, age range 24-65 (mean = 36.6).

36 patient's did not meet the diagnose criteria of nightmare disorder, but 68 did. Among those that met, 49 patient's met the diagnostic criteria of trauma related nightmares.

The prevalence of nightmare during PSG was 4.86%

10 nightmare were reported as "accurate replay of previous traumatic event", 48 were reported as "Mix of replay/non-replay events", while 44 were reported as "non-replay or unknown".

5 PSGs patient's body movement were consistent with REM sleep without atonia, and 6 PSGs, patient's behavior were consistent with dream enactment.

Table 1—Study sample characteristics.

	Entire Sample (n = 104)	TRN (n = 49)	NDO (n = 19)
Demographics			
Age, years, mean ± SD	38.5 ± 10.07	37.0± 8.63	40.6 ± 10.85
Sex, male, % (n)	64.4 (67)	35 (71.4)	9 (47.3)
Self-Reported Measures			
ESS score, mean ± SD	12.7 ± 5.53	12.6 ± 5.72	15.2 ± 1.34
ISI score, mean ± SD	18.17 ± 5.70	20.2 ± 4.57	17.8 ± 5.00

Table 2—Sleep disorders by patient group.

	TRN (n = 49)	NDO (n = 19)
Disorder Group	% (n)	% (n)
OSA		
Overall occurrence	55.10(27)	52.63 (10)
Severity		
No-OSA (5 < AHI)	44.90 (22)	47.37 (9)
Mild (5 < AHI ≤ 15)	34.69 (17)	21.05(4)
Moderate/Severe (AHI > 15)	20.41 (10)	31.58 (6)
Anxiety	36.73 (18)	47.37 (9)
Depression	34.69 (17)	26.32 (5)

Table 3—Polysomnography-measured variables by patient group.

PSG Variables	Entire Sample (n = 104)	TRN (n = 49)	NDO(n = 19)
SOL (minutes)	15.8 ± 17.4	13.3 ± 16.9	17.8 ± 17.6
REM sleep latency (minutes)	136.9 ± 81.3	131.6 ± 81.4	140.9 ± 81.7
TST (minutes)	346.2 ± 58.5	347.3 ± 51.2	346.6 ± 48.1
SE (%)	82.2 ± 12.7	84.2 ± 10.9	80.7 ± 13.8
Stage N1 sleep (% TST)	10.5± 8.71	10.6 ± 7.58	8.6 ± 7.95
Stage N2 sleep (% TST)	56.6 ± 11.50	58.7 ± 11.51	52.1 ± 12.29
Stage N3 sleep (% TST)	15.3 ± 10.86	13.7 ± 11.18	20.7 ±12.47
Stage R sleep (% TST)	17.6 ± 7.41	17.0 ± 6.66	18.5± 7.60
WASO (minutes)	58.8 ± 46.3	52.8 ± 41.8	63.3 ± 49.3
AHI (events/h)	12.6 ± 16.0	9.79± 12.27	10.91 ± 11.49
Arousal index (events/h)	22.6 ± 14.9	12.3 ± 10.3	16.6 ± 18.7
Lowest oxygen desaturation (%)	88.1 ± 7.14	89.5 ± 3.85	86.9 ± 8.96

DISCUSSION

This is the first study in attempt to characterize nightmares during in-lab video PSG.

The rate of nightmare occurrence was 4.86% in our study, which approximates the prevalence of nightmare disorder in the general population.

Our largely military and veteran patients in our cohort replicative trauma related nightmares.

Our data suggests nightmares is more common in the monitored setting than previously thought.

Deeper analysis of REM sleep may reveal objective evidence of reported nightmares that is often overlooked.

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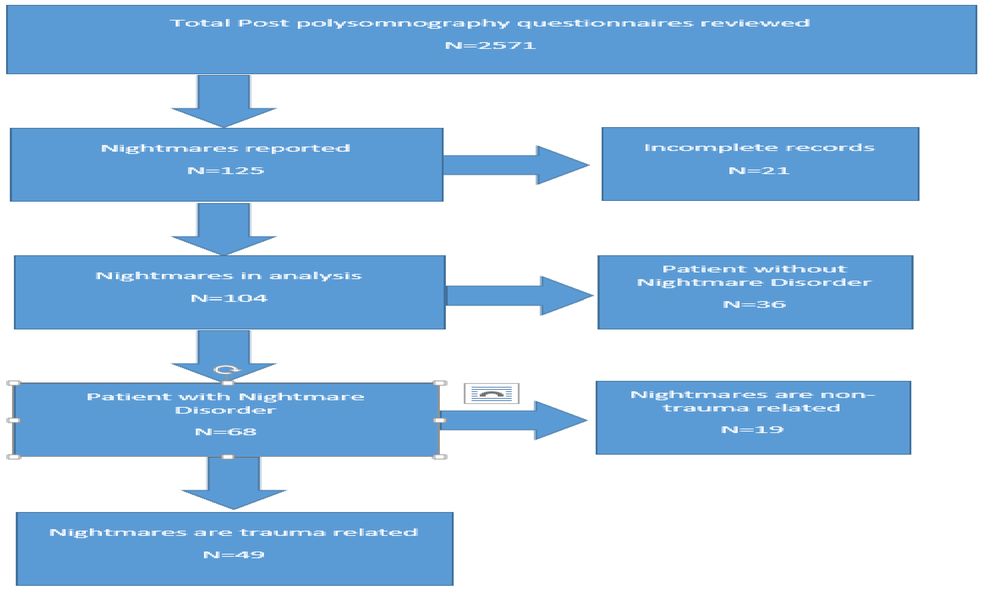
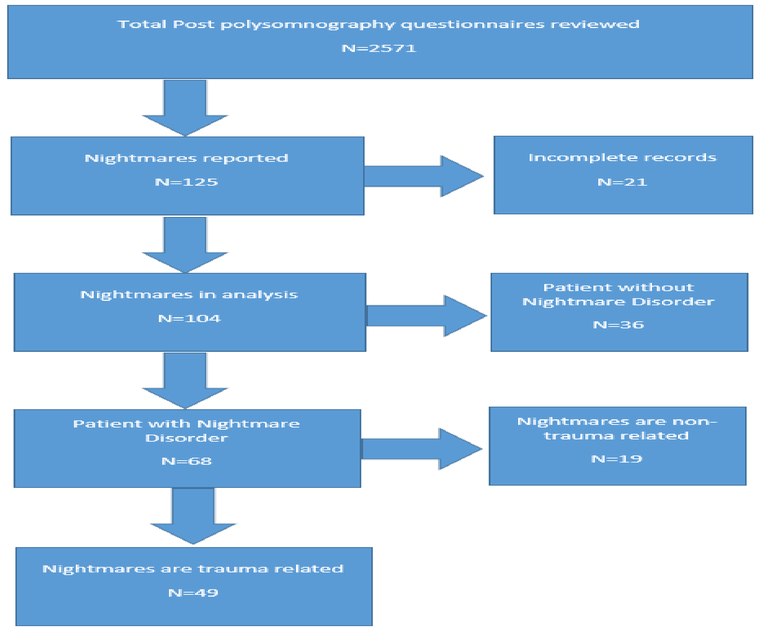


- 125 nightmares were reported from screening 2571 post PSG questionnaires. There are 21 patient had incomplete records and were excluded from study.
- The cohort consist of 104 patients with 67 males and 37 females, age range 24-65 (mean = 36.6).
- Among 104 episodes of nightmares 49 consist with TRN, and 49 consist with NDO, and 36 did not meet requirement for diagnose of nightmare disorder.
- The prevalence of nightmare during PSG was 4.86%
- 10 nightmare were reported as “accurate replay of previous traumatic event.”, 48 were reported as “Mix of replay/non-replay events”, while 44 were reported as “non-replay or unknown”.
- 5 PSGs patient’s body movement were consistent with REM sleep without atonia, and 6 PSGs, patient’s behavior were consistent with dream enactment.



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