SHIFT WORK

Taking years off lives ever since its inception.

NOW HIRING

Luigi De Gennaro
Psicofisiologo, esperto di disturbi del sonno

IL BLOG

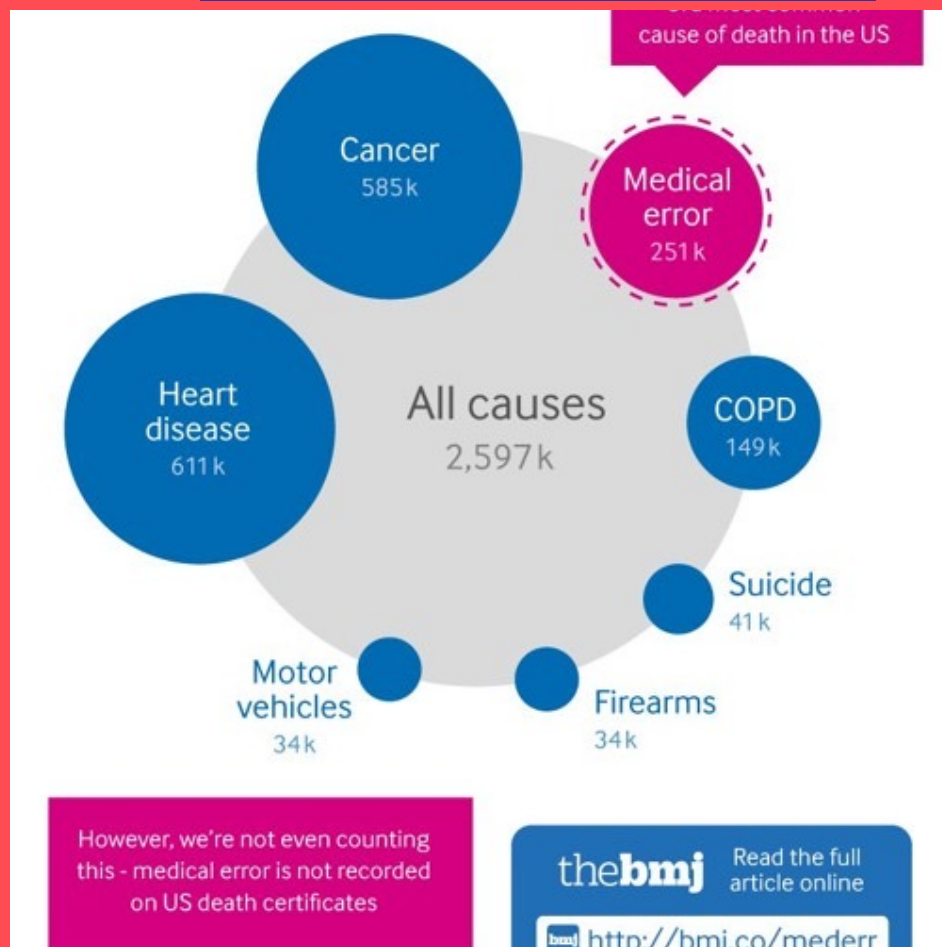## Errori medici terza causa di morte negli Usa. Una riflessione sul lavoro notturno

06/01/2019 18:41 CET | Aggiornato 09/01/2019 11:17 CET

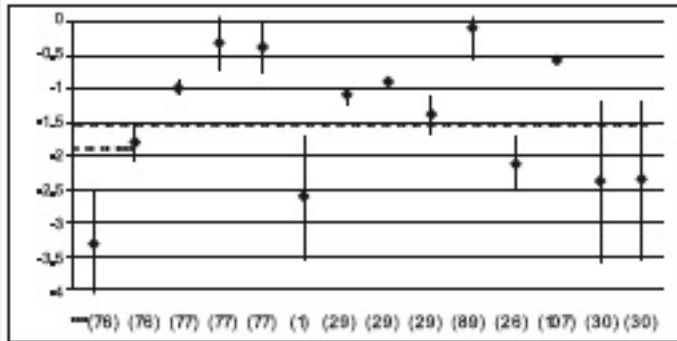TENDENZE

Federico Pizzarotti: "Qui salta tutto, stiamo pronti"

"Negli anni 80 e 90 i soldi non finivano mai. Era difficile evitare la cocaina a Milano: tutto tempo perso"

mento dati da srv~2019~04~11~12.pixel.parsely.com...

cause of death in the US

Cancer
585k

Medical error
251k

Heart disease
611k

All causes
2,597k

COPD
149k

Suicide
41k

Motor vehicles
34k

Firearms
34k

However, we're not even counting this - medical error is not recorded on US death certificates

thebmj Read the full article online

http://bmj.co/mederr

"Our interns work extremely long hours. The harnesses will help keep them awake during your operation."

Subset for Clinical Performance

(76) (76) (77) (77) (77) (1) (29) (29) (29) (89) (26) (107) (30) (30)

Subset for Chronic Sleep Deprivation

(62)(85) (48) (48) (48) (51) (51) (51) (51) (85) (110)(110)(110)(110)(110)
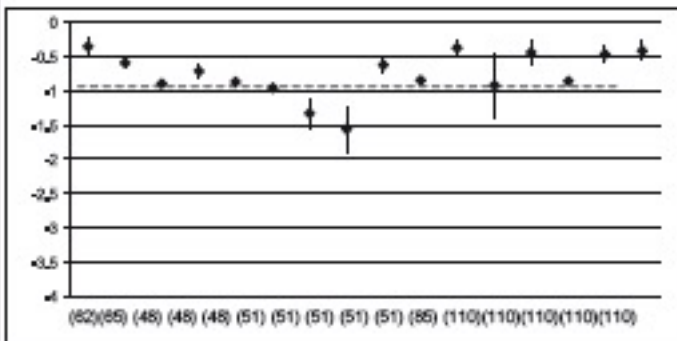
Figure 1—Estimated effect sizes and 95% confidence intervals for 2 subset analyses. The number below each effect index is the reference number of the study.

Table 4—Hierarchical Analysis by Subject, Type of Performance and Degree of Sleep Loss

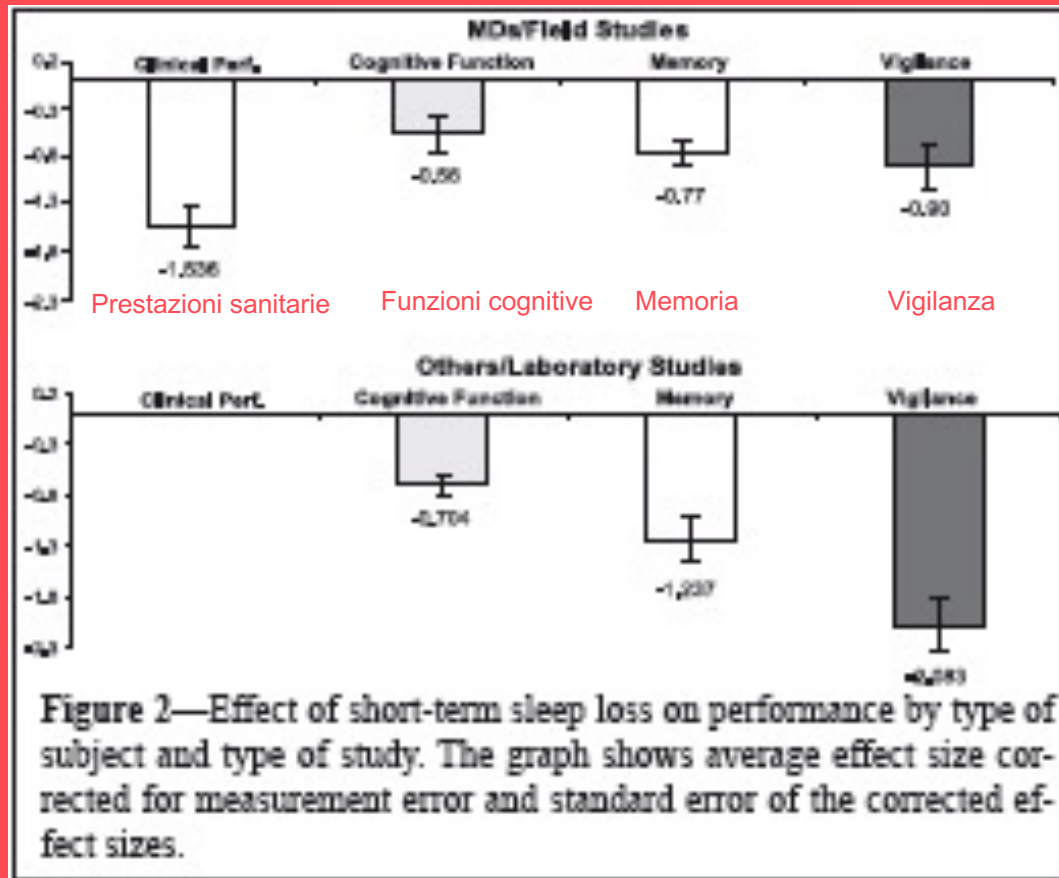|	24 to < 30 hours Acute Sleep Loss				Chronic Partial Sleep Loss			
Analysis	T	δ	S^2_1,%	Q	T	δ	S^2_1,%	Q
MDs	1,862	-.986	77	178.9	--	--	--	--
Excl. clin. performance	1,227	-.701	59	66.3	--	--	--	--
Cognitive function	697	-.560	81	42.6	--	--	--	--
Memory	316	-.771	21	15.2	--	--	--	--
Vigilance	214	-.904	63	18.9	--	--	--	--
Clin. Performance	635	-1.536	89	128.9	--	--	--	--
Non-physicians	1,037	-1.331	66	189.3	294	-.886	24	12.9*
Cognitive function.	509	-.704	20	34.8*	--	--	--	--
Memory	178	-1.237	51	26.5	46	-.794	03	3.1*
Vigilance	350	-2.083	86	174.9	181	-.977	14	7.0*

T, number of effect indexes in sample; δ , average effect corrected for measurement error; S^2_1, % of remaining variance not accounted for by statistical artifact; Q, Q statistic for homogeneity in true effect across studies.
*Indicates Q statistic not significant at the .005 level, suggesting homogeneity.

Modulazione degli effetti da parte di:
- tipo di attività cliniche
- entità della deprivazione

Medici vs. non-medici:
Effetti più marcati nei paramedici

Figure 2—Effect of short-term sleep loss on performance by type of subject and type of study. The graph shows average effect size corrected for measurement error and standard error of the corrected effect sizes.

Effetto di deprivazione su diverse funzioni cognitive, in funzione del tipo di soggetti (medici) e del tipo di studio (laboratorio vs. sul campo)

Impact of Extended-Duration Shifts on Medical Errors, Adverse Events, and Attentional Failures

Laura K. Barger[1,2], Najib T. Ayas[3,4,5], Brian E. Cade[1], John W. Cronin[1,2], Bernard Rosner[6], Frank E. Speizer[6], Charles A. Czeisler[1,2*]

1 Division of Sleep Medicine, Department of Medicine, Brigham and Women's Hospital, Boston, Massachusetts, United States of America, 2 Division of Sleep Medicine, Harvard Medical School, Boston, Massachusetts, United States of America, 3 Sleep Disorders Program, University of British Columbia, Vancouver, British Columbia, Canada, 4 Department of Medicine, Vancouver General Hospital, Vancouver, British Columbia, Canada, 5 Center for Clinical Epidemiology and Evaluation, Vancouver Coastal Health Research Institute, Vancouver, British Columbia, Canada, 6 Channing Laboratory, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Massachusetts, United States of America

| Outcome	Extended-Duration Shifts (0)			Extended-Duration Shifts (1–4)				Extended-Duration Shifts (≥5)			
	Number of Person-Months	Number of Person-Months with Positive Response	Rate of Positive Response/ Person-Month	Number of Person-Months	Number of Person-Months with Positive Response	Rate of Positive Response/ Person-Month	Odds Ratio (95% CI)	Number of Person-Months	Number of Person-Months with Positive Response	Rate of Positive Response/ Person-Month	Odds Ratio (95% CI)
Do you believe sleep deprivation or fatigue caused you to make a significant medical error?	3,323	125	0.038	3,329	327	0.098	3.5 (3.3–3.7)	7,355	1,153	0.16	7.5 (7.2–7.8)
Error resulted in an adverse patient outcome	3,323	7	0.002	3,329	38	0.011	8.7 (3.4–22)	7,355	118	0.016	7.0 (4.3–11)
Error resulted in a fatality	3,205	3	0.001	3,040	8	0.003	3.2 (0.10–106)	6,325	23	0.004	4.1 (1.4–12)
Do you believe you made any significant medical errors other than due to sleep deprivation or fatigue?	3,326	213	0.064	3,329	264	0.079	1.05 (1.0–1.1)	7,345	670	0.091	1.4 (1.4–1.5)
Error resulted in an adverse patient outcome	3,326	33	0.010	3,329	45	0.014	1.1 (0.89–1.3)	7,345	99	0.013	1.05 (0.90–1.2)
Error resulted in a fatality	3,145	8	0.003	3,109	13	0.004	0.80 (0.41–1.6)	6,773	21	0.003	1.3 (0.60–2.7)

doi:10.1371/journal.pmed.0030487.t001

Attentional Failure	Extended-Duration Shifts (0)			Extended-Duration Shifts (1–4)				Extended-Duration Shifts (≥5)			
	Number of Person-Months	Number of Person-Months with Positive Response	Rate Of Positive Response/ Person-Month	Number of Person-Months	Number of Person-Months with Positive Response	Rate of Positive Response/ Person-Month	Odds Ratio (95% CI)	Number of Person-Months	Number of Person-Months with Positive Response	Rate of Positive Response/ Person-Month	Odds Ratio (95% CI)
Nodding off or falling asleep during surgery	1,631	45	0.028	1,933	85	0.044	2.1 (1.7–2.7)	4,298	314	0.073	1.4 (1.3–1.6)
Nodding off or falling asleep while talking to or examining patients	3,043	85	0.028	3,275	128	0.039	1.5 (1.3–1.7)	7,245	393	0.054	2.1 (2.0–2.2)
Nodding off or falling asleep during rounds with the attending physician	2,359	192	0.081	2,990	455	0.15	2.3 (2.2–2.4)	6,817	1,500	0.22	5.5 (5.4–5.7)
Nodding off or falling asleep during lectures, seminars, or grand rounds	3,014	1,392	0.46	3,175	1,873	0.59	1.99 (1.96–2.03)	7,075	4,953	0.70	4.3 (4.3–4.4)

Number of person months vary from outcome to outcome as missing values for the outcome (i.e., did not answer yes or no) were eliminated from the analysis. Also, for surgery, rounds with attending physicians, examining patients, or attending lectures, participants were also asked if they did not do any of these activities that month. If they did not do any of these activities that month, these months were also excluded from the analysis. Rates represent the proportion of months when the subject reported one or more of the outcomes (regardless of how many were reported). As such, it is not the actual rate of outcomes that were reported, but rather the proportion of months that are positive (i.e., have at least one of the outcomes indicated). Odds ratios (95% CIs) are reported in months with extended-duration work shifts as compared to months without extended-duration work shifts.
doi:10.1371/journal.pmed.0030487.t002

Epworth Sleepiness Scale

Mean	Normal	Insomnia	Sleep Apnea	Residents	Narcolepsy
	5.90	2.20	11.70	14.70	17.50
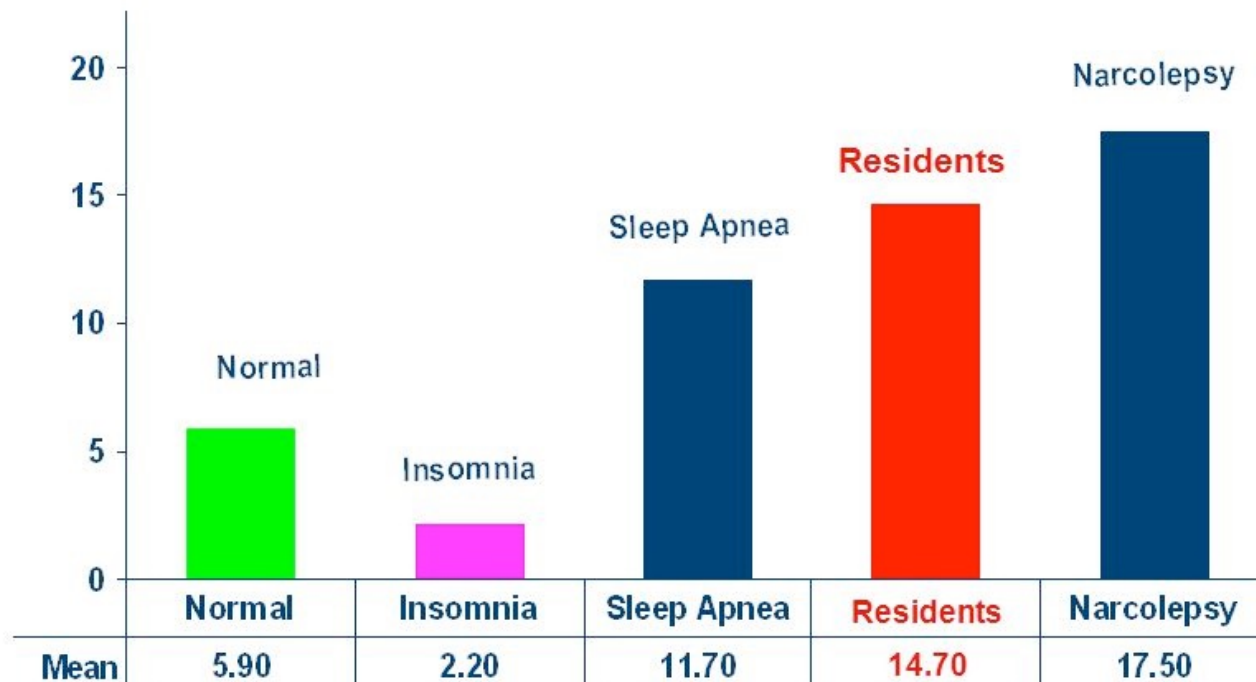
Sleepiness in residents equals that found in patients with serious sleep disorders

Mustafa and Strohl, unpublished data. Papp, 2002

The Pattern of Subjective Work Hours and Subjective Hours of Sleep Reported by a Single Intern Working in an ICU during the Traditional Schedule (Panels A and B) and the Intervention Schedule (Panels C and D)
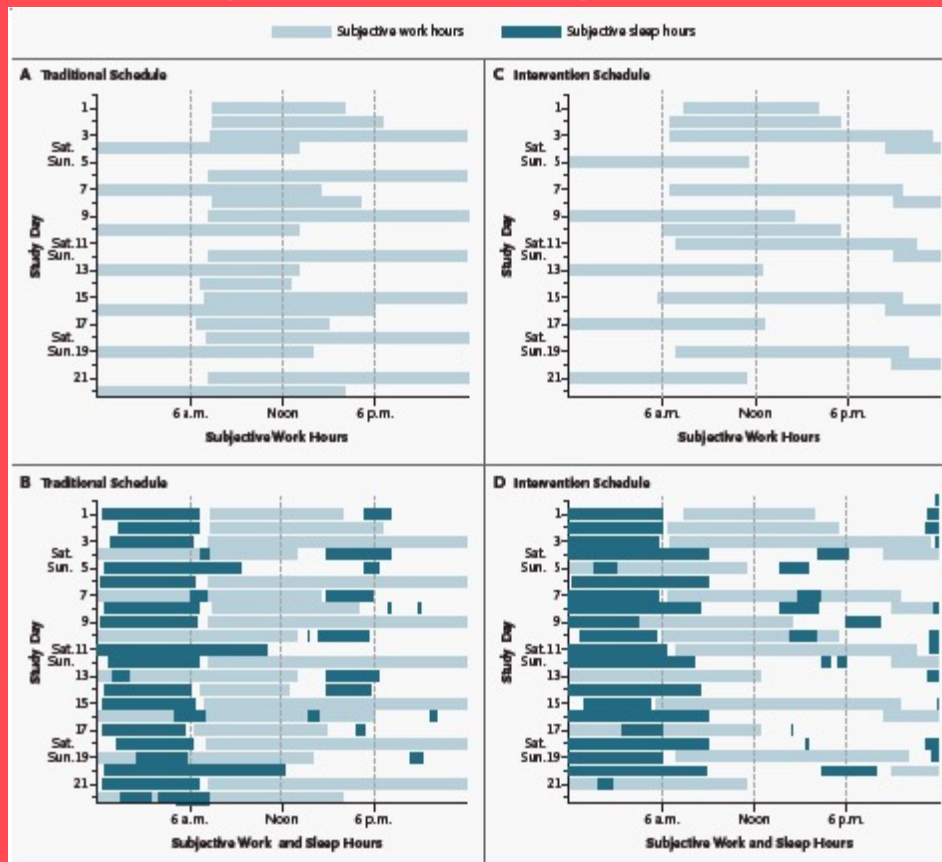
Figure 2. The Pattern of Subjective Work Hours and Subjective Hours of Sleep Reported by a Single Intern Working in an ICU during the Traditional Schedule (Panels A and B) and the Intervention Schedule (Panels C and D).

Sequential study days are shown on the ordinate of each panel, with weekend days included for reference, and clock time is shown on the abscissa. Both work rotations started on a Wednesday (day 1) and ended on a Tuesday (day 21) unless the last work shift was scheduled to be overnight (e.g., days 21 through 22 in Panel A). This intern worked an average of 83.4 hours per week during the traditional schedule, as compared with 62.6 hours per week during the intervention schedule. In Panels B and D the subjective sleep times are superimposed over work hours, including the hours the intern spent asleep while at the hospital (e.g., approximately 6 a.m. on days 4, 7, and 16 in Panel B). This intern slept 41.8 hours per week during the traditional schedule and 47.8 hours per week during the intervention schedule.

Lockley SW et al. N Engl J Med 2004;351:1829-1837.
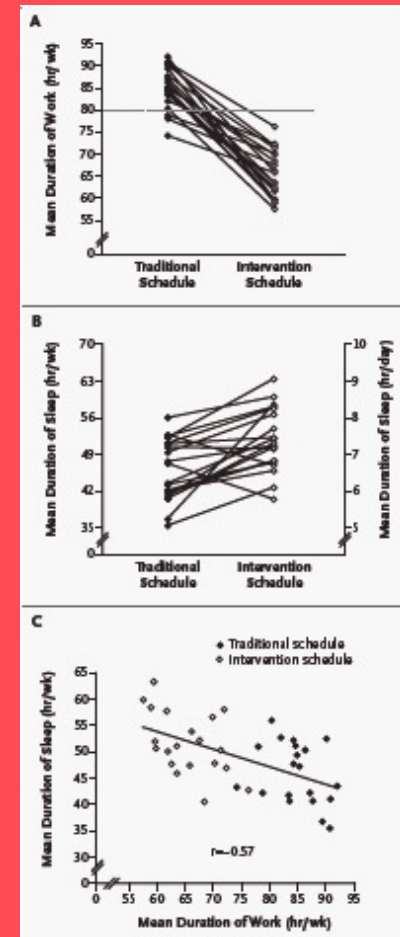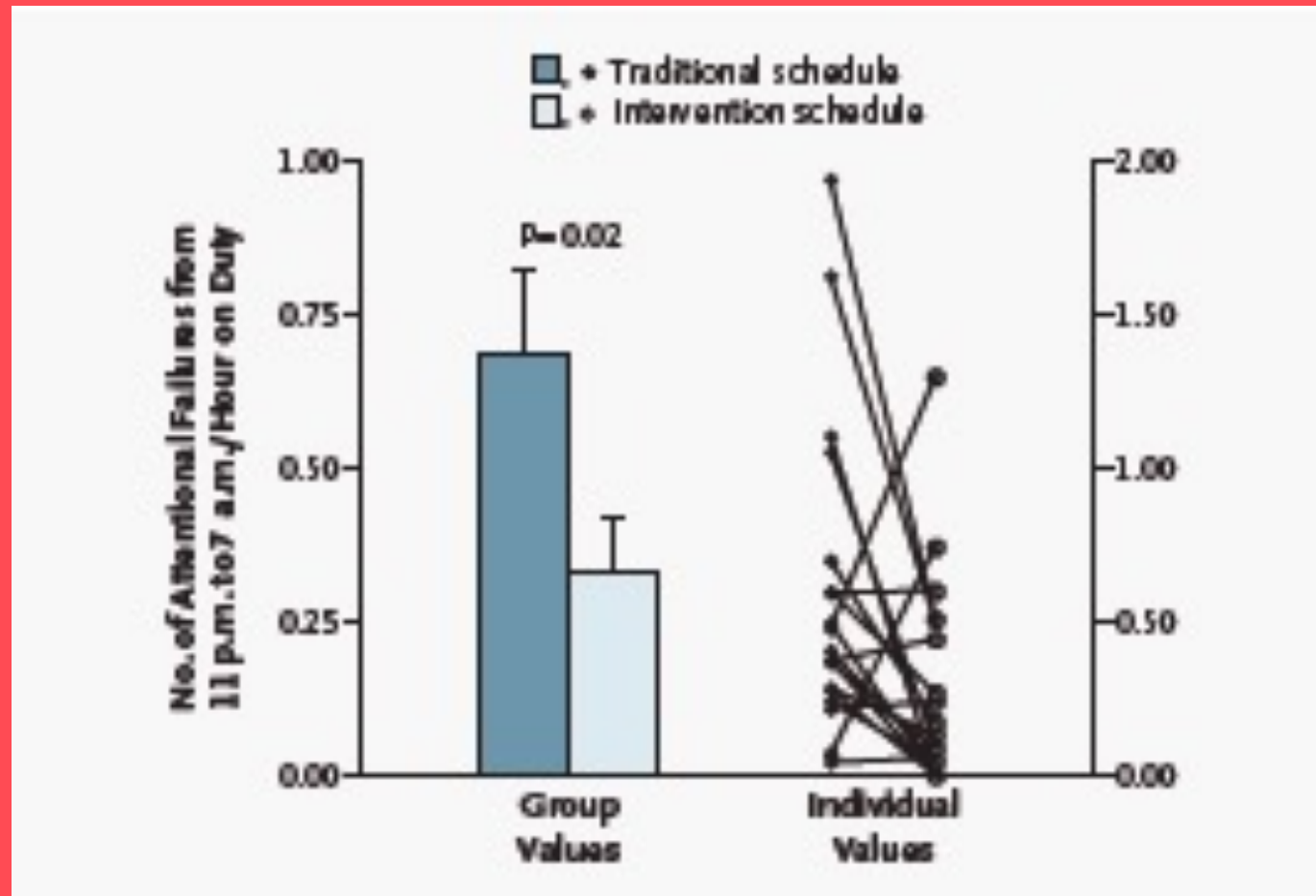
Fallimenti attenzionali (comparsa di movimenti oulari lenti) in funzione dell'intervento di riduzione delle ore del turno

Representative Work Hours during a Single Week for the Whole Team of Interns during the Traditional Schedule (Panel A) and the Intervention Schedule (Panel B).

Landrigan CP et al. N Engl J Med 2004;351:1838-1848.

Incidence of Serious Medical Errors.

Variable	Traditional Schedule	Intervention Schedule	P Value
	no. of errors (rate/1000 patient-days)		
Serious medical errors made by interns			
Serious medical errors	176 (136.0)	91 (100.1)	<0.001
Preventable adverse events	27 (20.9)	15 (16.5)	0.21
Intercepted serious errors	91 (70.3)	50 (55.0)	0.02
Nonintercepted serious errors	58 (44.8)	26 (28.6)	<0.001
Types of serious medical errors made by interns			
Medication	129 (99.7)	75 (82.5)	0.03
Procedural	11 (8.5)	6 (6.6)	0.34
Diagnostic	24 (18.6)	3 (3.3)	<0.001
Other	12 (9.3)	7 (7.7)	0.47
All serious medical errors, unit-wide			
Serious medical errors	250 (193.2)	144 (158.4)	<0.001
Preventable adverse events	50 (38.6)	35 (38.5)	0.91
Intercepted serious errors	123 (95.1)	63 (69.3)	<0.001
Nonintercepted serious errors	77 (59.5)	46 (50.6)	0.14
Types of serious medical errors, unit-wide			
Medication	175 (135.2)	105 (115.5)	0.03
Procedural	18 (13.9)	11 (12.1)	0.48
Diagnostic	28 (21.6)	10 (11.0)	<0.001
Other	29 (22.4)	18 (19.8)	0.45

Table 3. Incidence of Serious Medical Errors.

The NEW ENGLAND JOURNAL of MEDICINE

**Can taking a nap during a night shift counteract the impairment of executive skills in residents?**

Daniela Tempesta,[1] Carlo Cipolli,[2] Giovambattista Desideri,[1] Luigi De Gennaro[3] & Michele Ferrara[1]

Il *nap migliora* le prestazioni in un compito che valuta le funzioni esecutive (*task switching*) rispetto a chi rimane sveglio
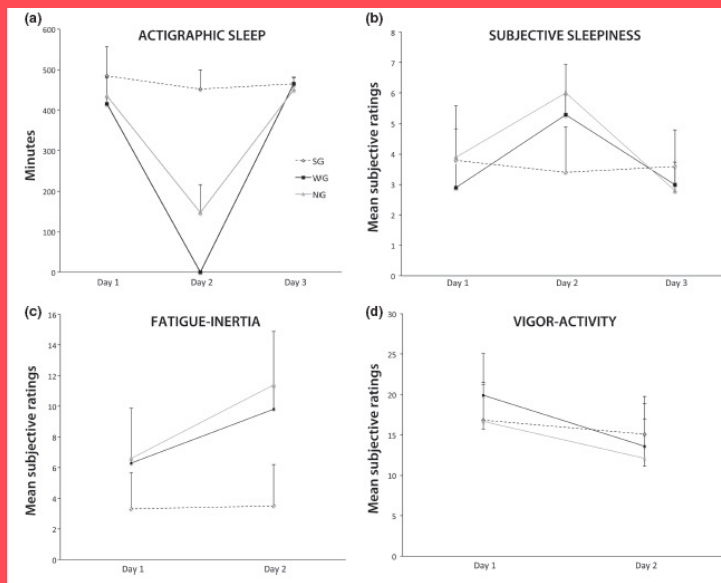
Effects of napping on executive skills in residents
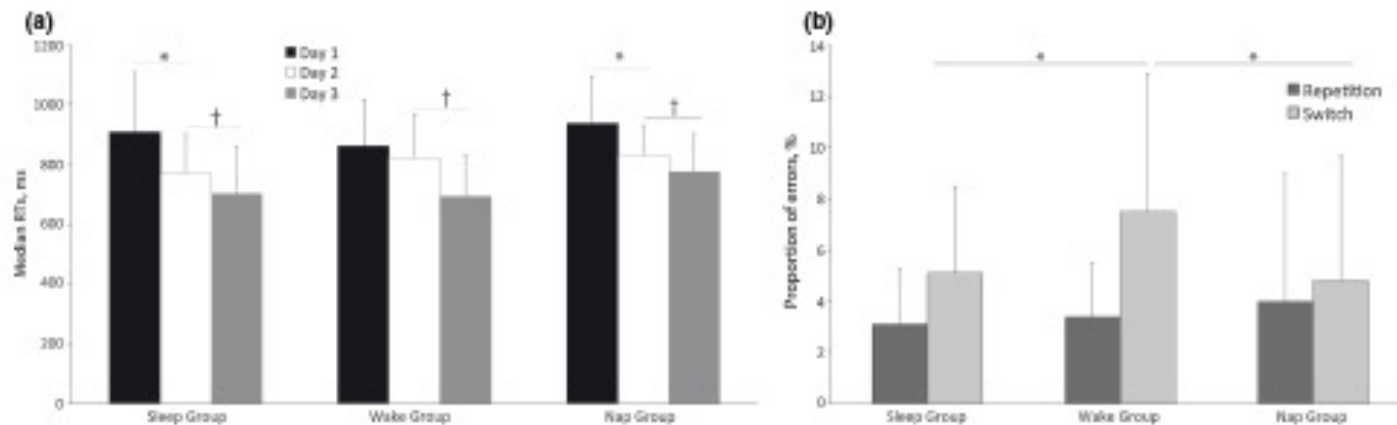
Figure 3 (a) Means of median reaction times (RTs) as a function of day (Day 1, Day 2 and Day 3) for the three groups (Sleep Group: SG, Wake Group: WG and Nap Group: NG). (b) Proportions of errors as a function of the type of trial (Repetition, Switch) and group (Sleep Group: SG, Wake Group: WG and Nap Group: NG). Differences between days (Fig. 3a) and between groups (Fig. 3b) are significant at $^*p < 0.0005$ and $^†p < 0.005$. (See Results for further details)

Article

Not only a Problem of Fatigue and Sleepiness: Changes in Psychomotor Performance in Italian Nurses across 8-h Rapidly Rotating Shifts

Marco Di Muzio [1], Flaminia Reda [2], Giulia Diella [1], Emanuele Di Simone [3], Luana Novelli [2], Aurora D'Atri [2], Annamaria Giannini [2] and Luigi De Gennaro [2,*]
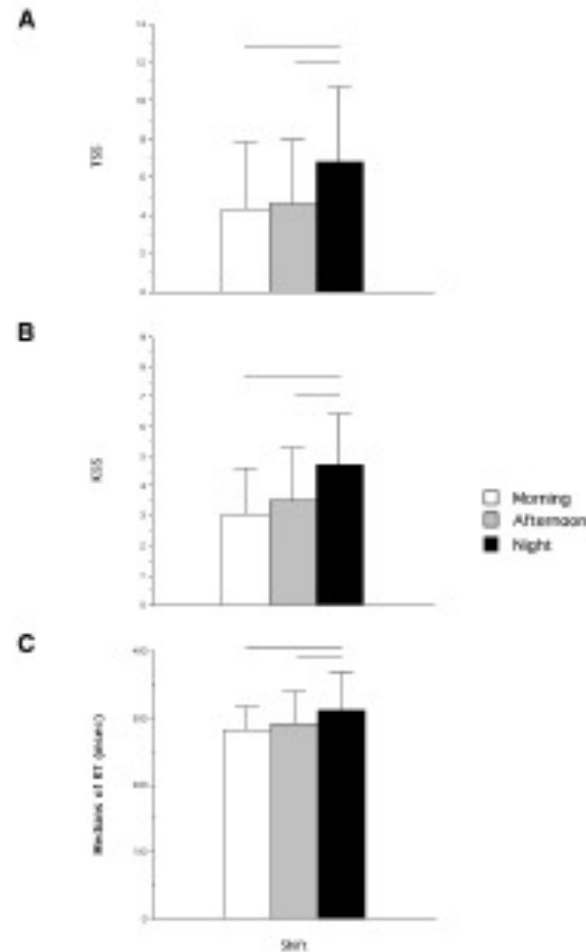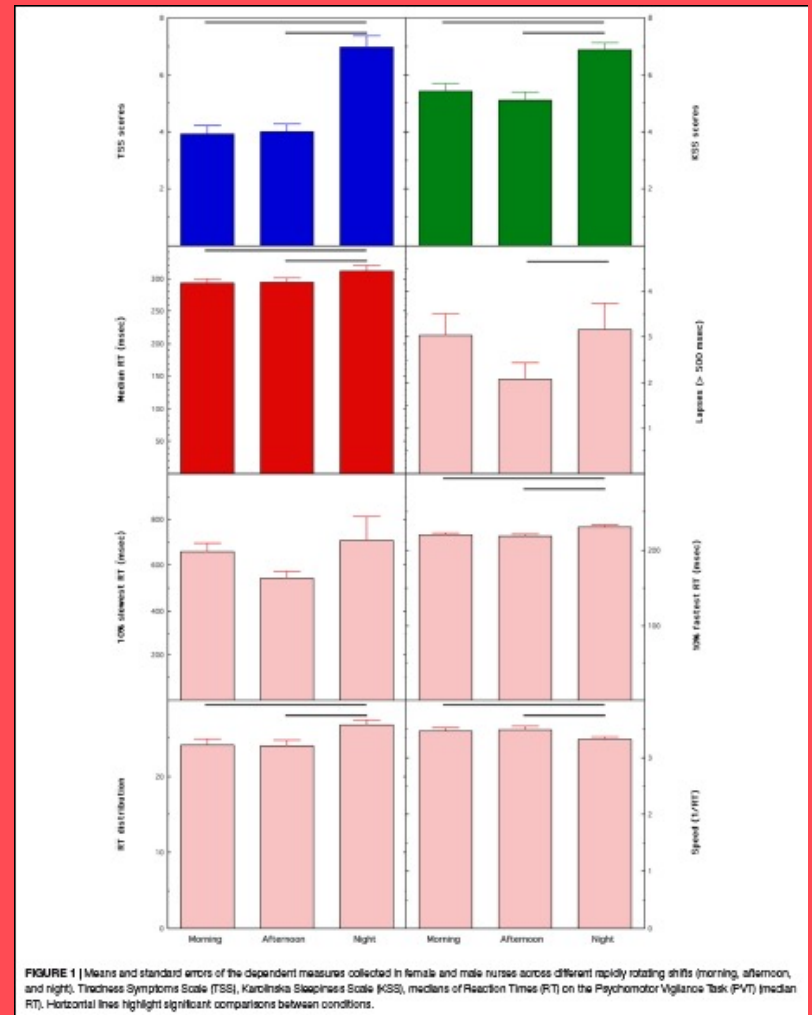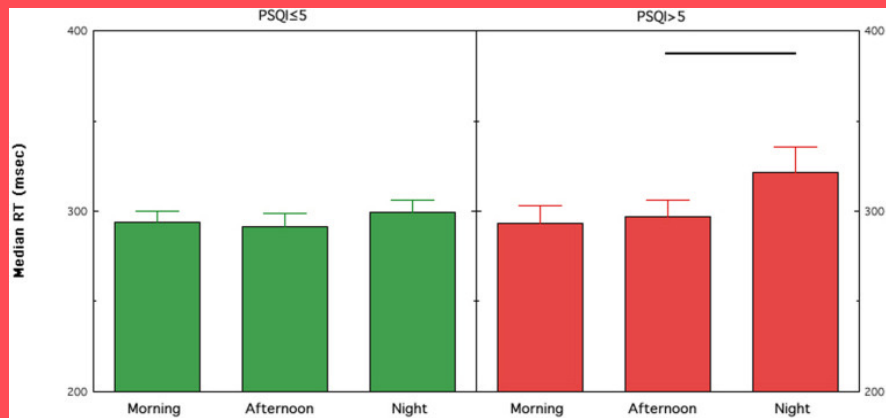
Figure 1. Means and standard deviations of the dependent variable measures in the sample of Italian nurses collected across different rapidly rotating shifts (morning, afternoon, and night). Panel A = scores at the Tiredness Symptoms Scale (TSS), panel B = scores at the Karolinska Sleepiness Scale (KSS), and panel C = medians of Reaction Times (RT) at the Psychomotor Vigilance Task (PVT).

FIGURE 1 | Means and standard errors of the dependent measures collected in female and male nurses across different rapidly rotating shifts (morning, afternoon, and night). Tiredness Symptoms Scale (TSS), Karolinska Sleepiness Scale (KSS), medians of Reaction Times (RT) on the Psychomotor Vigilance Task (PVT) (median RT). Horizontal lines highlight significant comparisons between conditions.
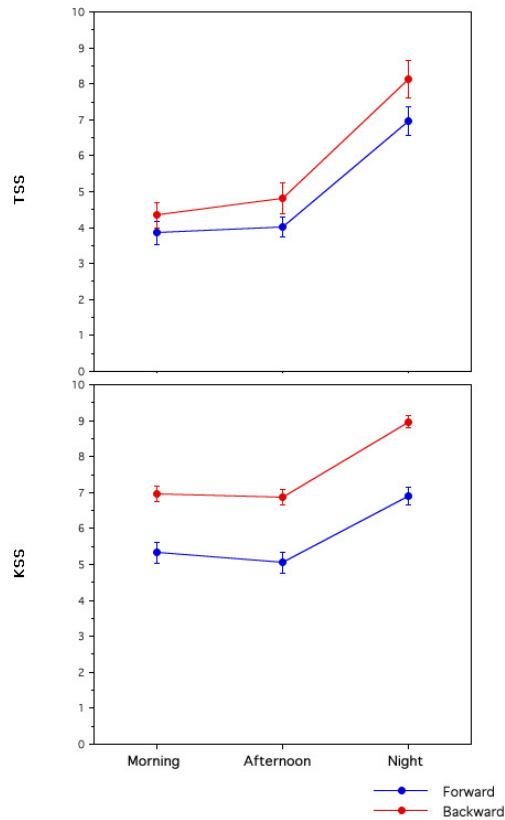
PVT discrimina regimi diversi di turni
(orario e antiorario)