NIGHT-WORK AND HEALTH
a study on a population of workers in the Metropolitan Area of Florence, Italy

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24-hours society

Tesco extra supermarket, Manchester open 24 hours a day Monday to Saturday

In the contemporary 24-hours society night-work affects almost all areas of employment, representing an emerging issue in Occupational Health

Night work and health

Man is a diurnal animal

Potential costs

Company

Worker

Society

Aims of the study

Evaluation of the impact of night work on health

Identification of intervention strategies

Social welfare

Population of the study

Led administration to 359 workers of the AIMS screening questionnaire for occupational physicians with our integrations
Group 1
n = 140
M 109 + F 31
No night shifts (NS)
average age: 46.46 ± 8.49 years
average BMI: 25.66 ± 3.37 Kg/m²

Group 2
n = 85
M 68 + F 17
< 80 NS per year
average age: 43.04 ± 8.04 years
average BMI: 25.69 ± 3.34 Kg/m²

Group 3
n = 50
M 50 + F 0
80 - 150 NS per year
average age: 43.31 ± 9.51 years
average BMI: 27.12 ± 3.19 Kg/m²

Group 4
n = 81
M 78 + F 3
> 150 NS per year
average age: 42.57 ± 8.40 years
average BMI: 27.41 ± 3.63 Kg/m²

Average age
43.96 ± 8.70 years (range 21-67)

Average BMI
26.28 ± 4.18 Kg/m² (range 17.19-42.45)

Overweight and obesity

Overweight 25 Kg/m² ≤ BMI < 30 Kg/m²
p = 0.05

Obesity BMI ≥ 30 Kg/m²
p = 0.05

Overweight + obesity (BMI ≥ 25 Kg/m²)

p < 0.0001

Sleepiness

Excessive daytime sleepiness (EDS)
p < 0.0001

Daytime falling asleep
p < 0.001

Sleep apnea

Subjects that had already received the diagnosis of OSAS by a physician
p < 0.005

Cardiovascular diseases

All cardiovascular diseases
p = 0.05

Hypertension
p = 0.05

Among those who answered yes:

Referred sleep apnea
p = 0.05
Gastrointestinal diseases

p < 0.0001

Diabetes

p = 0.1414

Menstrual disorders

p = 0.0542

Mood disorders

G1 vs G2 vs G3 vs G4: p = 0.0682
G1 vs G2+G3+G4: p < 0.05

Medium/high consumption of caffeine p < 0.01
- coffee ≥ 3/day
- soft drinks ≥ 2/day
- energy drinks ≥ 3/week

Cigarette smoking habit p < 0.05

Psychoactive substances consumption

No significant differences regarding alcohol and hypnotic drugs intake

Occupational- and work-accidents

p = 0.2555

p < 0.001
Accidents and BMI

G4: better results than in G3?

**Hypotheses**
- In people who constantly work at night there may be a resynchronization of the circadian rhythm with a reverse reset effect
- Possible "healthy worker" effect in G4
- Low compliance of G4 workers in responding to the questionnaire

**Intervention strategies**

1. Intervention on work organization
   - Regular shift cycles to allow more possible non-working weekends
   - 24 hours of rest after each night shift
   - Limit the number of consecutive nights (two at most)
   - Define the duration of the night shift considering the workload for each task
   - Ergonomic optimization of working places (lighting, microclimate, noise)

... and if isn't possible to choose a forward-rotating schedule?

1. Work organization
   - Forward-rotating schedule
     - It helps the natural extension of biological rhythms
     - It allows homogeneous periods of rest between each work shift

... need for intervention strategies!
2. Workers

The role of occupational physician

Health surveillance
Mandatory according to D.Lgs. 81/2008

Health promotion
Optional participation of workers

Preventive actions

collective
Lifestyle
Sleep hygiene
Substances of abuse

individual
Clinical parameters
Routine blood tests
Risk factors

Night work and nutrition

Dietary habits may be influenced by living with variable times

Canteen open during the night
It offers a hot and good quality meal
It educates the workers to a regular feeding

Economic benefits

Increased productivity
Costs reduction
Optimization of human resources

A well done shift scheduling
A really effective intervention

Thanks