


Effects Of Alternating East-West Rotations On Aircrew Fatigue

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Statement



Authors have not received non-governmental or non-academic support or funding for the material which we intend to present

Both authors are employees of Air France. Their opinion does not necessarily reflect the views of Air France

Questionnaire

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- During systematic occ.med. follow up
 - Criteria:
 - At least 4 rotations during last 6 weeks
 - Exclusion return to work after sickness or on request exams
 - Inclusion of 296 cabin crew, 61 captain, 96 F/O
 - Main outcome: Samn-Perelli fatigue scale

Samn-Perelli fatigue checklist

1. Fully alert, wide awake

2. Very lively, responsive, but not at peak

3. Okay, somewhat fresh


4. A little tired, less than fresh

5. Moderately tired, let down

6. Extremely tired, very difficult to concentrate

7. Completely exhausted, unable to function effectively

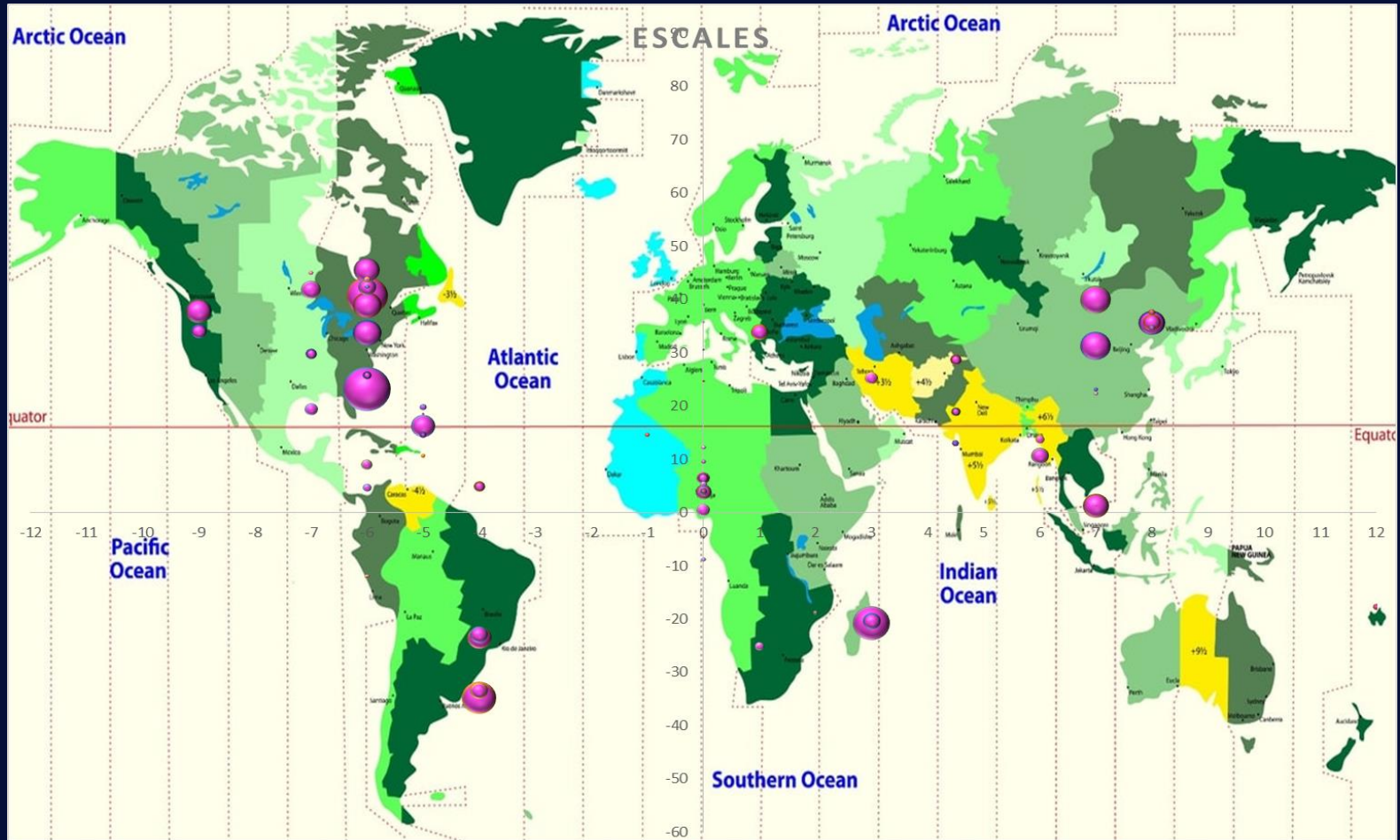
Fatigue, Sleepiness, Sleep Quality : frequent complaints



	Cabin Crew n = 295	Captain n = 61	First Officer n = 96
Age	44.1	55.1	44.7
Commuting (mn/d)	118.0	89.6	109.3
Epworth Score	10.8	9.7	11.2
% Epworth > 10	51.2 %	42.6 %	54.2 %
Sleep quality	2.62	2.37	2.50
Sleep problems	50.0 %	41.0 %	41.7 %
On sleeping pill	17.6 %	11.5 %	20.8 %

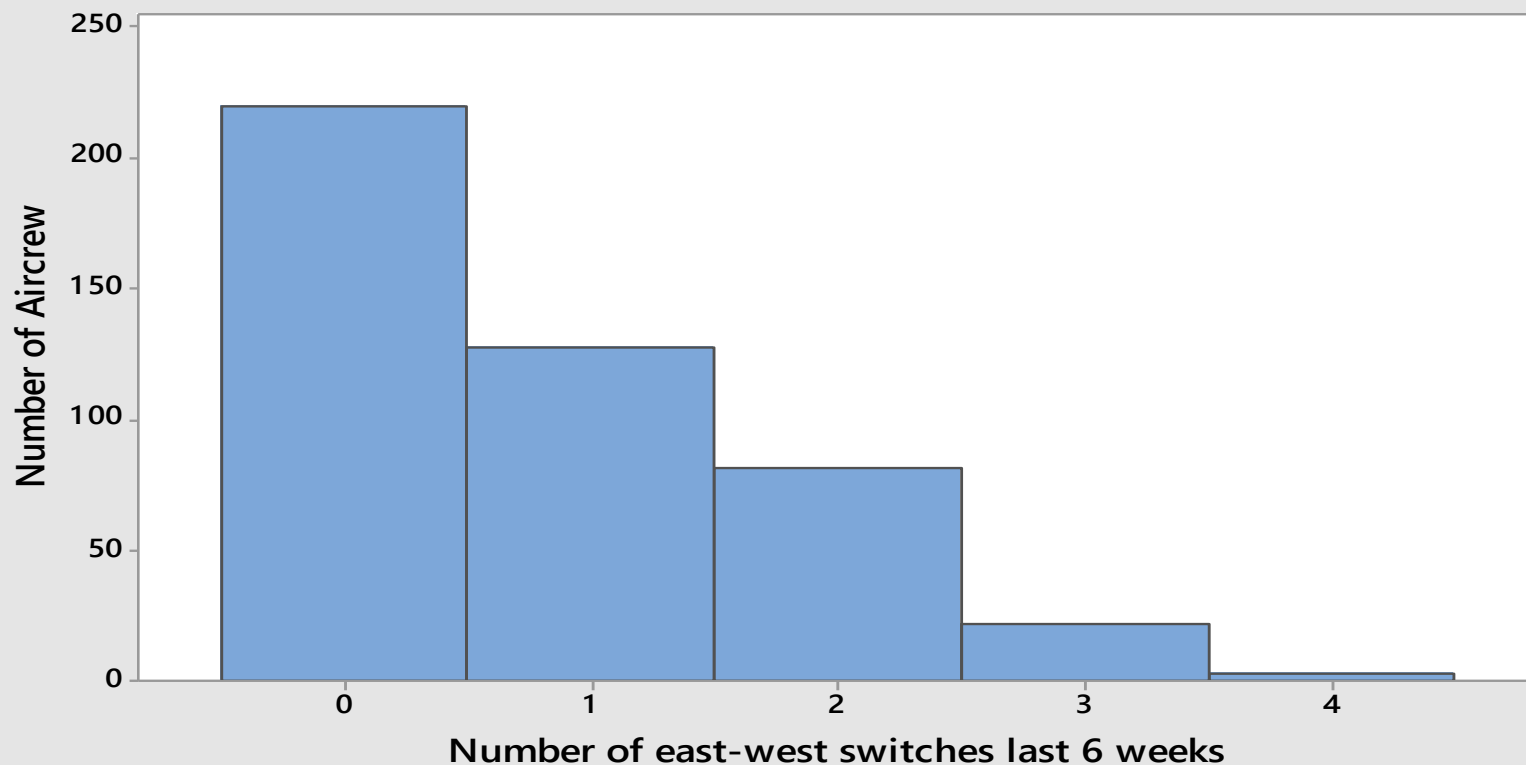
Overall differences are not statistically significant
(Except for internal comparison in pilots)

The Air France network : layovers mentioned in the questionnaire



East-West alternances are common

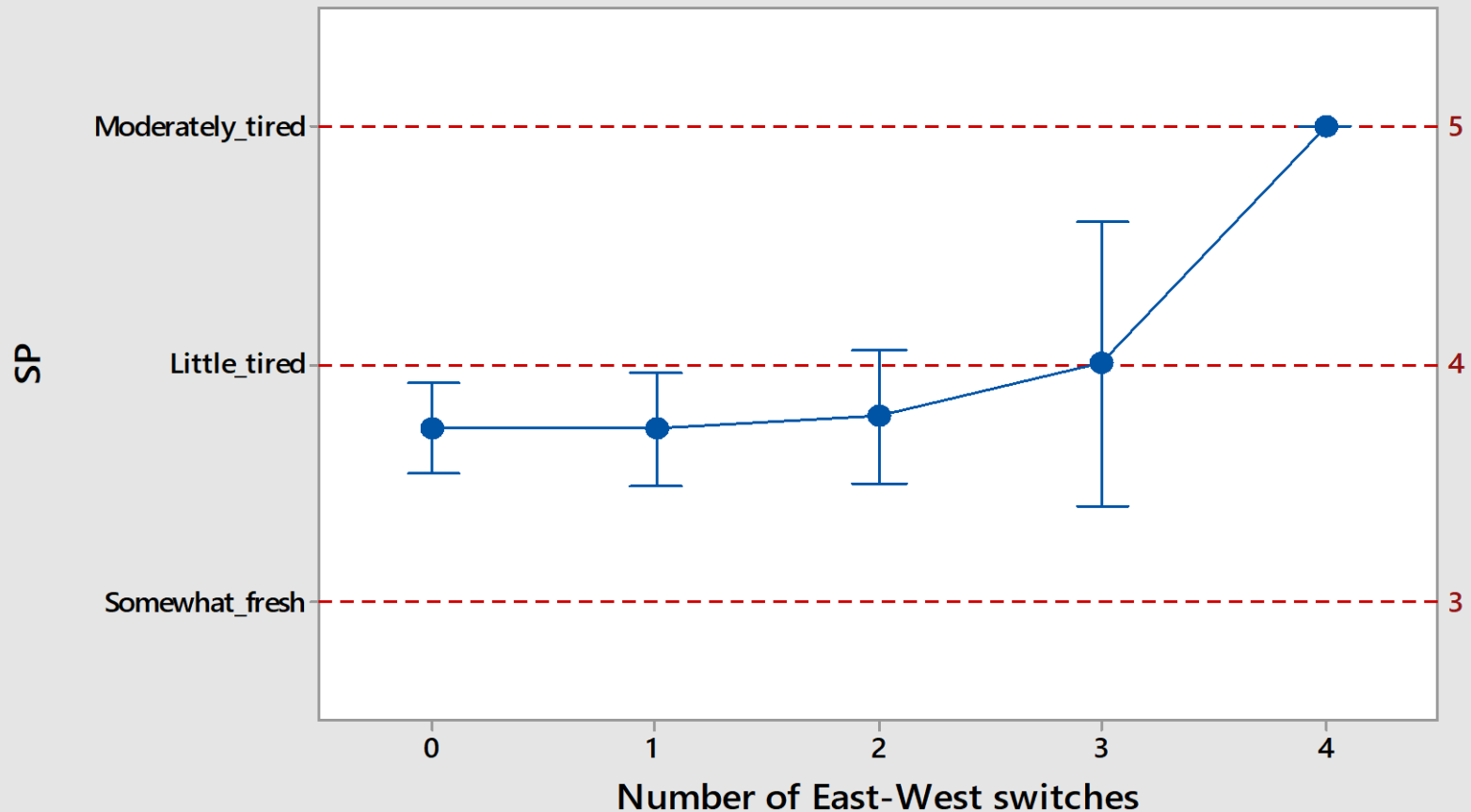
Distribution of aircrew by the count of east-west switches last 6 weeks



Alternance are defined by a difference of minimum 3 h combined to an opposite jetlag between 2 consecutive layovers

Small relationship between SP score and count of E/W switches

Samn-Perelli score by the count of alternances



Combining jet lag and E/W alternance : the GK_i index



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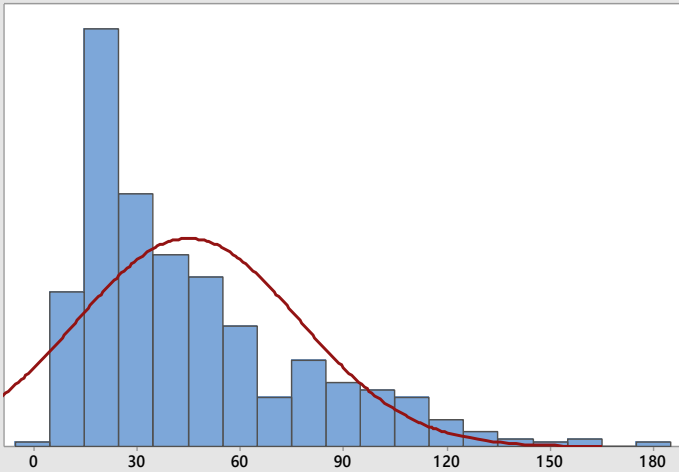


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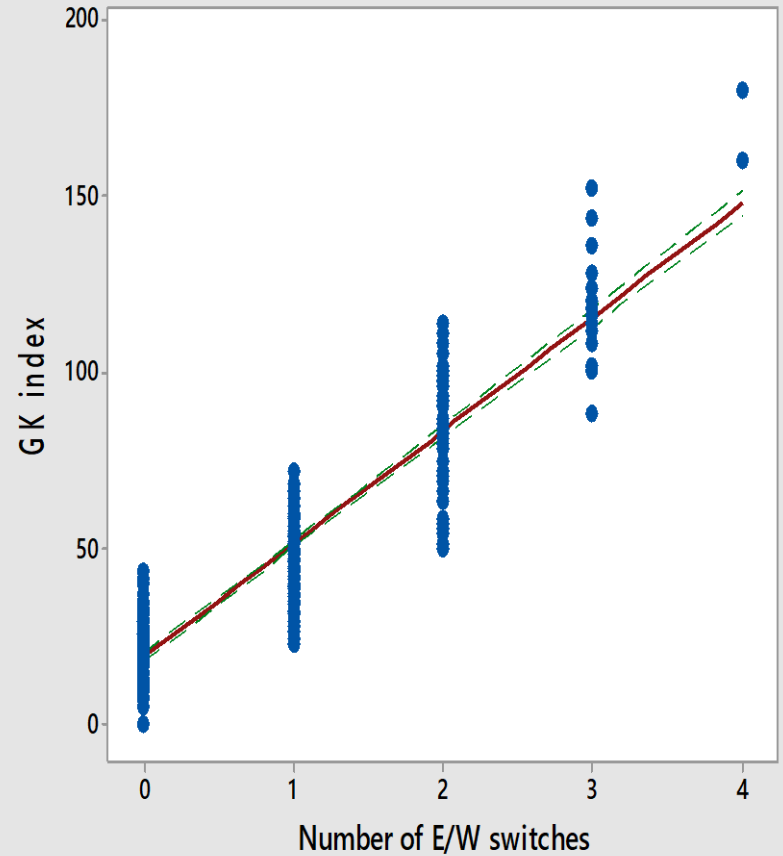
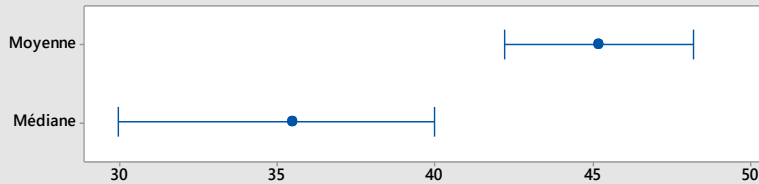


$$\sum[|jetlag| \times (1 + EWswitches)] = GK_i$$

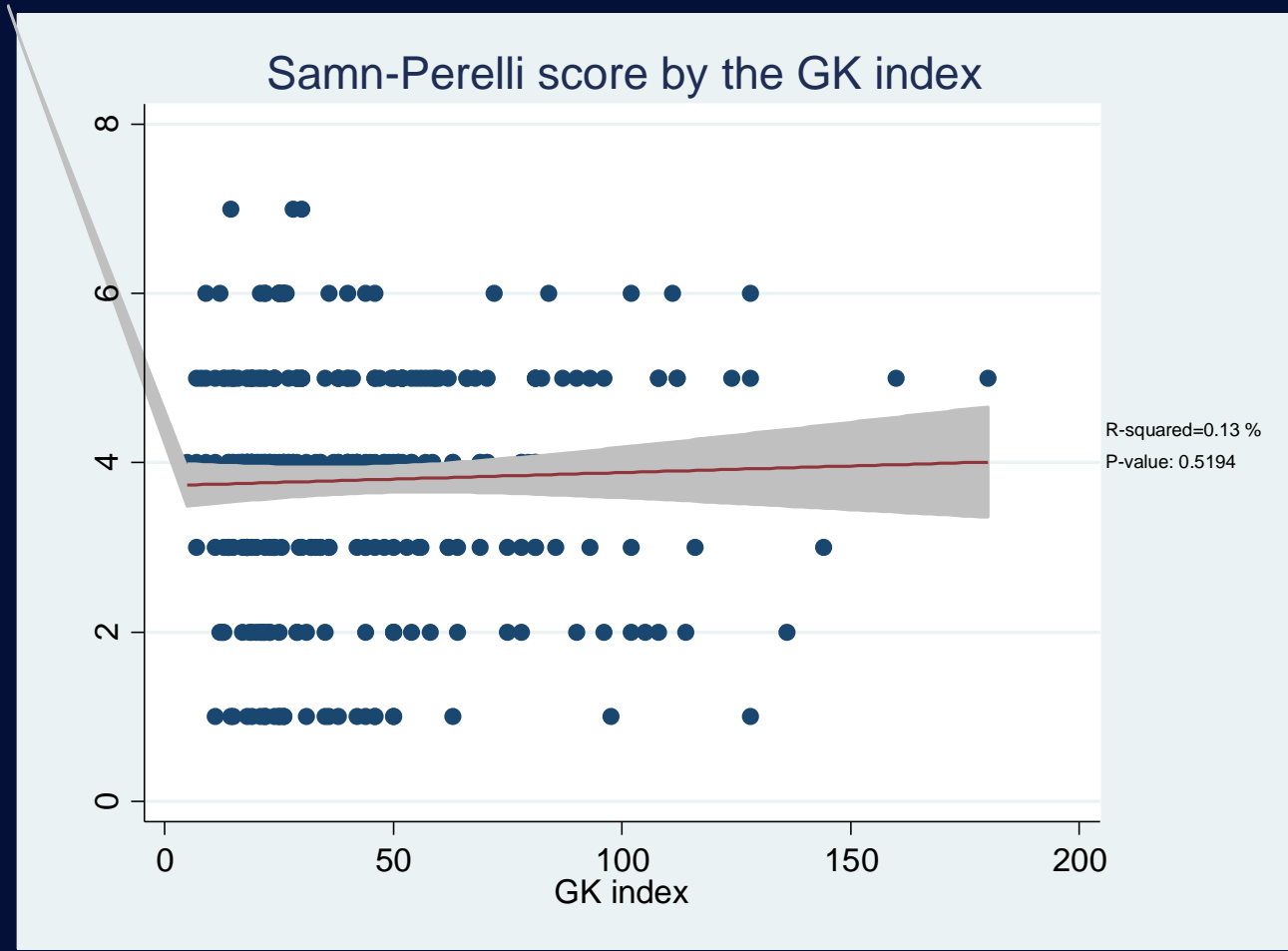
GK_i properties



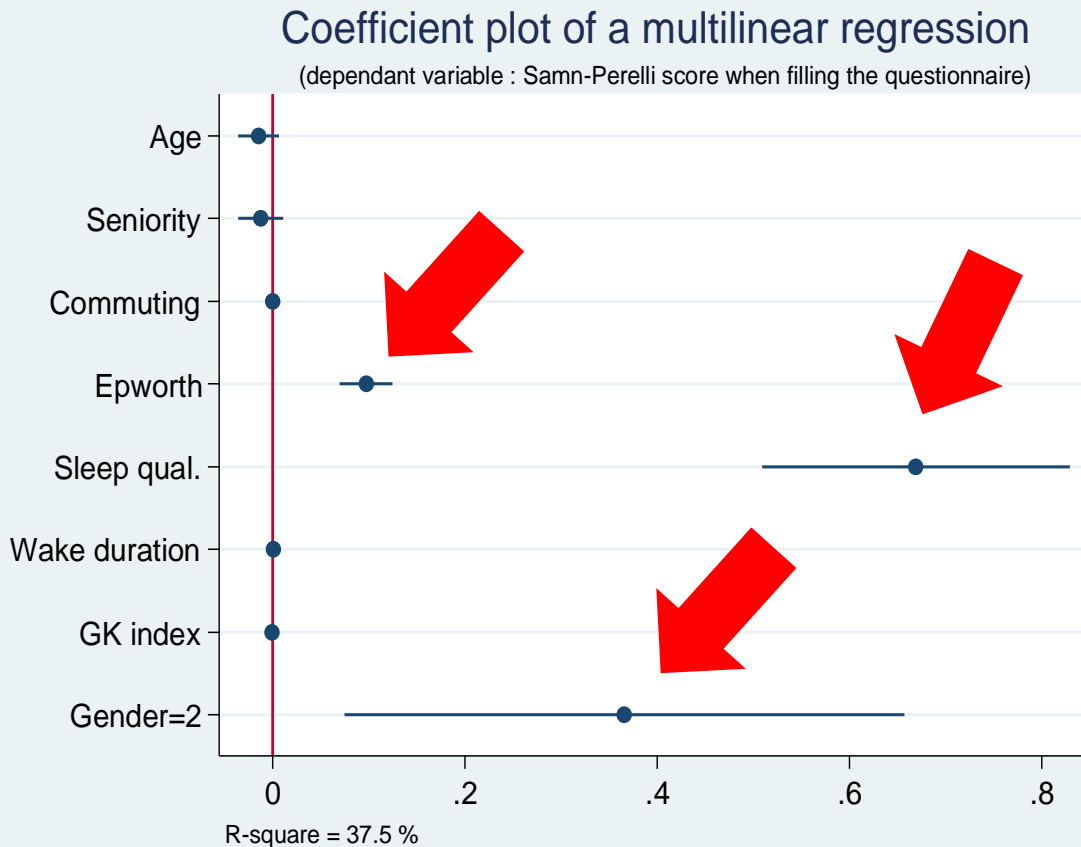
Intervalles de confiance = 95 %



No univariate relationship between GK_i and Fatigue ...



...Neither in multivariate analysis



- No relationship with the strain index
- But some link with sleep quality, somnolence and being female

In summary

- No link in multivariate analysis between fatigue, intensity of jet lag and E/W alternance during the last 6 weeks
- According to crew, airlines should minimize E/W alternance at 1 per month
- Despite these results, the occupational medicine department supports this recommendation on the basis of
 - Bad baseline sleepiness and fatigue scores
 - Fear of enhanced consumption of sleeping medications

Questions ?

