Stress Research Institute

Stockholm University

Eating patterns and sleepiness among truck drivers

Martins AJ[1], Martini LA[1], Lowden A[2], Moreno CRC[12]
[1]School of Public Health, University of São Paulo, Brazil, [2]Stress Research Institute, Stockholm University, Sweden

Introduction and Aim

Eating pattern deals with timing and content of food intake among the population. The investigation of eating patterns allows us to gain knowledge on availability and choice of food in a specific place by a given target group. The research about food patterns is of great importance for the discussion and development of more appropriate dietary strategies for shift and night workers. In this context, the aim of this study was to identify eating patterns and the possible association with sleepiness in long haul and short haul truck drivers.

Methods

A questionnaire on sociodemographic aspects, lifestyle, and work conditions was applied. A 24-hour food intake recall was also used during two working days work and one day off. The Karolinska sleepiness scale (KSS) was filled out every three hours for ten days.

To obtain the patterns of diet, we conducted a principal components analysis, with 22 food groups as variables. Food groups were included in the pattern when the factor loadings reached 0.3. Linear Mixed Model analysis in order to verify the existence of significant differences between the means of sleepiness of drivers according to dietary patterns, shift, day, and time of collection (time bands) was performed also giving interaction effects between these variables.

Results

Three eating patterns were found, Brazilian "traditional" food (beans, rice, breads, coffee/tea, juices, white meat, and sausages); "prudent" (or "healthy diet" which contains roots and tubers, dairy products, eggs, vegetable, olive oil, and breakfast cereals); "western" (fast foods, soft drinks, sauces and pates, sausages, and breakfast cereals). Taken together these patterns explained 34.9% of total variance of food intake (Table 1). Statistical analysis revealed significant differences in mean levels of sleepiness between long and short haul drivers ($p < 0.01$) short haul drivers being more sleepy (KSS=3,77, IC 95% 3,65- 3,87) than long haul drivers (KSS=3,28, IC 95% 3,15- 3,40).
An interaction effect between eating patterns, working time and time of day ($F = 4,876$ $p < 0.01$) was found (Figure 1A and 1B). The short haul drivers who had the prudent diet were more alert during the day than those eating traditional or western food (Figure 1A). However, there were no differences regarding sleepiness according to eating patterns among long haul drivers.

Conclusion

Our findings show an association of diet with sleepiness especially with regard to the healthy pattern. Further studies should be conducted to better understand the relationship between food content and sleepiness as well as its association with shift and night work.

Table 1 – Factor loading regarding three eating patterns obtained by principal components analysis from the truck drivers'diet (n=52).

	Eating pattern		
Food group	**Traditional**	**Prudent (Healthy)**	**Western**
Fruits			
Vegetables	-0.3131		-0.4124
Beans	0.7944		
Tubers vegetables		0.7038	
Rice, bread & cakes	0.7787		
Cereals		0.3397	0.4727
Dairy & eggs		0.5847	
Vegetal Oils		0.4623	
Juices	0.5166		
Processed meats	0.5003	-0.3848	0.3689
Fish & chicken	0.4760		-0.3375
Meat			
Pasta & Fast food			0.7954
Fried food, animal fat & mayonnaise		-0.3811	
Sugar & desserts			
Candies		-03282	
Coffee & tea	0.6074		
Soft drink			0.4349
Alcohol drinks		-0.6099	
Snacks		-0.4836	
Soup			
Patês & Sauce			0.6714
% Explained variance	0.1332	0.1081	0.0987

Figure 1A – Sleepiness (KSS) means in short haul drivers by eating patterns (n=52).

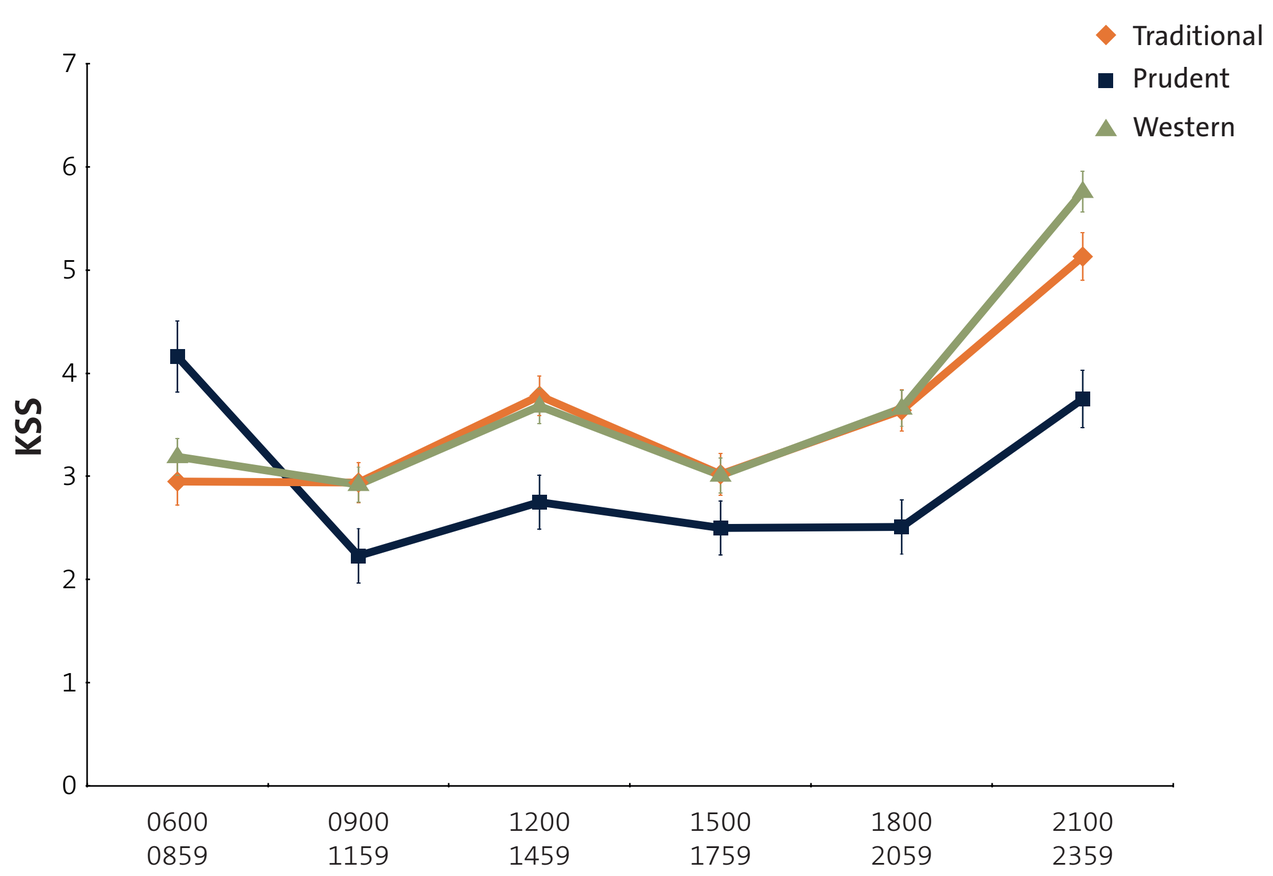
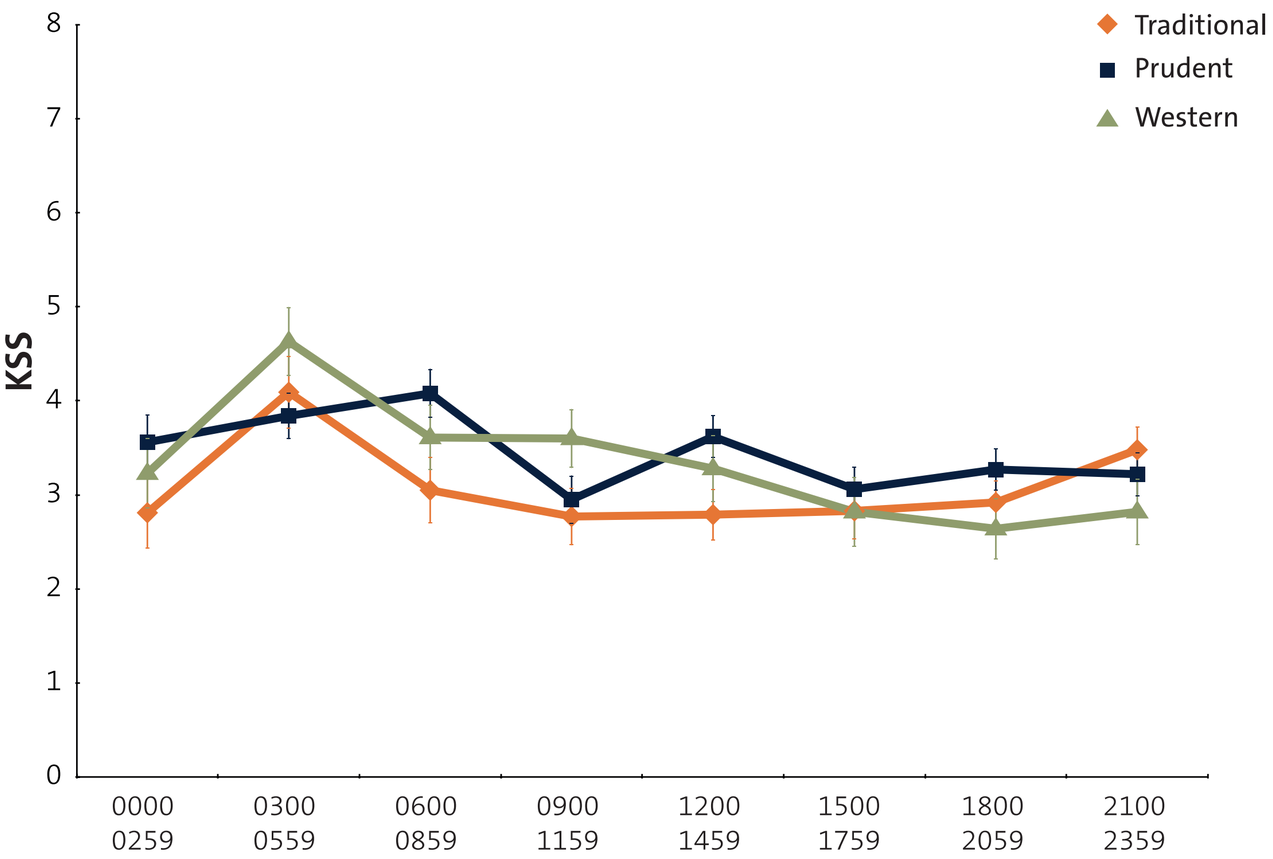


Figure 1B – Sleepiness (KSS) means in long haul drivers by eating patterns (n=52).



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E-mail info@stressforskning.su.se **Website** www.stressresearch.se

CONTACT
Claudia Moreno, Stress Research Institute, Stockholm, Sweden
E-mail crmoreno@usp.br