20130421 - Nutritional balance of wheat cravers (descriptive statistics)

[Data] [<Normal page] [**PEREZGONZALEZ Jose D (2012).** *Nutritional balance of wheat cravers (descriptive statistics).* Knowledge (ISSN 2324-1624), 2013, pages 74-77.]

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Wheat cravers' BNI (description)

Perezgonzalez assessed the nutritional balance of wheat cravers[3] in 2012[1], as part of a research on the nutritional composition of snacks in New Zealand. This article provides descriptive information both about the sample of products under research (foodBNI) as well as about a hypothetical diet based on those products (dietBNI).

foodBNI

The distribution of nutritional balance is shown in illustration 1. The median was located at BNI 55.65 and the middle 68% of products ranged between BNI 45 (P_{16}) and BNI 69 (P_{84}). There was a sensible positive skewness (mean=58.39, zSkew=3.68), probably exacerbated by the most extremely unbalanced product within the small sample.

The distribution of nutritional balance varied slightly according to the particular recommended dietary intakes (RDIs) of reference, although all distributions followed a pattern similar to the one just described. Even so, this group of products appeared less unbalanced under WHO's, UK's, Australia's and, especially, US's RDIs.

Illustration 1: Food's nutritional balance distribution

		International RDIs			
Scale	**BNI**	**WHO**	**US/CAN**	**AUS/NZ**	**UK**
=0					
>0					
≥10					
≥20		1	3		2
≥30		3	7	5	4
≥40	6	7	9	7	7
≥50	7	6	2	7	6
≥60	7	4	1	3	3
≥70	2	1			
≥80			1	1	1
≥90					
≥100	1	1			
≥110					

≥120					
≥130					
≥140					
≥150					
≥160					
≥170					
≥180					
≥190					
≥200					
Median	55.65	52.15	43.85	49.49	48.21
SPR	11.62	15.73	10.55	10.95	15.08
P_{16}	45.37	33.64	30.44	39.65	31.38
P_{84}	68.61	65.10	51.54	61.54	61.54
RSkew	1.34	-2.78	-2.86	1.11	-1.75
Mean	58.39	52.84	43.48	51.28	49.43
StDev	14.02	17.02	12.94	12.00	14.07
zSkew	3.68	2.60	3.36	3.17	1.52
zKurt	5.05	3.13	4.20	3.78	1.95
Unstandardized	small	medium	large	(Avg.StDev)	
effect size[4]	3	7	11	(14)	

Correlations between indexes were high, thus supporting the idea of a common pattern in the distribution of nutritional balance across international indexes for this particular group of products.

Illustration 2: Correlations (Pearson and Spearman)					
r / rho	BNI	WHO	US/CAN	AUS/NZ	UK
BNI		.916	.954	.897	.914
WHO	.966		.947	.774	.796
US/CAN	.973	.970		.883	.892
AUS/NZ	.952	.897	.953		.993
UK	.941	.913	.946	.972	

dietBNI

As part of a hypothetical diet where all products contributed the same weight of cravers, the resulting nutritional unbalance of such diet would remain practically unchanged for most indexes, and it would only improve slightly when assessed using the US index (ie, 43.48 - 40.07 = 3.41, as small difference as per the unstandardized effect size for this group).

Illustration 3: Diet's nutritional balance						
Protein	Carbs	Sugar	Fat	Sat.fat	Fiber	Sodium
9.1	64.6	2.9	17.7	3.8	0.7	881.5

International RDIs	BNI	WHO	US/CAN	AUS/NZ	UK
(diet)	55.71	51.44	40.07	50.71	48.41
(Values per 100g)					

Methods

Research approach

Exploratory study for mapping the nutritional balance of wheat cravers[3] in New Zealand.

Sample

A sample of 23 wheat craver products, including diverse brands and flavors, and other relevant categories *(see Perezgonzalez, 2012a[1])*. Notwithstanding this, the actual products were collected in a convenient manner from four major national supermarket chains. The final sample covered most of the population of wheat craver products available at those supermarkets.

Variables

Variables of interest for this research were the following:

- Weight contribution of seven nutrients (protein, carbohydrate, sugar, fat, saturated fat, fiber and sodium) to 100g of a food product.
- The Balanced Nutrition Index (BNI) of each food product, as calculated from above variables.
- Aggregated information for the sample of products (foodBNI).
- Aggregated information about the individual nutrients for the simulation of hypothetical diets (dietBNI).

Materials & analysis

Relevant data were collated after purchasing the food products or by capturing such information from producers' websites if this information was available and was deemed reliable. The data were then assessed using the Balanced Nutrition Index™ (BNI™) technology *(see Perezgonzalez, 2012b[2])*.

SPSS-v18 was used for the computation of variables, including BNI and international indexes, and for descriptive statistical analyses.

Generalization potential

Although the research sample captured a large proportion of the wheat craver products available at the time, the resulting sample is still too small as for inferring anything beyond the group of products here described. It is recommended to collate the data from this group with that of related groups of products if inferential analyses are intended.

References

1. **PEREZGONZALEZ Jose D (2012a).** *Yummy cravers*. The Balanced Nutrition Index (ISSN 1177-8849), 2013, issue 1.
2. **PEREZGONZALEZ Jose D (2012b).** *Balanced Nutrition Index™ (BNI™) (2e)*. Knowledge (ISSN 2324-1624), 2013, pages 38-40.

+++ **Notes** +++

3. Savory wheat crackers manufactured so as to compete in the same niche than chips and crisps.
4. This is the estimated unstandardized effect size for group differences (Cohen's d and Glass's Δ) given an average standard deviation and following Cohen's d effect size interpretation. It can be used to ascertain the relative importance

of descriptive data without the need to perform inferential tests.

Want to know more?

BNI analysis of individual wheat craver products

You can access either the BNI™ database or the 'BNI™ journal (2013, issue 1) - Yummy cravers' for individual nutrition analyses of each food product in the sample.

Wiki of Science - Nutritional balance of foods

This Wiki of Science page collates information about several foods on a single page and provides useful links to the appropriate files.

Wiki of Science - Nutritional balance of wheat cravers (introduction)

This Wiki of Science page provides an introductory descriptive analysis of the nutritional balance of wheat cravers.

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Other interesting sites				
Journal KAI	Wiki of Science	AviationKnowledge	A4art	The Balanced Nutrition Index

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