False self-perception of functional Health Literacy in North Rhine-Westphalia

Identifying endangered groups using the HLS•EU Data

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GESUNDHEITSCAMPUS
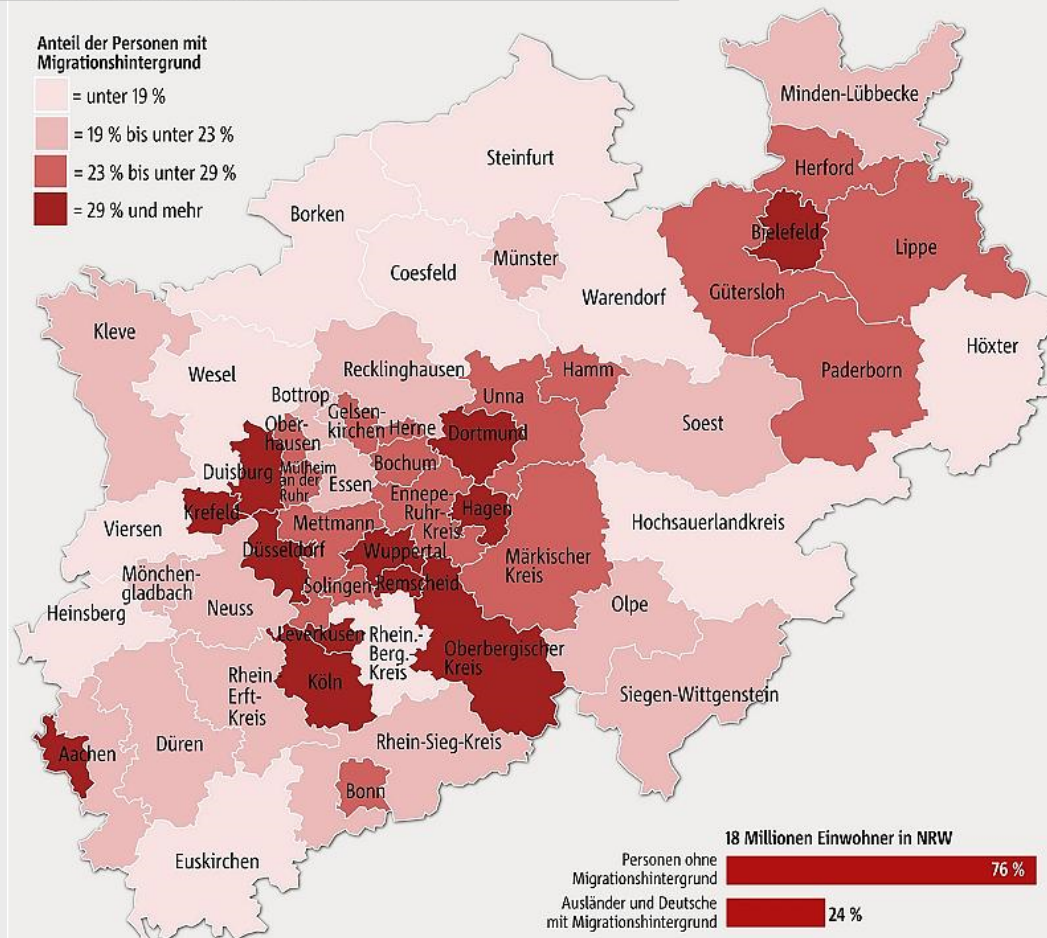NORDRHEIN-WESTFALEN

The HLS•EU in NRW

NRW

Source: wikimedia commons

- Carried out by TNS Infratest

- Field: July 7-27 2011

- Target group: citizens 15+ yrs with EU-citizenship, living in NRW (ca. 15.3 mil)

- Eurobarometer Technique (CAPI etc.)

- 328 Sampling points (NUTS II)

- 76 Interviewer

- 1057 Interviews Ø 23 min (9-95 min)

- 57% Response

Population in NRW with migration background
Census 2009

Anteil der Personen mit Migrationshintergrund
- = unter 19 %
- = 19 % bis unter 23 %
- = 23 % bis unter 29 %
- = 29 % und mehr

18 Millionen Einwohner in NRW

Personen ohne Migrationshintergrund	76 %
Ausländer und Deutsche mit Migrationshintergrund	24 %

Source: it.nrw

Special characteristics of the HLS•EU NRW sample

compared to the 7 other participating project partners:

- Highest age mean (48.4 yrs.)
- Highest rate of retired persons (30.2 %)
- Highest rate of citizens with migration background (20.6 %)
- Other charac. Ø

Overview of HLS•EU indices

HLS-EU matrix: Survey numbering	Finding information on health	Understanding information on health	Appraising/Judging information on health	Applying information on health
Health care	Q1.1 Q1.2 Q1.3 Q1.4	Q1.5 Q1.6 Q1.7 Q1.8	Q1.9 Q1.10 Q1.11 Q1.12	Q1.13 Q1.14 Q1.15 Q1.16
Disease prevention	Q1.17 Q1.18 Q1.19 Q1.20	Q1.21 Q1.22 Q1.23	Q1.24 Q1.25 Q1.26 Q1.27 Q1.28	Q1.29 Q1.30 Q1.31
Health promotion	Q1.32 Q1.33 Q1.34 Q1.35 Q1.36	Q1.37 Q1.38 Q1.39 Q1.40	Q1.41 Q1.42 Q1.43	Q1.44 Q1.45 Q1.46 Q1.47

HLS-EU Consortium (2011): HLS-EU-Q47. The European Health Literacy Questionnaire: Original matrix-related version with item numbers used in the European Health Literacy Survey 2011
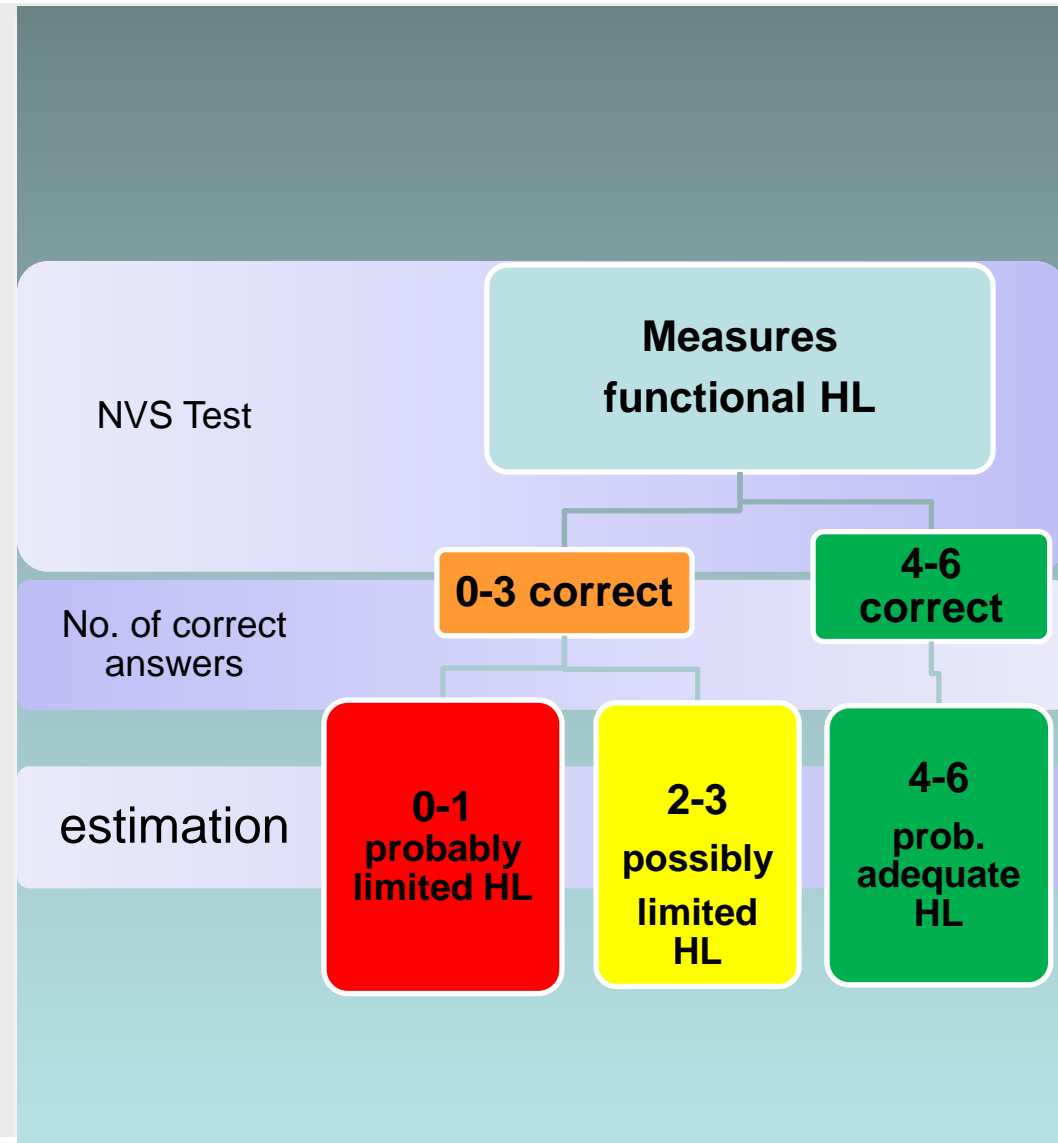
4 HLS•EU Health Literacy Indices for NRW

Legend: ■ inadequate HL ■ problematic HL ■ sufficient ■ excellent
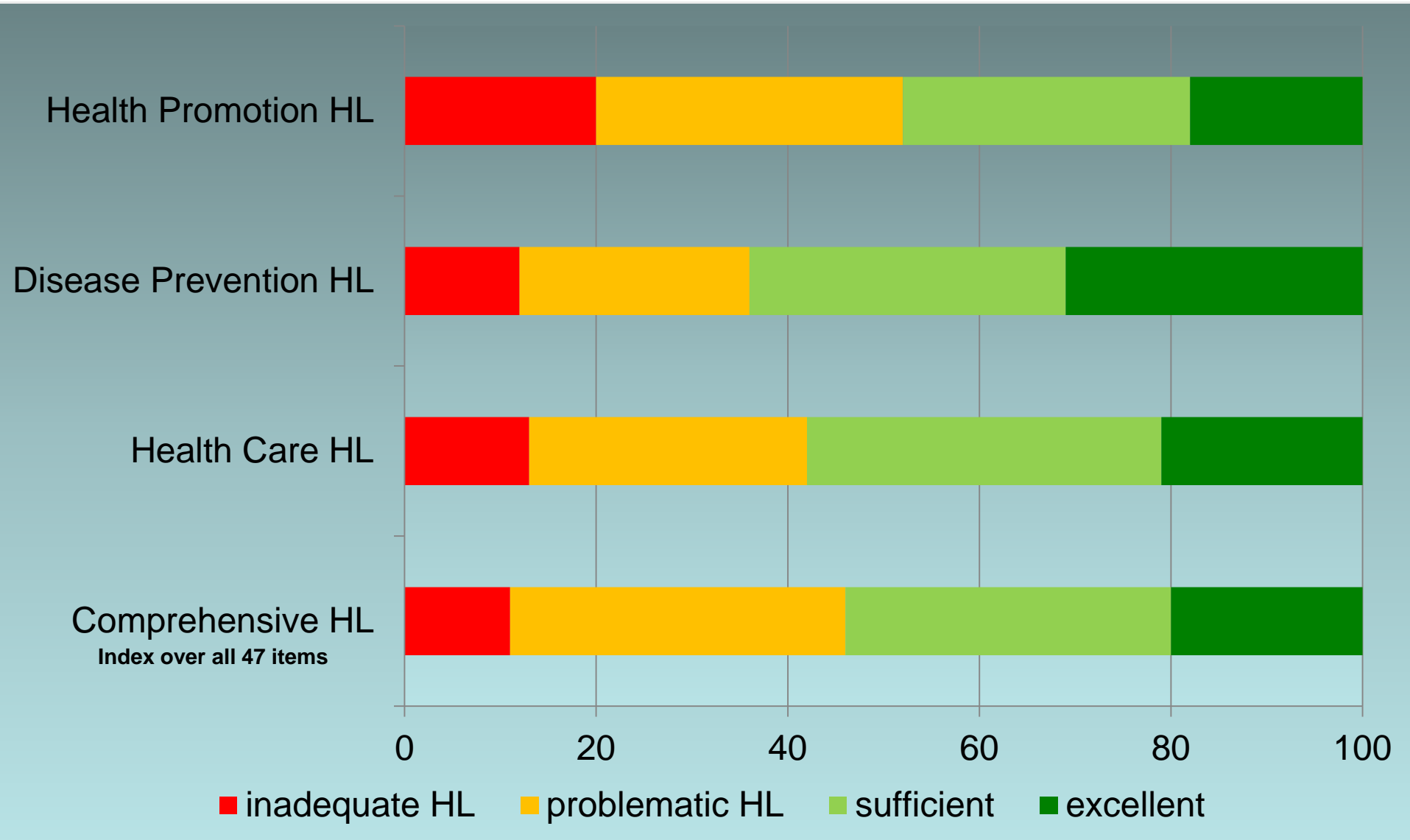
NVS: „Newest Vital Sign"-Test

Nutrition Facts

Serving Size	½ cup
Servings per container	4

Amount per serving

Calories	250	Fat Cal	120

	%DV
Total Fat 13g	20%
Sat Fat 9g	40%
Cholesterol 28mg	12%
Sodium 55mg	2%
Total Carbohydrate 30g	12%
Dietary Fiber 2g	
Sugars 23g	
Protein 4g	8%

*Percentage Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.
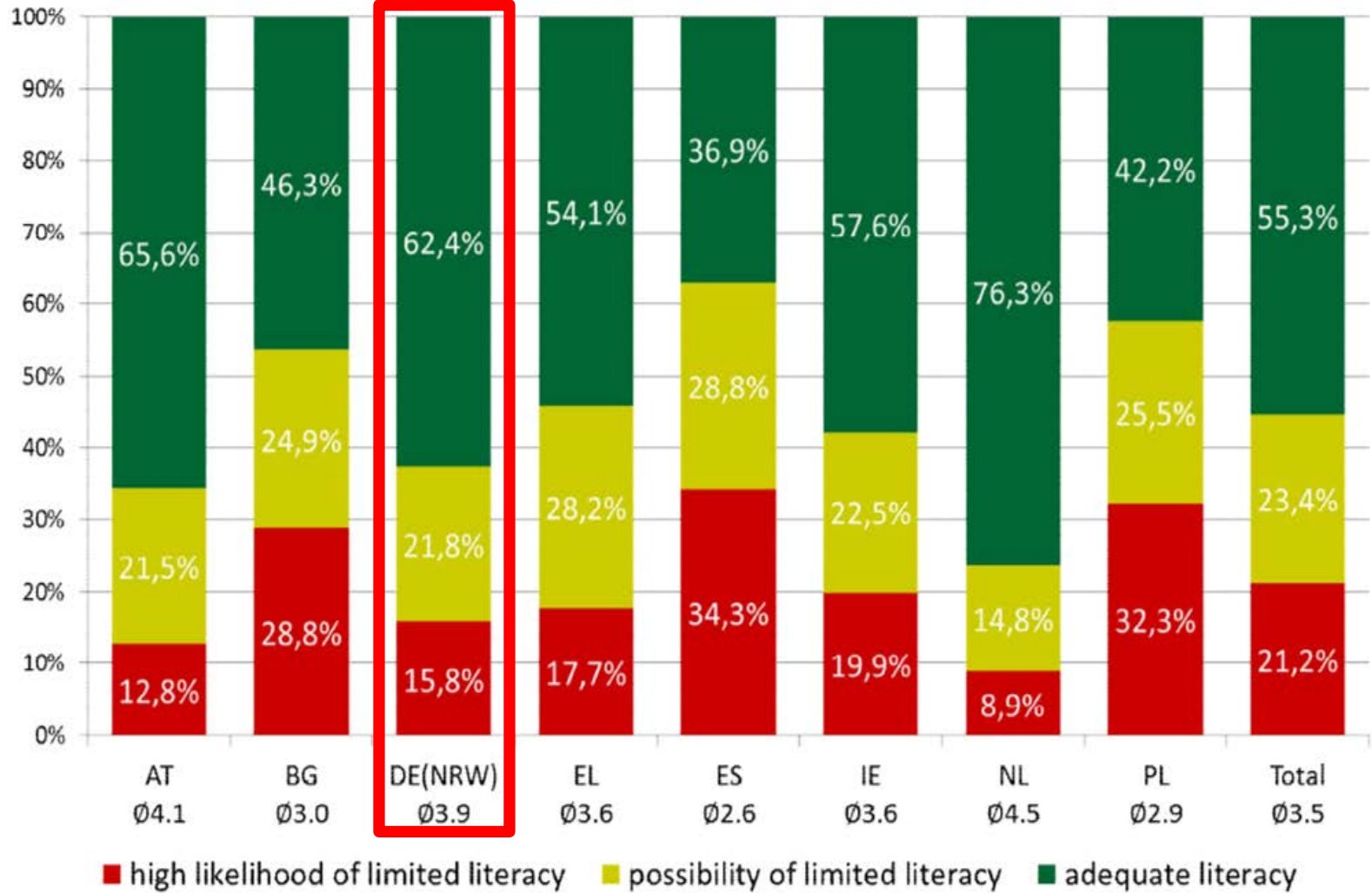
Ingredients: Cream, Skim Milk, Liquid Sugar, Water, Egg Yolks, Brown Sugar, Milkfat, Peanut Oil, Sugar, Butter, Salt, Carrageenan, Vanilla Extract.

Source: The Newest Vital Sign (Pfizer)

NVS Test → **Measures functional HL**

No. of correct answers
- 0-3 correct
- 4-6 correct

estimation
- 0-1 probably limited HL
- 2-3 possibly limited HL
- 4-6 prob. adequate HL

NVS-Test results for NRW

Source: www.health-literacy.eu

We want to compare the NVS-result (objective measure) with HLS•EU item 1.38 (subjective measure)….

Source:
foodwatch

Item 1.38 refers to domain „health promotion" and to the skill „understanding information"

HLS-EU matrix: Survey numbering	Finding information on health	Understanding information on health	Appraising/Judging information on health	Applying information on health
Health care	Q1.1 Q1.2 Q1.3 Q1.4	Q1.5 Q1.6 Q1.7 Q1.8	Q1.9 Q1.10 Q1.11 Q1.12	Q1.13 Q1.14 Q1.15 Q1.16
Disease prevention	Q1.17 Q1.18 Q1.19 Q1.20	Q1.21 Q1.22 Q1.23	Q1.24 Q1.25 Q1.26 Q1.27 Q1.28	Q1.29 Q1.30 Q1.31
Health promotion	Q1.32 Q1.33 Q1.34 Q1.35 Q1.36	Q1.37 Q1.38 **how easy would you say it is to understand information on food packaging?** Q1.39 Q1.40	Q1.41 Q1.42 Q1.43	Q1.44 Q1.45 Q1.46 Q1.47

HLS-EU Consortium (2011): HLS-EU-Q47. The European Health Literacy Questionnaire: Original matrix-related version with item numbers used in the European Health Literacy Survey 2011

Overview of comparison via crosstabulation

Self-overestimating participants

NVS_result * Q1_38GP Crosstabulation

			understanding food labels		
			difficult / very difficult	easy / very easy	Total
NVS_result	limited functional health literacy	Count	257	130	387
		% of Total	24,8%	12,6%	37,4%
	probably adequate functional health literacy	Count	306	342	648
		% of Total	29,6%	33,0%	62,6%
Total		Count	563	472	1035
		% of Total	54,4%	45,6%	100,0%

Item 38: Self-perceived difficulty with understanding food labels

NVS score	Item 38	% of Gender		% of Age				% of ISCED			% of Migration	
		Men	Women	15-29	30-35	46-64	65+	Low	/middle/	high	yes	no
⬆ 33% ⬆		46	54	43	36	31	13	26	38	30	35	32
⬆ 30% ⬇		33	27	29	38	28	23	24	26	42	21	32
⬇ 25% ⬇		22	27	21	15	23	40	36	24	12	27	25
⬇ 13% ⬆		13	12	8	11	14	16	14	13	11	17	12

What factors influence self-overestimation?

Logistic Regression Analysis A

self-overestimation (1) vs. All others (0)

Basis: Participants showing low NVS scores (0-3 points)
(n = 387)

NVS_result * Q1_38GP Crosstabulation

			understanding food labels		
			difficult / very difficult	easy / very easy	Total
NVS_result	limited functional health literacy	Count	257	130	387
		% of Total	24,8%	12,6%	37,4%
	probably adequate functional health literacy	Count	306	342	648
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Total		Count	563	472	1035
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Independent Variable	b (beta Weights)	S.E.	Wald	Sig.	Exp (b)	95% C.I. for exp(b)
Self-perceived social status medium (vs. Ref=low)	0.798	0.306	6.808	0.009	2.221	[1.22; 4.05]
Self-perceived social status high (vs. Ref=low)	0.823	0.372	4.880	0.027	2.277	[1.097; 4.725]
Education high (vs. low)	0.651	0.339	3.687	0.055	1.918	[0.987; 3.728]
Constant	-1.678	0.426	15.490	0.000	0.187	

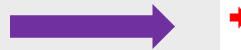Model Chi^2 = 19.924 p < .05   Nagelkerke's R^2 = .08   n = 387

What factors influence self-overestimation?

Logistic Regression Analysis B
self-overestimation (1) vs. All others (0)

Basis: Participants answering „easy / very easy" on Item 38 (n = 472)

NVS_result * Q1_38GP Crosstabulation

| | | | understanding food labels | | |
			difficult /very difficult	easy /very easy	Total
NVS_result	limited functional health literacy	Count	257	130	387
		% of Total	24,8%	12,6%	37,4%
	probably adequate functional health literacy	Count	306	342	648
		% of Total	29,6%	33,0%	62,6%
Total		Count	563	472	1035
		% of Total	54,4%	45,6%	100,0%

Independent Variable	b (beta Weights)	S.E.	Wald	Sig.	Exp (b)	95% C.I. for exp(b)
Education middle (vs. Low = ref category)	-0.617	0.267	5.333	0.029	0.539	[0.319; 0.911]
Education high (vs. low)	-0.733	0.328	5.014	0.025	0.480	[0.253; 0.913]
Age 46-64 yrs (vs. 15-29 = ref category)	0.905	0.351	6.659	0.010	2.471	[1.243; 4.912]
Age 65+ (vs. 15-29 = ref category)	1.853	0.381	23.687	0.000	6.380	[3.025; 13.456]
Migration background (vs. no migr. background)	0.684	0.270	6.433	.011	1.983	[1.168; 3.365]
Constant	-1.741	0.408	18.198	0.000	0.175	

Model Chi^2 = 37.815 p < .05   Nagelkerke's R^2 = .17   n = 472

Results

The aim was to directly compare the self-assessment of coping with food labels to an objective measurement, the Newest-Vital-Sign test, and to identify influencing demographic factors that increase the likelihood of self-overestimation. ***Sex, age, self-perceived social status, education,*** and ***migrant background*** were included in 2 logistic regression analyses.

o <u>Analysis A</u>: When taking only participants with low NVS-results into account (n = 387), only ***self-perceived social status,*** adjusted for all other factors, shows significant influence on self-overestimation: Medium social status (OR = 2.2) and upper social status (OR = 2.3), more than double the chance of self-overestimation, compared to a low social status.

o <u>Analysis B</u>: When taking only participants without self-perceived difficulties understanding food labels into account (n = 472), three factors show significant influence:
education: medium (OR = 0.54) and high education levels (OR = 0.48) almost halve the chance of self-overestimation, compared to a low education level.
age: Compared to the younger generation up to 29 yrs participants aged 46-64 yrs show twice the chance (OR = 2.5) of overestimating their ability in understanding food labels; yet for participants aged 65+ yrs, the OR is even 6.4.
migration background: having a migration background almost doubles the chance (OR = 1.98)

Conclusions

o Social status, self-perceived as medium or high compared to fellow citizens, seems to present a risk factor for a false self-conception in terms of food label understanding. Alphanumeric skills (as measured with the NVS-Test) are more often overestimated in this group, when NVS-scores are low.

o Middle- and old-age as well as a migration background increase the risk of achieving an insufficient NVS test result, when the self-conception of alphanumeric skills beforehand is good. Medium/high education levels, on the other hand, reduce the risk.

o But: For both Regression analyses, R^2 are small; the socio-demographic variables collected in **HLS●EU** can not explain much of the diversity. Pathways that may lead to self-overestimation (e.g. motivation, coping, self-efficacy etc.) remain rather unclear.

o All Health Literacy indicators in the **HLS●EU** project are generated from subjectively perceived difficulties! Inter- and intrapersonal differences in perception have to be kept in mind.

o The direct comparison subjective/objective measure revealed that medium/high social status, higher age and migration background intensify the risk of overestimating one's abilities when it comes to understanding information in food packages.

Outlook

o **Follow-up project in NRW (University of Bielefeld) 2014-2015**

  this study focusses on vulnerable subgroups: elderly, chonical illness, migrants, young people with low education

o **Test run of the HLS•EU short version questionnaire in parts of the German-wide telephone survey „GEDA" (Robert Koch-Institute)**

o **NRW is member of the German Health Literacy network**

  The network is working on intervention strategies, esp. for migrants, youth and elderly.

    Potential fields of action:

        - Health communication

        - Health education of future patients

        - Improvement of personal skills of both users <u>and</u> providers of health services

        - Advancing products and services towards a stronger user-friendliness.

Thank you for your attention!

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