

# Salt reduction in bread: Is it enough?

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PRELIMINARY RESULTS OF A HIA IN PORTUGAL

# INTRODUCTION

Health Impact Assessments (HIA) are a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population and the distribution of those effects.

A pilot HIA is in progress to train health professionals in this methodology in Portugal with the support of the World Health Organization (WHO).

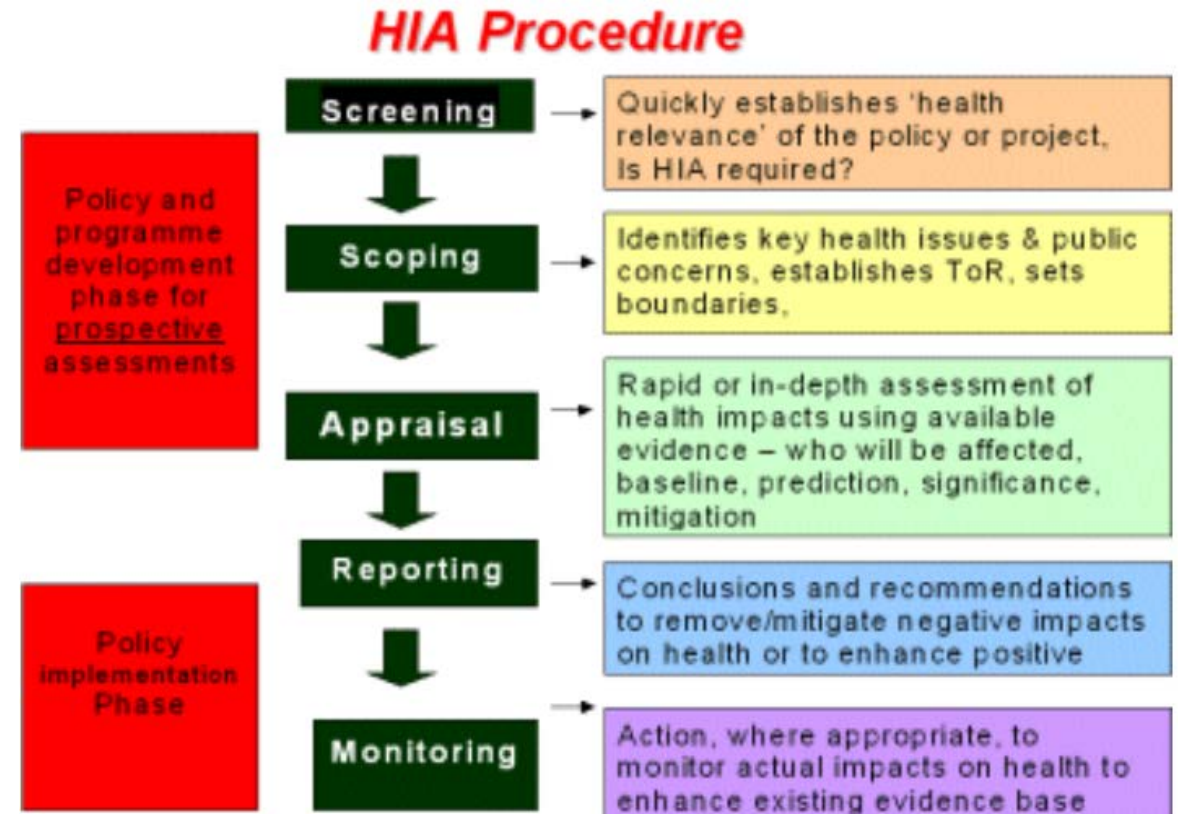


Fig. 1. Adapted from WHO (2019)

Screening

Scoping

Risk Appraisal

Recommendations

- ❖ Bread is the major contributor for salt intake in Portugal (7.3 g total average; 1 from bread). (1)
- ❖ Salt is responsible for high blood pressure (BP) and Cardiovascular Diseases (CVD). (2)
- ❖ A maximum of total salt intake of 5g daily is recommended. (2)
- ❖ A voluntary agreement between the industry and authorities was signed to assure salt in bread achieves a max of 1 gr salt/ 100 gr in bread. (currently is 1.4gr)

## Screening asks...

- ❖ Is the HIA necessary?
- ❖ The team checks with the Irish framework and concludes Yes! Potential impacts are likely on different areas.



# Screening

# Scoping

# Risk Appraisal

# Recommendations

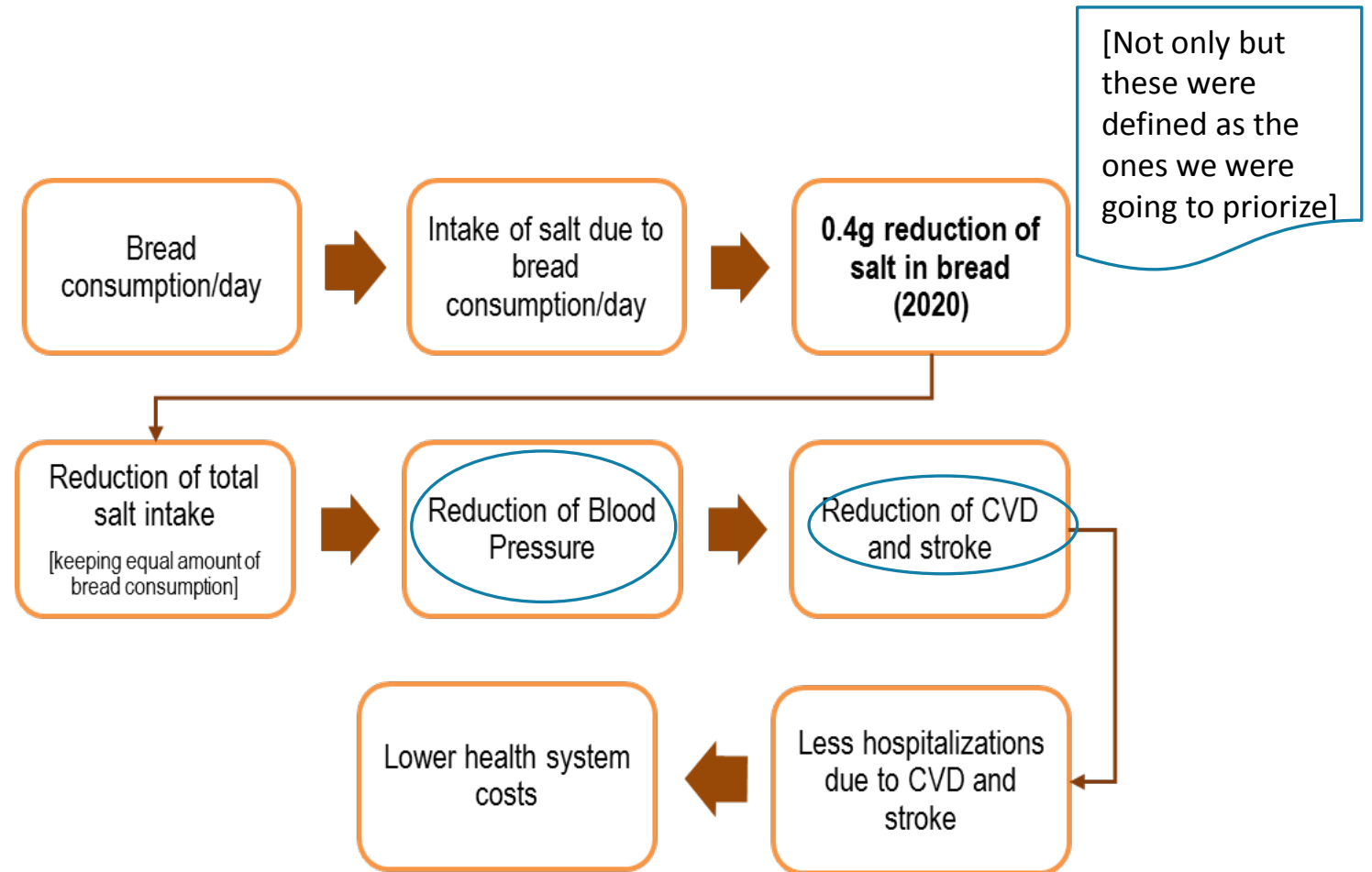
- ❖ Creation of a Steering Group composed by representatives from: (i) Northern Bakery, Patisserie and Similar Industry Association (AIPAN) (ii) National Institute of Health Doutor Ricardo Jorge, IP (INSA) (iii) Portuguese Association for Consumer Protection (DECO) (iv) National Healthy Cities Network (v) Portuguese Distribution Business Association (APED) (vi) Portuguese National Programme for the Promotion of Healthy Federation of the Portuguese Agri-Food Industry (FIPA) (vii) National Programme for Cardiovascular Diseases (viii) Directorate-General for Education (DGE).
- ❖ Set the scope (workplan, timeline, resources, depth of HIA)
- ❖ Establish the TOR: Research strategy, key concerns, pathway diagram.

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**Fig.2** Pathway diagram regarding potential impacts in health and in the economic sector, due to a reduction of salt in bread.

❖ **OBJECTIVE** To estimate the impact in BP and CVD of a nation-wide policy that intends to achieve a maximum of 1 g of salt/100 gr in bread by 2021.

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# METHODS (1)



- ❖ Secondary data from two population based, representative surveys. INSEF provides information about BP and IANAF about daily salt intake.
- ❖ We used IANAF to estimate what is the salt intake expected after a 29% reduction for each individual. Then, we linked both databases by, sex, age group, region and education to find current average levels of blood pressure in each one of these categories.
- ❖ Stratified by individuals with BP < 140 mmHg and BP > = 140 mmHg and applied values of a meta analysis (3) to estimate the expected reduction in BP. Values of a meta analysis (4) were also used to estimate reduction in the risk of CVD from these values.

(3) normotensives, the mean effect was -2.42 mmHg and hypertensive the mean effect was -5.39 mmHg (4) Every 10 mmHg systolic blood pressure reduction decreases the risk for CVD.

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# RESULTS (1)

## DESCRIPTIVE ANALYSIS

Salt Intake from bread (n=3.247, 25-74y)

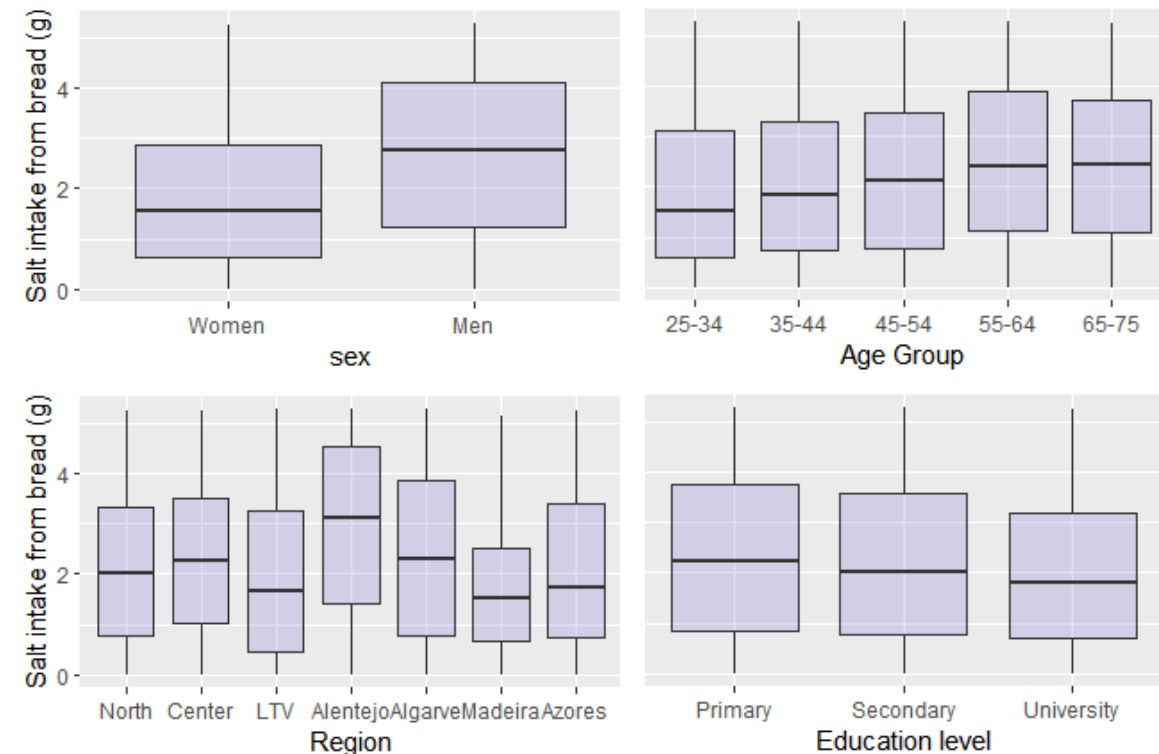


Fig 3. Distribution of salt intake from bread according to sex, age group, region and education. IANAF, 2015

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# RESULTS (2)

## DESCRIPTIVE ANALYSIS

Current blood pressure (n=4.911, 25-74y)

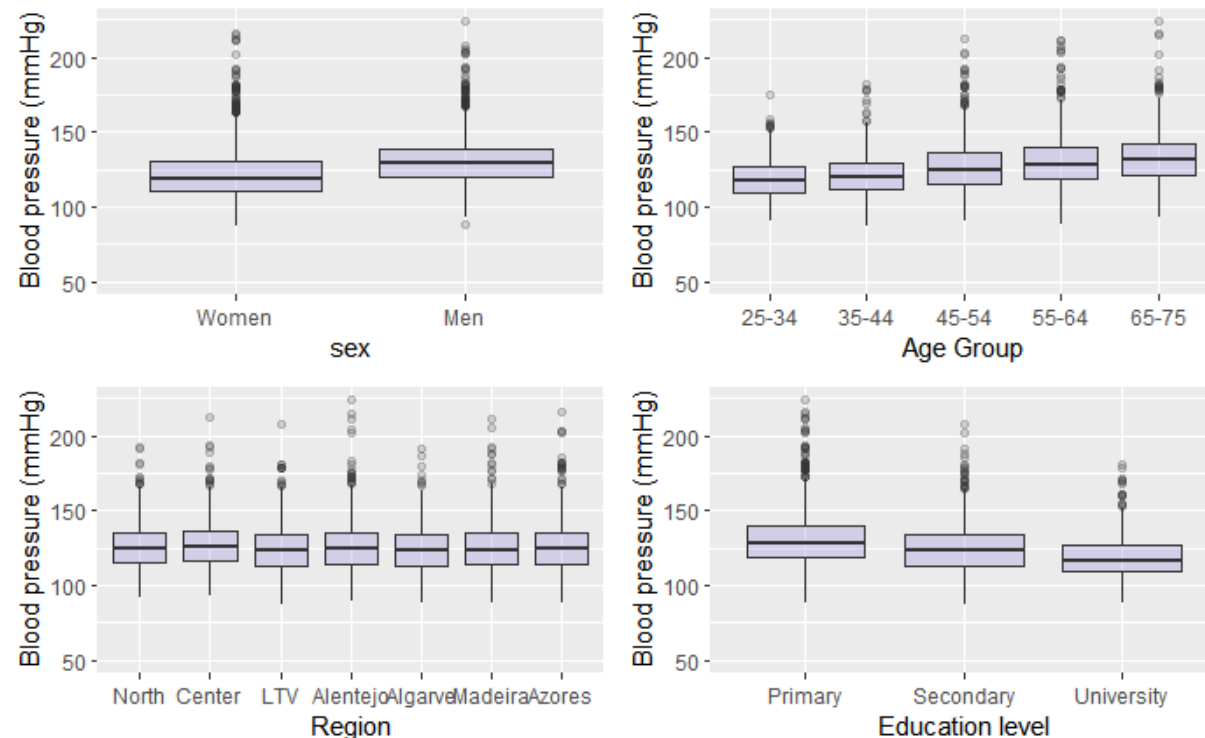


Fig 3. Distribution of BP according to sex, age group, region and education. INSEF, 2015



# RESULTS (3)

## Normotensive

SEX	Salt intake from bread	Current total intake of salt	Salt reduction	Total salt intake reduction expected	Current BP values	Expected BP values	Expected-Observed	Size effect
Women	1.113	6.259	0.323	5.937	117.08	116.80	-0.29	0.013
Men	1.752	8.880	0.508	8.372	124.37	123.90	-0.42	0.023

## Hypertensive

Women	1.113	6.260	0.323	5.937	152.93	152.54	-0.396	0.028
Men	1.752	8.880	0.508	8.372	151.93	151.30	-0.624	0.051

Legend: Values are averages. Grams is the unit of measure for salt and mmGh for BP.  
Effect size = E-O/sd

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# RESULTS (5)

## Normotensive

REGION	Salt intake from bread	Current total intake of salt	Salt reduction	Total salt intake reduction expected	Current BP values	Expected BP values	Expected-Observed	Size effect
North	1.352	7.836	0.392	7.443	120.669	120.455	-0.214	-0.020
Center	1.408	7.783	0.408	7.374	121.194	120.971	-0.223	-0.021
LVT	1.265	7.774	0.367	7.408	119.388	119.188	-0.200	-0.016
Alentejo	2.066	8.550	0.599	7.951	120.144	119.817	-0.327	-0.030
Algarve	1.514	7.583	0.439	7.143	119.466	119.227	-0.240	-0.021
Madeira	1.038	5.582	0.301	5.281	119.792	119.627	-0.164	-0.015
Azores	1.331	7.253	0.386	6.868	120.539	120.328	-0.210	-0.019

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# RESULTS (4)

Hypertensive

REGION	Salt intake from bread	Current total intake of salt	Salt reduction	Total salt intake reduction expected	Current BP values	Expected BP values	Expected-Observed	Size effect
North	1.352	7.836	0.392	7.444	149.908	149.427	-0.481	-0.0472
Center	1.408	7.783	0.408	7.374	151.745	151.243	-0.501	-0.0410
LVT	1.265	7.774	0.367	7.408	152.781	152.331	-0.450	-0.0367
Alentejo	2.066	8.550	0.599	7.951	154.775	154.040	-0.735	-0.0481
Algarve	1.515	7.582	0.439	7.143	149.771	149.232	-0.539	-0.0555
Madeira	1.038	5.582	0.301	5.281	152.938	152.568	-0.369	-0.0270
Azores	1.330	7.254	0.386	6.868	154.197	153.723	-0.4737	-0.032

Screening

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Hypertensive

AGE GROUP	Salt intake from bread	Current total intake of salt	Salt reduction	Total salt intake reduction expected	Current BP values	Expected BP values	Expected - Observed	Size effect
25-34	1.210	7.771	0.351	7.420	116.765	116.573	-0.191	0.017
35-44	1.345	7.842	0.390	7.452	118.334	118.121	-0.213	0.019
45-54	1.417	7.468	0.411	7.057	120.591	120.367	-0.224	0.021
55-64	1.600	7.439	0.464	6.975	122.625	122.372	-0.253	0.024
65-75	1.506	6.753	0.437	6.316	123.721	123.482	-0.238	0.023

Normotensive

25-34	1.210	7.771	0.351	7.420	147.250	146.819	-0.431	0.061
35-44	1.345	7.842	0.389	7.452	148.146	147.668	-0.479	0.052
45-54	1.416	7.468	0.410	7.057	153.056	152.551	-0.504	0.039
55-64	1.600	7.439	0.464	6.975	152.787	152.217	-0.570	0.042
65-75	1.506	6.753	0.437	6.316	153.485	152.949	-0.536	0.040

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# RESULTS (7)

## Normotensive

EDUCATION	Salt intake from bread	Current total intake of salt	Salt reduction	Total salt intake reduction expected	Current BP values	Expected BP values	Expected - Observed	Size effect
Primary school	1.50	7.06	0.437	6.622	122.499	122.260	-0.238	-0.022
Secondary school	1.43	7.83	0.414	7.415	119.698	119.472	-0.226	-0.020
Higher Education	1.25	7.56	0.362	7.201	116.402	116.205	-0.197	-0.018

## Hypertensive

Primary school	1.507	7.059	0.437	6.622	153.652	153.116	-0.536	-0.039
Secondary school	1.428	7.829	0.414	7.415	150.038	149.529	-0.508	-0.047
Higher Education	1.249	7.561	0.362	7.199	149.066	148.621	-0.444	-0.042

Screening


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# RESULTS (8)

## WHAT ABOUT CVD?

We need 10 mmHg in blood pressure lowering to achieve a reduction of in risk of CVD  no effect in CVD.

## CONCLUDING...

Normotensive

Men  
55-64  
Alentejo  
Primary education



Hypertensive

Men  
25-34  
Algarve  
Secondary education

# Screening

# Scoping

# Risk Appraisal

# Recommendations

- ❖ More data and more adequate, and access that allow us to draw more robust studies.
- ❖ The impact in blood pressure is zero as well as in CVD.
- ❖ Political measures that consider salt reduction in a wider type of food and/or larger reduction of salt.
- ❖ Multifaceted programs: (i) industry engagement to reformulate products (ii) establishment of sodium (iii) content targets for foods (iv) consumer education (v) front-of-pack labelling schemes (vi) taxation on high-salt foods and interventions in public institutions (vii) Legislative action related to salt reduction.
- ❖ Make salt reduction in food mandatory.
- ❖ Doesn't mean this measure is effortless!!! It is a step forward but not enough.

# REFERENCES

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- (1) IANAF (2016). Inquerito Alimentar nacional e Atividade Física.
- (2) WHO (2019). Reducing sodium intake to reduce blood pressure and risk of cardiovascular diseases in adults.
- (3) H, Feng J., et al. (2013). “Effect of Longer-Term Modest Salt Reduction on Blood Pressure.” Cochrane Database of Systematic Reviews.
- (4) Ettehad D, et al. (2016) Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis. Lancet. Mar 5;387(10022):957-967.



**THANK YOU!**