

# Adapting the European Health Literacy Survey Questionnaire for children aged 9 to 10

TM Bollweg, O Okan, U Bauer, J Bröder, AM Fretian, P Pinheiro

Bielefeld University, Bielefeld, Germany

✉ [torsten.bollweg@uni-bielefeld.de](mailto:torsten.bollweg@uni-bielefeld.de)

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# Outline

1. Background
2. Methods
3. Results
4. Updated results
5. Discussion

# 1 Background

## Health literacy – a definition:

Health literacy is linked to literacy and entails people's knowledge, motivation and competences

[Sørensen et al., 2012]

# 1 Background

## Health literacy – a definition:

Health literacy is linked to literacy and entails people's knowledge, motivation and competences to **access, understand, appraise, and apply health information** in order to make judgments and take decisions in everyday life concerning **healthcare, disease prevention and health promotion** to maintain or improve quality of life during the life course.

→ 4 action areas

→ 3 health domains

[Sørensen et al., 2012]

# 1 Background

Health literacy of children is important.



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# 1 Background

Only **two tests** available in German to assess children's health literacy (<13 years)

[Okan et al. 2018]

**Sixteen** tools available in English

[Bollweg & Okan 2019]

**No** tool available for our purpose  
(general HL, multidimensional)

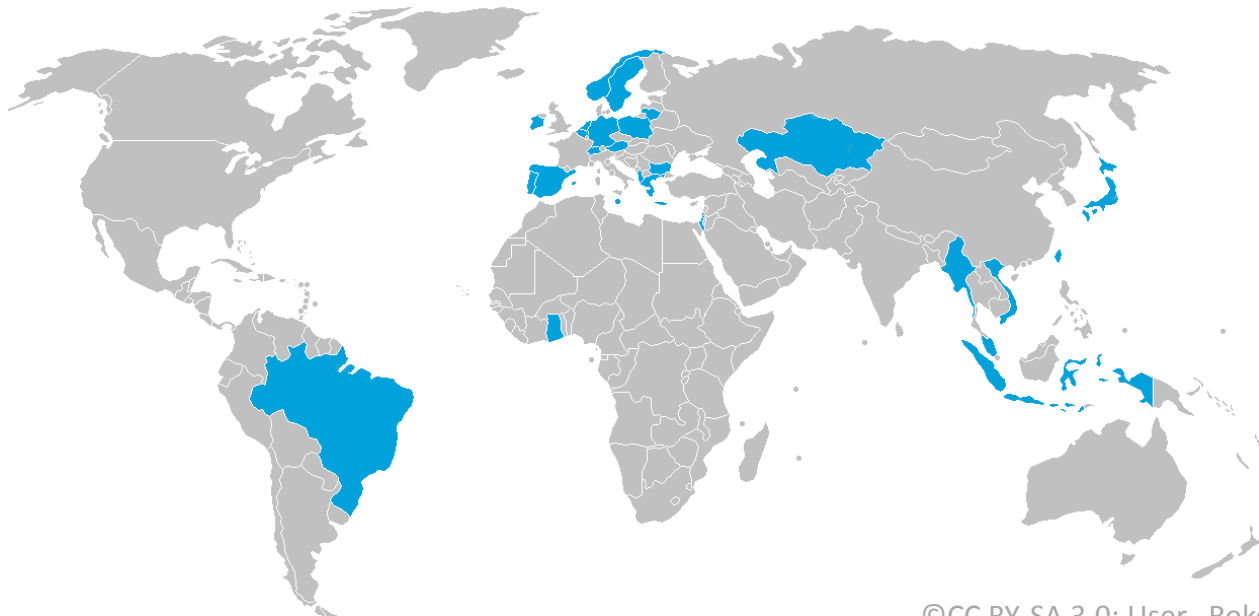
# 1 Background

- 2015-2018: Research Project MoMChild  
Methods of Measuring Health Literacy of Children
- Aim: **Questionnaire Development**
- Focus: General health literacy
- Target group: 4<sup>th</sup> grade students in Germany



## The **HLS** ● **EU** Questionnaire

- 47 items, self-reported health literacy
- Widely used and validated **among adults** [Pelikan & Ganahl 2017]



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## The **HLS** ● **EU** Questionnaire

- General HL
- Multidimensional:
  - **Four** action areas:  
Access, understand, appraise, and apply health information
  - **Three** health domains:  
healthcare, disease prevention, and health promotion

## The **HLS** ● **EU** Questionnaire

**Self-reported HL** = Perceived difficulty of **accessing**, **understanding**, **appraising**, and **applying** health information

**How easy or difficult is it for you to...**

- ...find information about symptoms of illnesses that concern you?  
(access health information, **healthcare**)
- ...judge which health screenings you should have?  
(Appraise health information, **disease prevention**)
- ...make decisions to improve your health?  
(Apply health information, **health promotion**)

# 2 Methods

## Study design

- Item adaptation (language & content)
- Cognitive testing (n=30)
- Quantitative pilot (n=907)
  - Written classroom survey
  - Quota sampling
  - 31 schools in North-Rhine Westphalia, Germany
  - Students in 4<sup>th</sup> grade (aged 9-10)
- Statistical analyses: EFA, CFA, Cronbach's Alpha



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# 3 Results

## Item adaptation

- Simplified, modified, specified, shortened
- **26 items** (9 healthcare, 8 disease prevention, 9 health promotion)

# 3 Results

## Item adaptation

On a scale from very easy to very difficult, how easy would you say it is to...

**...find information on treatments of illnesses that concern you?**

([HLS-EU-Q](#), Item 2)

How easy or difficult is it for you to...

**...find out how to recover quickly when you have a cold?**

(**Adapted item** – translation from German)

# 3 Results

## Cognitive pretest

- Questionnaire well understood overall
- Misinterpretations of some items



# 3 Results

## Cognitive pretest

How easy or difficult is it for you...

to find out how to recover quickly when you have a cold?



“I would ask the doctor first, because he’s informed best. Sometimes, I also look up things on the Internet or ask my parents.”



“sometimes I know right away, sometimes I don’t”



“my mother usually makes chicken soup for me when I have a cold”

# 3 Results

## Cognitive pretest

What is measured?

- Perceived difficulty?
- Knowledge?
- Social support?

→ Most items interpreted as intended

# 3 Results

## Exploratory Factor Analysis

- Expected: 3 or 4 factors
- Observed: 1 major factor (Eigenvalue 6.7; 25.6% explained variance)
- Fixed to 4 or 3:
  - Items do not correspond to conceptual domains

## Confirmatory Factor Analysis

- High correlations between action areas ( $r=.75-.92$ ) and health domains ( $r=.87-.97$ )
  - **Factors not distinct**

# 3 Results

## Item selection

- 13 of 26 items excluded based on factor-loadings in 1-factor model

## Resulting scale

- **13 items**
- Good internal consistency ( $\alpha=0,814$ )
- Good model fit (1-factor model: NFI=.906; CFI=.939; RMSEA: .042)

# 4 Updated Results

## Item selection

- Based on missingness (<8%)
- Item difficulty (20%-85%)
- Item discrimination (>.330)

## Resulting scale

- **16 items**
- Good internal consistency ( $\alpha=0,800$ ; split-half: .791)
- Model fit unsatisfactory (1-factor model: NFI=.832; CFI=.875; RMSEA: .050)

# 5 Discussion

- First study to adapt HLS-EU-Q for children attending 4<sup>th</sup> grade in Germany
- Mostly well-understood and feasible
- 16-item questionnaire with high internal consistency
- Validity needs further investigation (construct validity, face validity)

# 5 Discussion

- 3- or 4-factor models not confirmed  
→ Less complex model?
- Alternative adaptations?



# Thank you for your attention!

TM Bollweg, O Okan, U Bauer, J Bröder, AM Fretian, P Pinheiro

Bielefeld University, Bielefeld, Germany

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# 5 Discussion

Impressions? Thoughts? Remarks?  
Feedback? Own experience?