Disparities in bone density measurement history and osteoporosis medication utilisation in Switzerland

Results from the Swiss Health Survey 2007

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Purpose

- In Switzerland, **osteoporosis prevalence and osteoporotic fracture incidence are high, especially in women**, and are expected to increase because of population aging.

- **Bone mineral density measurement** (BDM), fracture risk assessment, **and subsequent interventions can reduce the risk** of osteoporosis and osteoporotic fractures.

- **Factors associated** with the utilisation of BDM and osteoporosis medication (OM) **have been assessed in the US and in Canada** but previously not in Switzerland or other European countries.

- The findings in the US and in Canada **let assume that** sociodemographic and socioeconomic **disparities may also exist in Switzerland**.

Study question

The aim of this master thesis was to describe the **Swiss situation** using the most recent Swiss Health Survey (SHS) data, i.e. specifically to assess whether:

- **BDM and OM utilisation** vary according to **sociodemographic**, **socioeconomic** and **healthcare-related factors**

- **BDM utilisation** is related to established **risk factors** for osteoporosis that justify a BDM according to the recommendations of the Swiss Union Against Osteoporosis.

Methods

Study design and data collection

- The study was based on **weighted SHS 2007 data**, **representative for adult Swiss residents** who lived in private households, i.e. who were not institutionalised.

- The survey included **self-reported information** on BDM history and OM utilisation **for women aged 40 years or older and men aged 50 years or older**, on sociodemographic[1], socioeconomic[2], healthcare-related factors[3] and on some risk factors[4].

Analysis

- **Multivariable logistic regression** analyses were performed to identify factors independently associated with BDM history or OM utilisation, **adjusting for sociodemographic and socioeconomic factors[*].**

[1]: age[*], nationality, region[*], language region and residential area[*];
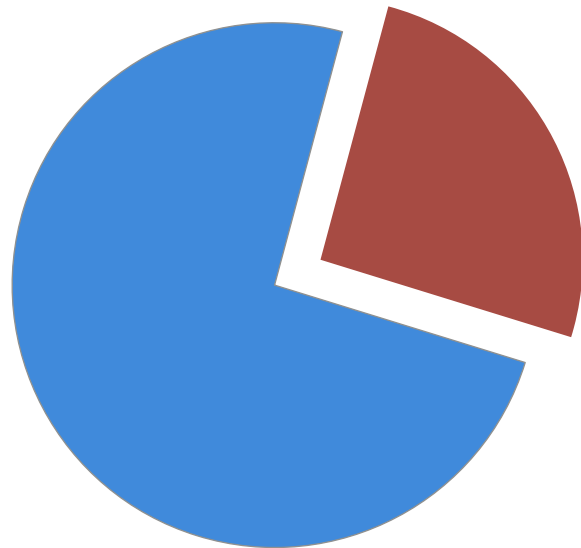[2]: education level[*], income[*] and hospitalisation insurance type[*];
[3]: number of physician visits, gynaecologist consultation, history of breast/prostate or colon cancer screening, etc.;
[4]: age, underweight and physical activity level (major factors); smoking and alcohol consumption (minor factors)

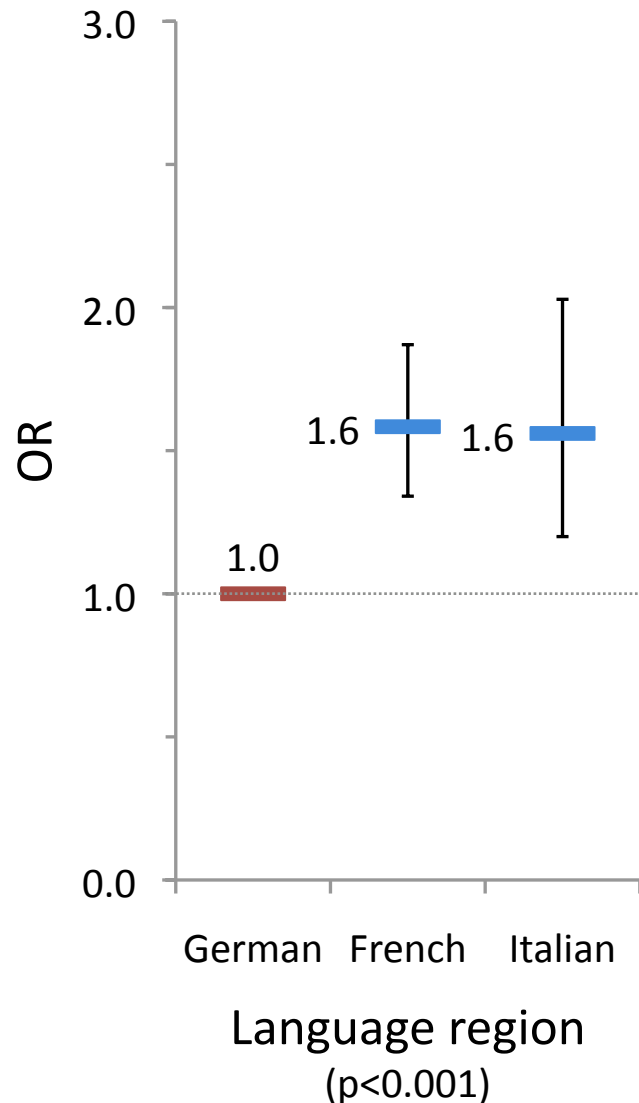# Results - BDM lifetime prevalence

Women

Men

yes: 25.6% (95%CI: 24.3-26.9%)

yes: 7.3% (95%CI: 6.2-8.5%)

26% of women aged 40 years or older and **7% of men** aged 50 years or older have performed a BDM at least once during lifetime.
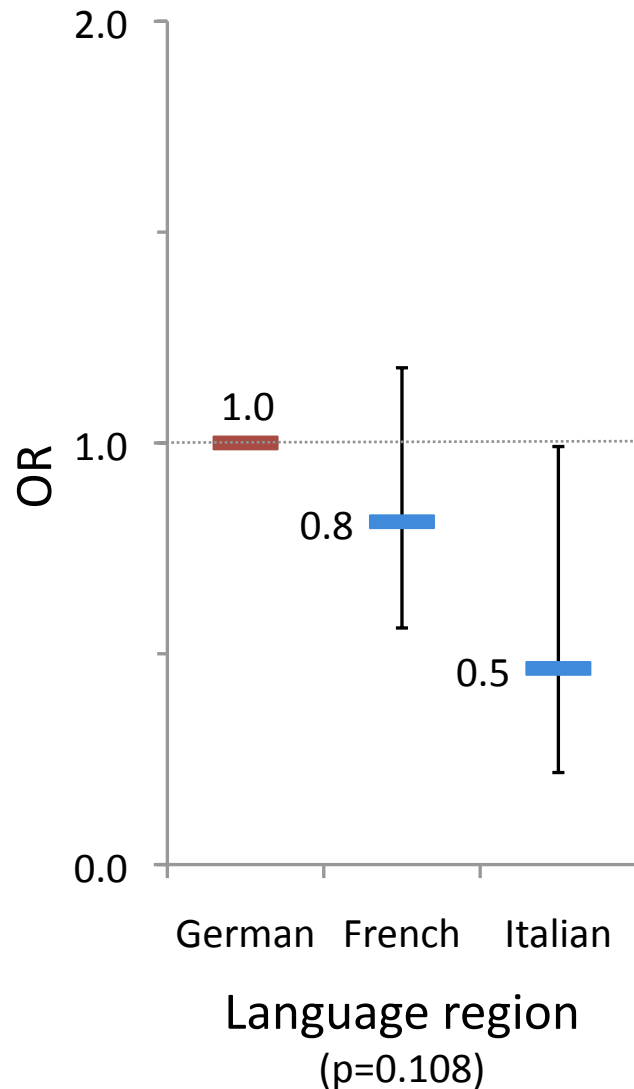
Results – BDM associations in women

In women, BDM history was associated with:

- **Most sociodemographic factors**, i.e. language area, region, nationality and with increasing age (except in oldest)

- **All socioeconomic factors**, i.e. was higher with increasing education level, income and hospitalisation insurance type

- **All healthcare-related factors**, i.e. was higher with history of cancer screening, gynaecologist consultation and with increasing number of physician visits

- **All major but none of the minor risk factors**, i.e. was higher with underweight and with increasing age and physical activity level
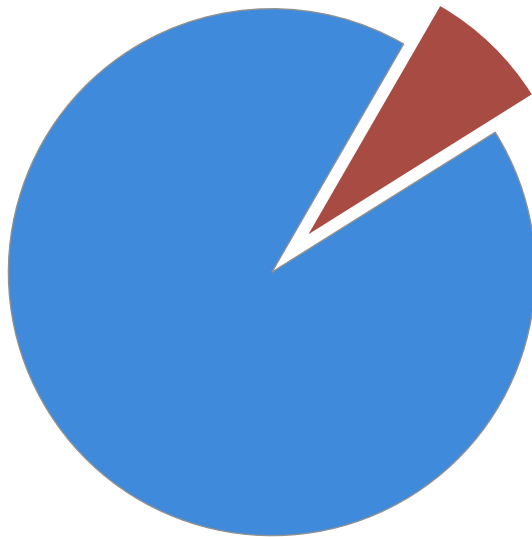
Results – BDM associations in men

In men, BDM history was associated with:

- **None** of the **sociodemographic factors**

- **None** of the **socioeconomic factors**

- **Most healthcare-related factors**, i.e. was higher with history of prostate or colon cancer screening and with increasing number of physician visits

- **Only one major and none of the minor risk factors**, i.e. was higher with underweight
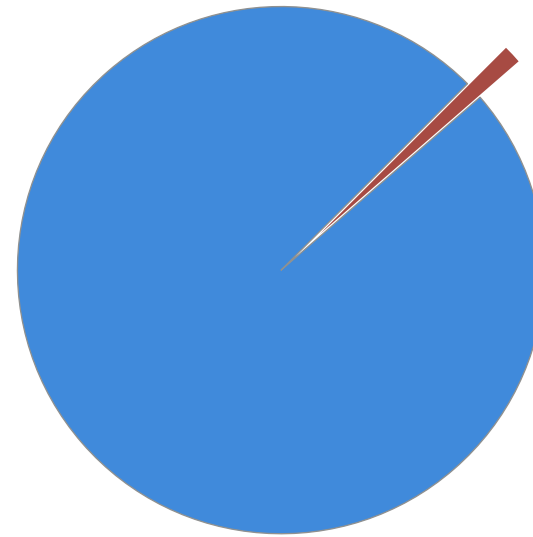
Results – Current OM prevalence
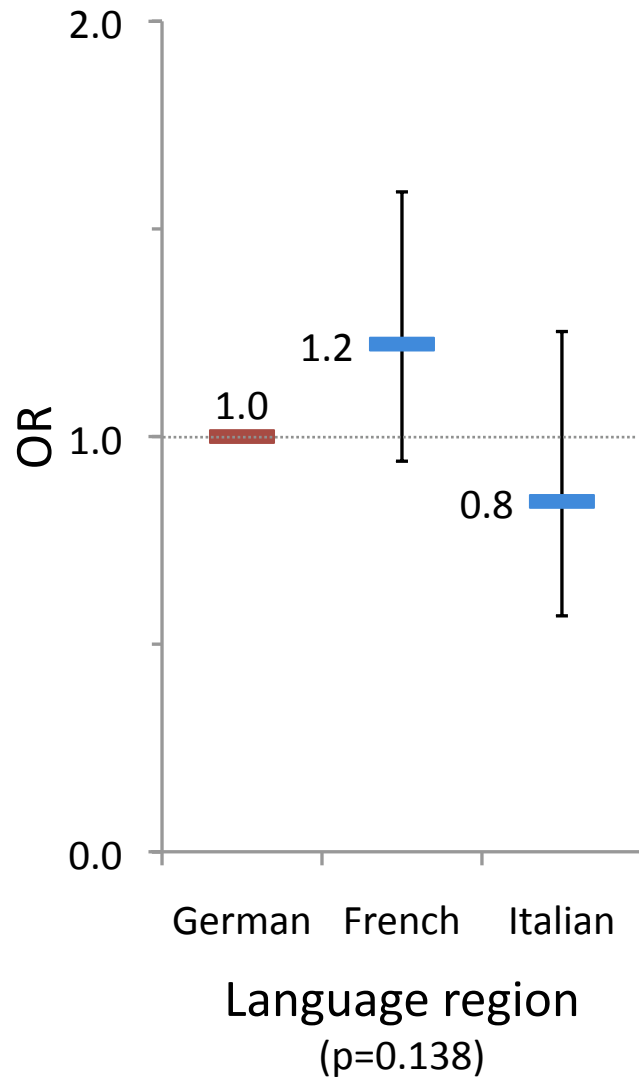
Women

Men

■ yes: 7.8% (95%CI: 7.0-8.6%)

■ yes: 1.1% (95%CI: 0.8-1.6%)

8% of women aged 40 years or older and **1% of men** aged 50 years or older have taken prescribed OM in the past 7 days.

Results – OM associations in women

In women, current OM utilisation was associated with:

- **Some sociodemographic factors**, i.e. region and with increasing age (except in oldest)

- **Only one socioeconomic factor**, i.e. was higher with superior hospitalisation insurance type

- **Most healthcare-related factors**, i.e. was higher with BDM history, gynaecologist consultation and with increasing number of physician visits

Strength & limitations

Strength

- Weighted SHS 2007 data were the **best data available to get results** on BDM and OM utilisation **representative for elderly Swiss residents.**

Limitations

- **Exclusion of institutionalised Swiss residents** may have resulted in an underestimation of real BDM and OM prevalences in elderly Swiss residents and may have contributed to regional disparities due to regionally distinct institutionalisation rates, amongst others.

- The SHS 2007 included **no information on motive for BDM** (screening, diagnosis, monitoring) **and OM** (preventive, therapeutic), some major risk factors and on osteoporotic fracture history.

- **Self-reported information** may result in some reporting, recall and social desirability bias.

Conclusions

- BDM and OM **coverage was low**, which might indicate that the **risk of osteporosis and osteoporotic fractures is not fully perceived** by physicians and the general population in Switzerland, especially for men.

- BDM and OM **prevalence varied substantially** according to **healthcare-related**, **sociodemographic** and **socioeconomic factors**, in particular in women. This might **result in health inequalities**.

- Reasons for these disparities and the low prevalences should be investigated in **further studies** of elderly Swiss residents, **including those living in institutions**.
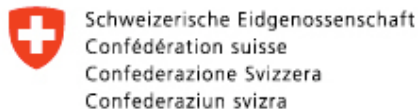
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Thank you for your attention.