Gender variations in determinants of oral hygiene behavior: a secondary analysis

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Background

- Oral hygiene behavior (OHB) is an essential aspect of one's social life and one's general health

- Inadequate OHB is very prevalent in all cultures and contexts; important to get insight in determinants and relevant factors

- Identification and assessment are needed for developing tailored oral health care interventions

- Motivation and focus on prevention/promotion in perspective of:

"from **cure** to **care** and **oral health** in relation to **general health**"

Aim of the study

- To get insight of important issues and research at the interface of preventive oral health (self) care and behavioral and social sciences (health psychology)

Oral Health Psychology

- To identify and assess OHB in **female** and **male** adults

- To investigate **gender** in the relationships between **OHB** and Theory of Planned Behavior (**TPB**) variables (Attitude, Social Norms, Perceived Behavioral Control), Oral Health Knowledge (**OHK**) and Expected Social Outcomes (**ESO**)

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Method

- 955 participants (71% female) from 6 countries: The Netherlands, Caribbean (Aruba/Bonaire), Nepal, Uruguay, Spain and Dominican Republic

- Several scales via an Internet questionnaire and paper-and-pencil-questionnaires, including demographic questions

- Completed an index for OHB; a forerunner of the

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Identification and evaluation of adequate oral hygiene behavior: the development of the MondiX®

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What is the MondiX®

- ✓ A digital system (instrument) that can be used in oral care practices to identify, monitor and evaluate oral hygiene behavior of individual patients and groups
- ✓ Includes questions about one's expectations and motivation towards oral self-care, for instance adherence and self-efficacy
- ✓ Includes questions about the most relevant specific oral hygiene behaviors, e.g., frequency and method of tooth brushing, use of interdental cleaning and use of fluoride containing toothpaste[4]

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Why the MondiX®

- ✓ Changing oral self-care habits is a complex process
- ✓ For behavioral change, motivation and commitment of the patient is a necessary condition
- ✓ A first version of the MondiX® has been applied in many different populations[1], has a good internal consistency and face validity, and the sum scores are normally distributed[4]
- ✓ With the MondiX® the patient's attitude toward oral hygiene, motivation, daily oral self care and self-efficacy can be shown on a screen and discussed with the patient

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[4]Buunk-Werkhoven YAB, Dijkstra A, van der Schans CP. Determinants of oral hygiene behavior: a study based on the theory of planned behavior. Community Dent Oral Epidemiol 2011;39:250-9.

Method

- Focal OHB described as:

➢ *"brushing your teeth twice a day (once after breakfast and once before going to sleep, using a soft-bristled toothbrush and fluoride containing toothpaste; brushing softly, without pressure for at least two minutes; brushing stepwise by making small strokes –sort of massage– near the gum, along the inside and the outside, and on the jackdaw areas. In addition to the tooth brushing, daily interdental cleaning, (i.e., the use of floss, tooth sticks, or interdental brushes at least once a day), and tongue cleaning is also recommended."*

Method

- Attitude 9 statements

➢ ‘How do you evaluate the prescribed oral hygiene behavior?’ on dimensions 1 = *unimportant* to 7 = *important*, 1 = *unpleasant* to 7 = *pleasant*, and so on: *unhealthy-healthy, negative-positive, annoying- not annoying, not useful-useful, boring-exciting, painful-painless,* and *stupid-smart*

Method

- Social Norms 7-point Likert scale on 5 items

➢ ‘What do other people (my dentist’, ‘my partner’, ‘my family (either parents, brothers or sisters)’, ‘my friends’, ‘my colleagues’) think you have to do with respect to taking better care of your teeth?’

Method

- Perceived Behavioral Control 3 items

➢ ‘If I wanted to, I could take care of my teeth as mentioned’ 1 = *don’t agree* to 5 = *agree,*

➢ ‘I find it difficult or easy to take care of my teeth based on the daily prescribed OHB,’ 1 = *difficult* to 5 = *easy,*

➢ ‘I am able to take care of my teeth as mentioned’

1 = *don’t agree* to 5 = *agree*

Method

- Expected Social Outcomes 6 items, 1 = *disagree* to 5 = *agree*

➢ ‘People judge each other in part on the basis of their teeth’, ‘In social contacts well maintained teeth are important’, ‘It is embarrassing when someone has badly maintained teeth’, ‘Someone’s teeth are important for the first impression he or she makes’, ‘I appreciate it when people with whom I socialize have well maintained teeth’, and ‘In social contacts fresh breath is important’

Method

- Oral Health Knowledge 16 items

  to reveal the status of the individual's oral health knowledge

***a high mean sum score* indicated**

- a **positive** attitude,
- a **strong** perceived approval from significant other persons,
- a **high level** of perceived behavioral control of the prescribed (focal) OHB,
- a **high level** of ESO related to OHB and **high level** of OHK

Participants

- Mean age of the participants in the whole sample:

  32.7 years (SD = 13.7)

- Mean sum scores of the OHB index in the six populations and in the total sample were approximately normally distributed

Results table

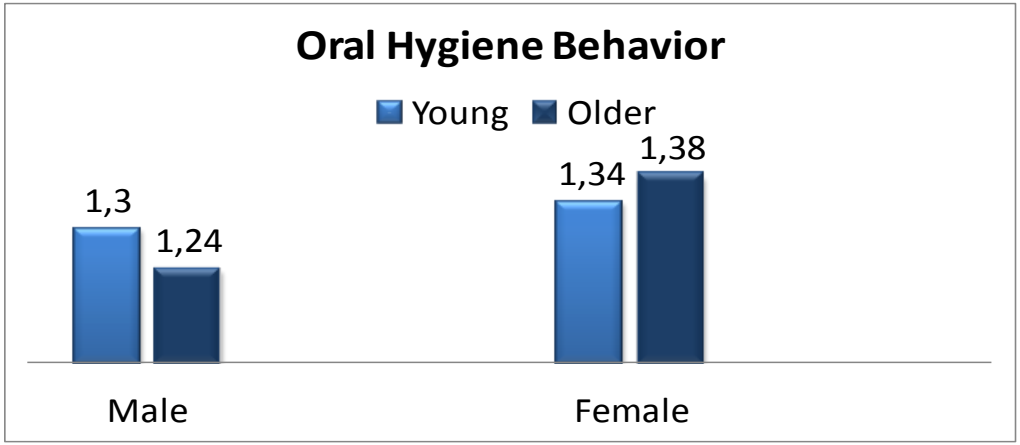
- Number, Means -Standard deviation (SD) for OHB and 5 variables for all participants in the six samples (male = M / female = F)

- ** $p < .001$ * $p < .05$ # $p < .10$ Φ = Levene's test

Measures	*The Netherlands* *N = 487* *N M/F = 89/398*	*Caribbean* *N = 113* *N M/F = 51/62*	*Nepal* *N = 108* *N M/F = 54/54*	*Uruguay* *N = 80* *N M/F = 26/54*	*Spain* *N = 75* *N M/F = 17/58*	*Dom. Republic* *N = 92* *N M/F = 36/55*
Oral Hygiene Behavior	*		*	ϕ	*	
Male	**1.25 (0.32)**	1.35 (0.25)	**1.04 (0.22)**	1.26 (0.39)	**1.30 (0.25)**	1.47 (0.26)
Female	**1.34 (0.30)**	1.42 (0.26)	**1.16 (0.25)**	1.51 (0.24)	**1.44 (0.24)**	1.49 (0.25)
Attitude		*			ϕ	
Male	5.46 (0.79)	**5.83 (0.73)**	5.83 (1.27)	5.93 (0.73)	5.33 (1.23)	5.59 (1.67)
Female	5.58 (0.79)	**6.20 (0.84)**	6.03 (1.27)	6.20 (0.74)	6.13 (0.66)	5.90 (1.23)
Social Norms	ϕ			#		
Male	2.75 (1.56)	4.05 (1.58)	5.93 (1.37)	**4.06 (1.60)**	4.74 (1.35)	5.11 (2.02)
Female	2.17 (1.22)	3.49 (1.77)	6.30 (0.89)	**3.25 (1.72)**	4.22 (1.71)	5.63 (1.59)
Perceived Behavior Control						
Male	3.87 (0.84)	4.31 (0.69)	4.19 (0.54)	---	---	4.43 (1.01)
Female	4.01 (0.82)	4.28 (0.92)	4.19 (0.42)	---	---	4.65 (0.63)
Expected Social Outcomes			*		#	
	4.23 (0.64)	4.03 (0.68)	**3.78 (0.58)**	4.31 (0.55)	**4.04 (0.70)**	4.18 (1.06)
Male	4.23 (0.58)	4.23 (0.61)	**3.45 (0.84)**	4.31 (0.72)	**4.33 (0.60)**	4.38 (0.74)
Female						
Oral Health Knowledge	*					
Male	**0.76 (0.32)**	0.56 (0.18)	0.47 (0.16)	---	---	0.49 (0.13)
Female	**0.79 (0.30)**	0.59 (0.20)	0.43 (0.16)	---	---	0.54 (0.15)

Results

Subgroup of 912 participants, mean age = 32,3 (SD = 12,7)
split into:
Male (N = 244) versus **Female** (N = 636) and
Young (N = 402; 18 – 25 years) versus **Older** (N = 478; 26 – 65 years)



Females in general reported a significant better OHB than males, $p = .001$
Especially *older* females do, $p = .034$

Conclusion / Discussion

- A secondary analysis; some significant gender differences in mean sum scores in OHB
- Findings illustrative, provide more insight in the way males and females perceive or experience different aspects of oral health and personal OHB
- Differences supports the need of further experimental investigation for the development of tailored oral hygiene interventions
- Females as role models for intervention tailored for partners, children, as well as peer groups of same sex and younger age

Conclusion / Discussion

Limitations due to some methodological aspects:

- Concept of OHB and ESO were developed in the Netherlands and may be not applicable to other populations
- Based on dental experts' consensus, items in the OHB index were clearly understandable, observable and correlate to oral hygiene behavior
- Support the well-established fact that messages in oral hygiene self-care intervention **tailored to gender and age differences may be more effective** than a so called '*one-size fits all*' approach

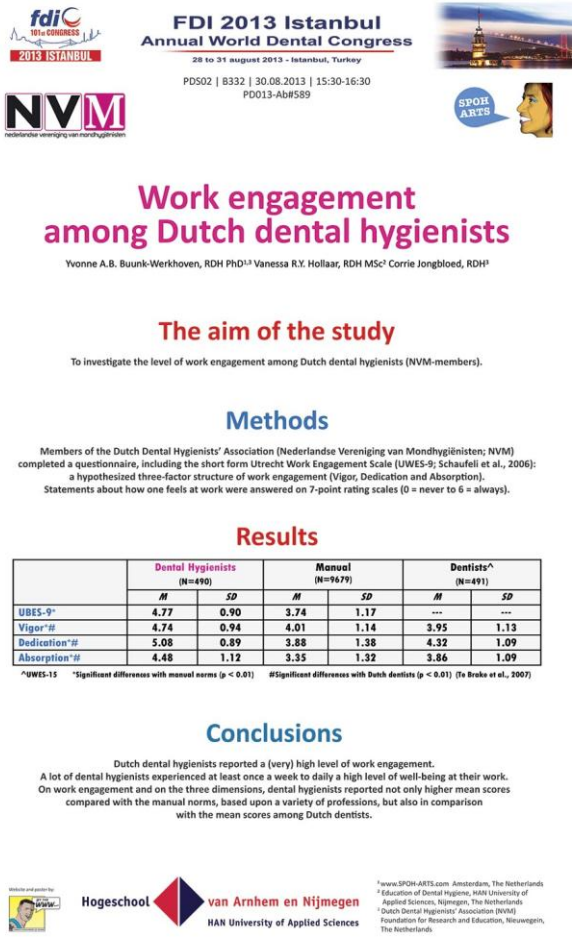
Conclusion / Discussion

- No difference regarding **"what"** psychological determinants interventions should target

- Very well possible that gender differences are relevant when it comes to **"how"** interventions target the determinants

- The role of gender as a *moderator* in OHB

- Social models and attitudinal arguments in interventions might need to differ for males and females



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Work engagement among Dutch dental hygienists

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The aim of the study

To investigate the level of work engagement among Dutch dental hygienists (NVM-members).

Methods

Members of the Dutch Dental Hygienists' Association (Nederlandse Vereniging van Mondhygiënisten; NVM) completed a questionnaire, including the short form Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006): a hypothesized three-factor structure of work engagement (Vigor, Dedication and Absorption). Statements about how one feels at work were answered on 7-point rating scales (0 = never to 6 = always).

Results

	Dental Hygienists (N=490)		Manual (N=9679)		Dentists^ (N=491)	
	M	*SD*	*M*	*SD*	*M*	*SD*
UBES-9*	4.77	0.90	3.74	1.17	---	---
Vigor*#	4.74	0.94	4.01	1.14	3.95	1.13
Dedication*#	5.08	0.89	3.88	1.38	4.32	1.09
Absorption*#	4.48	1.12	3.35	1.32	3.86	1.09

^UWES-15 *Significant differences with manual norms ($p < 0.01$) #Significant differences with Dutch dentists ($p < 0.01$) (Te Brake et al., 2007)

Conclusions

Dutch dental hygienists reported a (very) high level of work engagement.
A lot of dental hygienists experienced at least once a week to daily a high level of well-being at their work.
On work engagement and on the three dimensions, dental hygienists reported not only higher mean scores compared with the manual norms, based upon a variety of professions, but also in comparison with the mean scores among Dutch dentists.

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Thank you

Questions?

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