

A dietary recording tool for children

Suitable for 8-10 years old.

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A frequent request

- We need to measure dietary intake among many
- It should be reliable and measure true intake
- We do not have logistics or resources to handle it inperson
- We also need to do it short so we do not burden participants
- So what can you offer



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No one method fits all

Have to be targeted the agegroup



• If intervention – should be suitable for reporting intervention diet

 If food safety – should be suitable for obtaining the details needed for food safety



OPUS School Meal Study



- In the OPUS School Meal Study, the school lunch of 8-11 year olds (3 and 4th grade) was based on New Nordic Diet for 3 months.
- The New Nordic Diet contained more: Fruit and berries, cabbages, root vegetables, legumes, game, seaweed, wild plants, fish, nuts and meat from free range stock.
- AIM is to investigate impact of serving school meals based on NND on: Risk markers of life-style diseases: Metabolic Syndrome Score and a omega-3 index in whole blood.



OPUS School-Meal cross-over study design (n=850)











A dietary assessment method that could:



- On a detailed/meal based level measure whole diet
- Accommodate 3 x dietary assessment in "850" children
- Contain contextual questions
- Flexible to update
- Age appropriate
- Backup cooperativeness and engage children and parents
- Low burden
- Assess the intake of NND during intervention (menu in weekly repertoire).



A web-based method

- A web-based self-administered method ideally a 7 day record/recall was likely to achieve such goals
- Danish families have computer and internet access in their homes (98%).
- No such Danish dietary assessment soft-ware existed

Method – prototyping approach







Results: FrontPage





School day contextual question





Meal contextual questions





Meal registration screen





Portion size estimation – fat spread on bread





Checks for often forgotten foods



Related items



Add-on questions





Ν

Dammarks Tekniske Universitet



Unusual intake and reasons







Intake of dietary suplements





Game and top 10 list









Well tested during development

- Initial performance tests: Weighed records, spell checking
- Think aloud test: Child and parents say out loud everything while reporting intake.
- Useability test: Children entered diet while researcher watched. Afterwards the child was interviewed. A questionnaire was send out to assess user acceptability.
- Validation

Extensively validated with good results in OPUS pilot and school meal study

- Energy expenditure vs. reported energy intake (pilot)
- Carotenoids vs. reported fruit and vegetable intake (pilot)
- N-3 fatty acids vs. reported seafood intake (school meal)
- Acrylrecorsinols vs. reported wholegrain intake (school meal)
- Observation: Photographed lunch meals vs. reported lunch meals (school meal)

Observation



Scoring reporting's in WebDASC against digital images of eaten lunch

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Projekt: OPUS pilotundersøgelse									
Person: 10011, Gustav Moeslund Andersen									
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	Banan	2	59	1	1	Ingen afvigelse(match) 💌			
	Frikadelle	3	70	1	1	Ingen afvigelse(match) 🛩			
	Fuldkornsrugbrød	4	56	1	1	Lagt til(intrusion)	Ξ		
	Gulerod	1	15	1	1	Ingen afvigelse(match) 💌			
	Oksespegepølse	2	6	1	3	Mangler(omission) 💌		Ffter	
	Skummetmælk	4	200	1	1	Ingen afvigelse(match) 💌			
	Æble	4	115	1	1	Ingen afvigelse(match) 💌			
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Before eating





So what did we learn?

- Prototyping method not very flexible. Hard to change things not perceived from the beginning.
- Participants always wants it more flexible than you can deliver: e.g. to correct in finished days, be able to report portion sizes different ways, brand names, write down every thing in open answers etc.
- Researcher always want it more flexible after taking it in use: Every study is different. So flexible as possible, so a standardized method can be set up in many ways and be tailored to the study.
- Future researchers may need some basic programming skills or have some with those skills in their team???

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Personal instruction vs outsourced

- In the OPUS pilot study the researchers themselves interviewed and gave "hands-on" instructions to participants.
- In the OPUS school meal study the interviewing and instruction was outsourced to "Epinion".
- Epinion interviewers, had a lot of questionnaires to be answered during visiting times. Since their expertise was interviewing and not instruction, instruction in dietary assessment was not well conducted and left to the end (10-15 min).
- Shows immediately in results. A lot of open answers, and less precise registration. In the pilot study lunch recordings had 80% matches, in the school meal study 60% matches.

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Experiences/mindsets using TBDA

- Often thought of as a solution to getting rid of expensive interviewers, expensive paper, mail, processing personnel etc.
- TBDA (technology based dietary assessment) is not selfpropelled
- It is a way to advance dietary assessment getting better data (can make it standardized, more detailed, more portion sizes photos, incorporate automated prompts, send reminders, a tailored layout, photos, speech, sound)
- Think, if technology can help us minimize underreporting
- But the more standardized and more advanced the more help participants need especially in the beginning



The human factor is not less required

- Only inhouse for some of the processing part, but not for e.g. coding open answers
- There will always be technological challenges: e.g. different browsers, computers, tablets, mobile phones, server problems/or updating problems
- Other challenges: Spelling, open/closed registration days, registration periods

Impersonal =non-committal



Instruction video on youtube and usermanual in WebDASC

- But no one uses it.
- Instruction videos should be short and incorporated in the standardized method, the first time participants enter the system.



Kom godt igang med Madloggen.mp4

• https://asa24.nci.nih.gov/demo.aspx



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Conclusion

- Make dietary assessment tools as flexible as possible, to be able to set up the tool to different target groups.
- Make them easy and intuitive. Max completing time 20. min
- Make participants understand, that the method has to be standardized, so everyone record their diet the same way (e.g. use the same portion size aids etc.)
- Give "hands on" personal instructions to participants by well trained professional personnel.
- Provide a hotline where participants can get help if getting stocked



Dietary data is difficult to obtain and not less difficult when it is children

