DOHaD knowledge translation supporting adolescent health development in the Cook Islands

"We learnt and now we are teaching our families"

Jacquie Bay[1], Celeste Barrett-Watson[2], Delaney Yaqona[3], Karen Tairea[4], Upokoina Herrmann[5], Mark Vickers[1]

[1]Liggins Institute, University of Auckland, New Zealand; [2]Tereora College, Rarotonga, Cook Islands; [3]Nukutere College, Rarotonga, Cook Islands , [4] Te Marae Ora, Ministry of Health, Cook Islands; [5]Ministry of Education, Cook Islands

Aim: **To assess the potential of school-based DOHaD knowledge translation, linked into core curriculum programmes in Years 9 & 11, to contribute to development relating to *education & primary NCD risk reduction* in the Cook Islands.**

Background

- Adolescence is a period of psychosocial & cognitive development during which behaviour patterns that influence life-long health are established.[1]
- WHO recommends that school-based interventions to support NCD risk reduction in adolescents & their future offspring **must link to the core mission of schools & integrate into mainstream curricula.**[2]

Context

- The Cook Islands (CI) is a Small Island Developing State in Oceania, **population 15,000.**
- The study was conduced on the island of Rarotonga, where 75% of the population live.
- **Adult overweight/obesity is 91%/72%.**
- **29% of adults have type 2 diabetes.**
- Significant nutritional transitions have occurred over the past 200 years in the Cook Islands.
- **Only 15% of adults and 10% of adolescents meet the target of 3-veg + 2-fruit servings daily.**
- The Ministry of Health has identified that due to small population size & land area, & contextual differences between islands, randomised control trials for community-based interventions are neither possible, nor appropriate.

Methods

- Learning programs engaged students in evidence-based analysis of the NCD epidemic, & analysis of potential actions in families, schools, & society.[3,4]
- Programs linked to existing school science, health & social studies curriculum objectives.
- An individually matched repeated time series design using surveys & focus groups assessed impacts on knowledge, attitudes & behaviours.

Sample

- The study engaged 95% of Year 9 & 11 students on Rarotonga in 2014 & 2015 (n = 492), of which 75% (n = 371) participated in baseline data collection.
- Matched data from pre- to 12-months post-intervention was collected from 66% of evaluation participants (n = 246).
- Median age 14y1m; Inter-quartile range [13y8m to 15y3m].
- Baseline data was found to match WHO Global School Health Survey data for Rarotonga.

Conclusions

- DOHaD learning programmes integrated into mainstream curricula enabled teachers to contribute to health promotion.
- Participation positively influenced nutritional attitudes, & knowledge of life course perspectives on NCD risk.
- Small, & therefore sustainable, behaviour changes associated with junk-food consumption were observed.
- Behaviour changes associated with health promoting foods (fruit & veges), that are beyond the reach of many in the population, were not evident.
- The study supports the notion that *knowledge is necessary, but not the sole factor required to facilitate behaviour change.*[5]

References

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Findings

Relevance of the DOHaD/NCD context for learning in schools

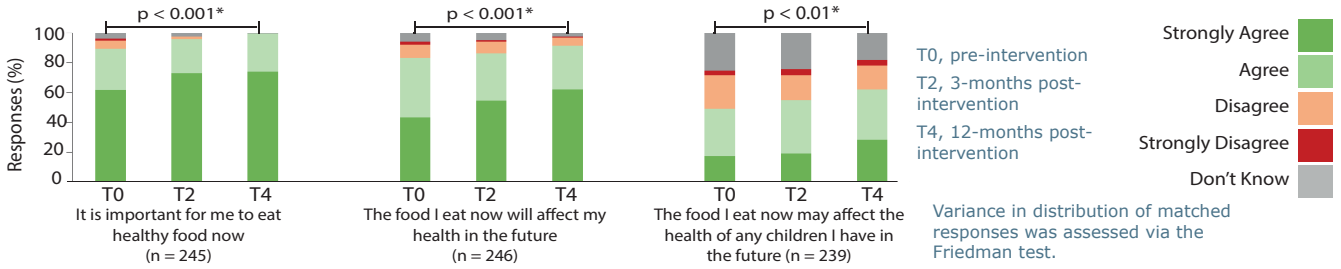
"The context is relevant because of the high levels of NCDs. But, people are not aware. Raising awareness through education across all subject areas is meeting community needs" Senior Social Sciences Teacher

- Teachers identified that the adaptable programmes were associated with increased engagement in learning and promoted improved education attainment.

Change in attitudes

"It depends on what we are eating now, because it doesn't really happen when we are adults. Mostly it is what we are now, like what we are eating now - that will affect our health all our lives." Student (Aged 14 years)

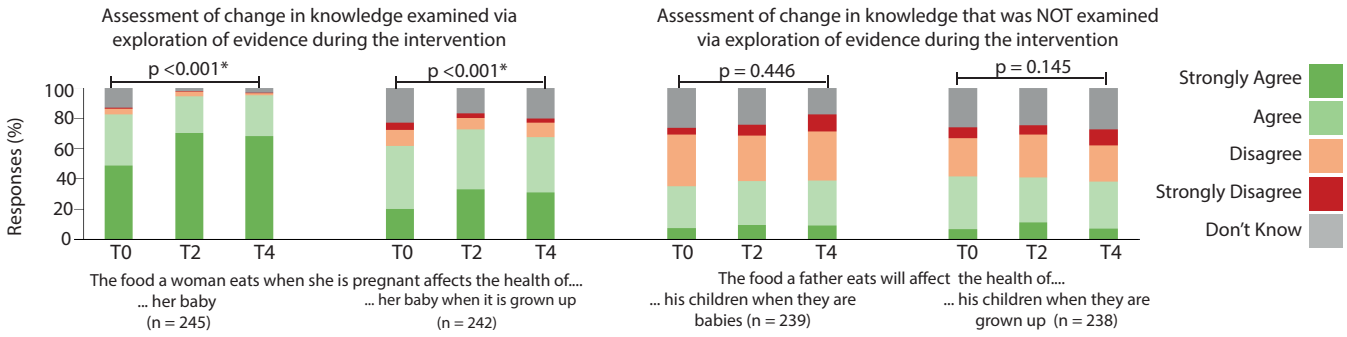
- Changes in attitudes towards the importance of nutrition & physical activity, (p = 0.017) and the role of adolescent nutrition in long-term health were observed at 3-months, and sustained at 12-months, (p < 0.001).



Females were significantly more likely to respond positively to the question asking about links to potential future children; T0 OR = 1.5, T2 OR = 3.0 (p < .001), T4 OR = 2.0 (p < .01).
Females demonstrated increased understanding of this concept with age; T4 SA/A responses - Year 11 (48%/31%) vs Year 9 (27%/36%)

Change in knowledge

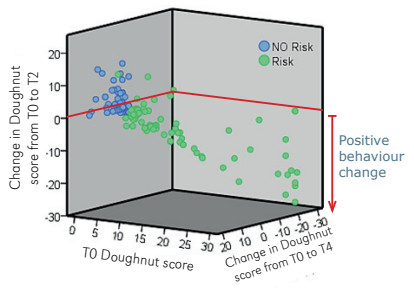
"Obesity can come from eating too much & not enough physical activity... but it is also about your family - the way they eat now & the way they ate when your mum was pregnant with you. If mums cannot get a good diet then, the baby could be at higher risk for diabetes or heart disease when it is older" Student (Aged 15 years)



Behaviour change

"We need to eat healthier food now for when we are mums. I need to eat more veges & less fatty foods, but that is not easy... We have learnt to love junk food & it is hard to move away from something you have learnt." Student (Aged 15 years)

- Positive changes in junk-food consumption were observed for students who at baseline reported at-risk behaviour patterns (p < 0.001).
- The likelihood of students in the at-risk group making & sustaining positive changes was higher than the likelihood of those in the no-risk group making negative changes: doughnuts (OR 9.5, p < 0.001), sugar sweetened drinks (OR 2.1, p < 0.01), energy drinks (OR 6.4, p < 0.001), fries (OR 6.6, p < 0.001), potato crisps (OR 4.9, p < 0.001).
- While some positive change in fruit & vegetable consumption occurred, this was not consistent, less likely to be sustained, & not significant.
- Students initiated extensive debate on the issue of access to affordable fruit & vegetables.



- Matched doughnut consumption score changes at 3-months (T2), & 12-months (T4), post-intervention.
- Risk (T0 score > 2) n=82; No Risk (T0 score ≤ 2) n=107. Score = servings per week.
- Data points below the RED line represent clusters of individuals with positive behaviour change.

Changes in attitudes & professional practice

"Inviting education to lead intervention design has achieved significantly more than when health has developed & offered interventions to schools." Elizabeth Iro, Secretary of Health, Cook Islands

- Following evaluation of pilot evidence, & community consultation, the education & health sectors have initiated further development of these programmes & are seeking funding to scale the project to enable long-term impacts.
- Having rejected the inclusion of anthropometric & metabolic measures in the initial project design, **educators led the shift to inclusion of these measures, linked to learning,** in ongoing evaluation.
- Schools report that provision of evidence from the project has supported increased community support for policy change such as a 'zero sugar sweetened beverage' policy that will be implemented in the national college in 2018.
- The Ministry of Health is increasingly integrating DOHaD evidence into NCD risk reduction strategies.