

IODINE STATUS AMONG KAMEA COMMUNITY IN KOTIDANGA LLG, GULF PROVINCE, PNG

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Study area

Kotidanga LLG



Kotidanga LLG

- Gulf Province
- Population: 20,000 (Kamea)
- No roads
- No electricity
- 1000-1600 metres above sea level
- Minimum temp 12° maximum 27°C
- Yearly rainfall 5000-7000 mm

[World Bank, FAO 2011]

- PNG Foundation





Introduction

- Iodine deficiency is one of the common yet easily preventable disorders [WHO/UNICEF/ICCIDD 2007, 2005]
- Research 2015: high prevalence of severe to mild status of iodine nutrition Kamea [Goris, Zomerdijs, Temple, 2017]

Objectives

- To reassess status of iodine nutrition in children (age 6 – 12y)
- To assess knowledge, attitudes & practices (KAP) on the use of iodised salt among the Kamea community

Ethical approval:

- ✓ PNG National Department of Health, MRAC
- ✓ SMHS, University of PNG, Ethics Research Grant committee

Methodology

Setting: Kotidanga LLG, Kerema district, Gulf Province

Sampling: Random sampling used to select schools and children 6-12y and salt from households

Procedures; Standard procedures were used to assess:

- Iodine status of schoolchildren (6 to 12y) : urine samples of 291 children
- If available, salt samples from children's households
- Per capita discretionary salt intake per day

Methodology continued

- Assessment Knowledge, Attitude, Practice:
Prospective cross-sectional study with Semi-structured FAO Nutrition-related questionnaire adapted for use in PNG [FAO 2014]
- Piloted and used with:
 - ✓ Women visiting markets (153)
 - ✓ Market stall-holders selling salt (36)
 - ✓ Stakeholders: hospital staff, community leaders & teachers (43)



Literacy school



Criteria interpretation results

Process Indicator

[Barter 1995; PNG NNS 2005; WHO/UNICEF/ICCIDD, 2007]:

- WHO/UNICEF/ICCIDD criteria:

- Iodine content in all salt must be >15 mg/kg in over 90% of households

- PNG Food Sanitation Regulation 1995:

- Iodine content in all salt must be ≥ 30 mg/kg

Impact Indicator

[WHO/UNICEF/ICCIDD 2007]

- Iodine deficiency is indicated if Median Urinary Iodine Concentration is:

- $<100\mu\text{g/L}$, and

- in over 20% samples is $<50\mu\text{g/L}$.

Results



Results: Process Indicator

- Commercial salt was available in 68.5% of HH;
- In 66% of salt samples: iodine content was >15.0 mg/kg (WHO/UNICEF/ICCIDD)
- In 50% of salt samples: iodine content was ≥ 30.0 mg/kg (PNG Food Regulation)

Calculated per capita discretionary intake of salt per day:

- Mean = 2.9 ± 1.8 g/day,
- Range = 1.1 – 7.6 g/day
- Median = 2.3 g/day

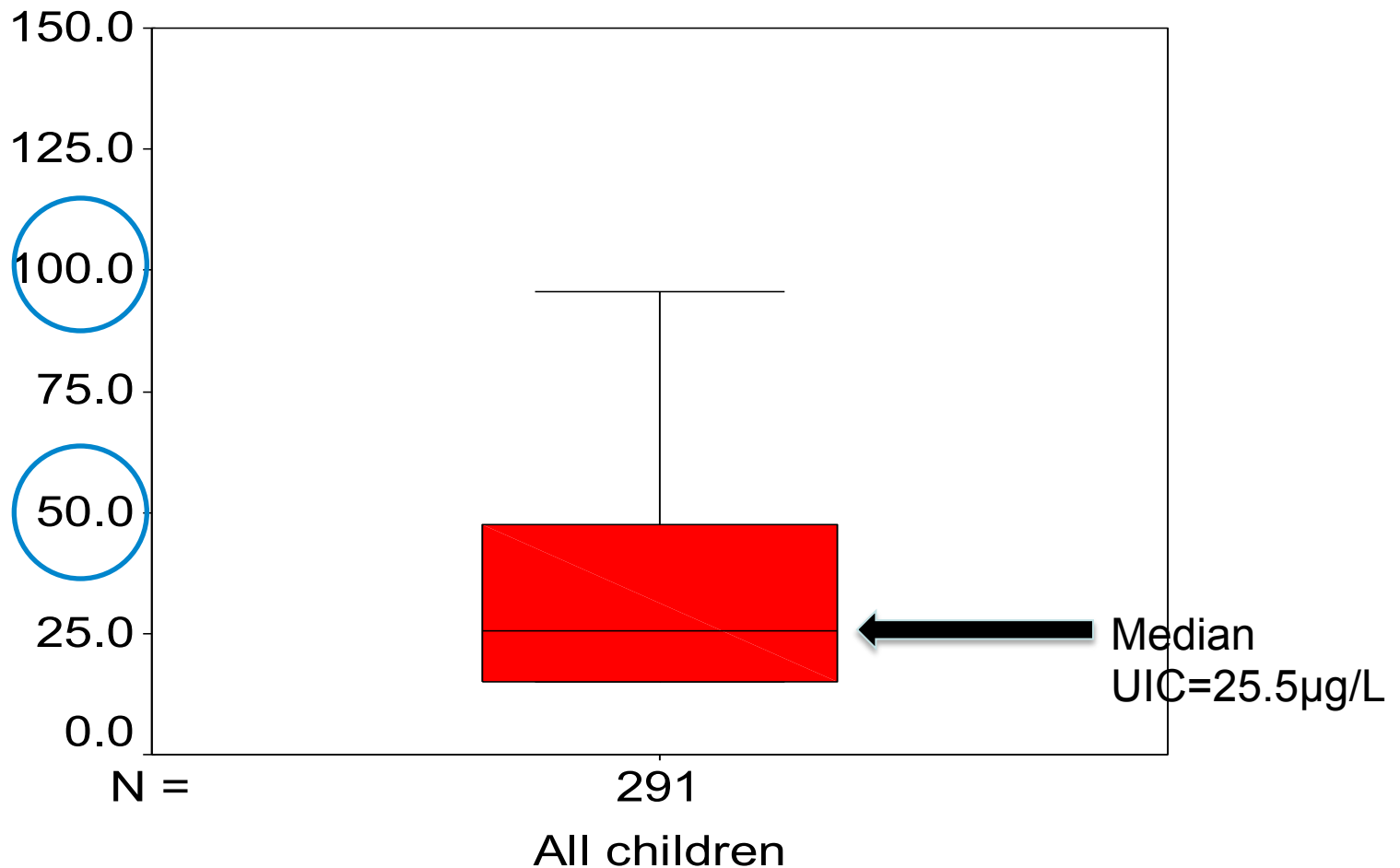
Summary statistics iodine content (mg/kg) in salt samples HH

Iodine content (mg/kg) in HH salt samples:

➤ Mean = 29.0 mg/kg (SD 19.1)

◆ Per capita discretionary intake of iodine =
67.3 µg per day.

Results: Impact indicator



Box-plot distribution Urinary Iodine Concentration children 6-12y

Summary statistics

UIC for 291 children 6-12y:

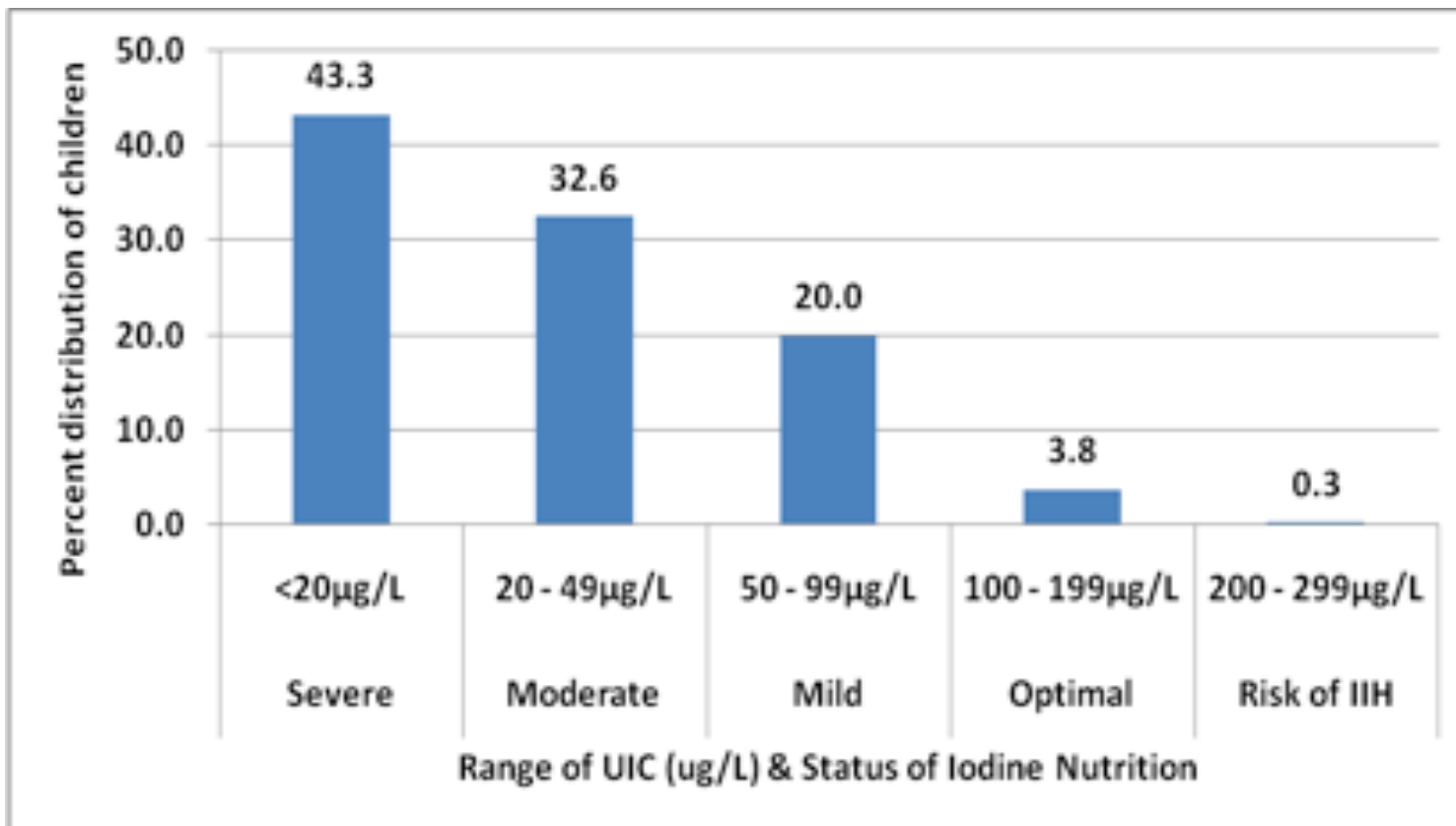
- Median UIC = $25.5\mu\text{g/L}$
- 96% had Median UIC $<100\mu\text{g/L}$
- 76% had Median UIC $<50\mu\text{g/L}$

Indication iodine deficiency (WHO):

- ✓ Median UIC below $100\mu\text{g/L}$
- ✓ $>20\%$ samples Median UIC below $50\mu\text{g/L}$

Summary statistics

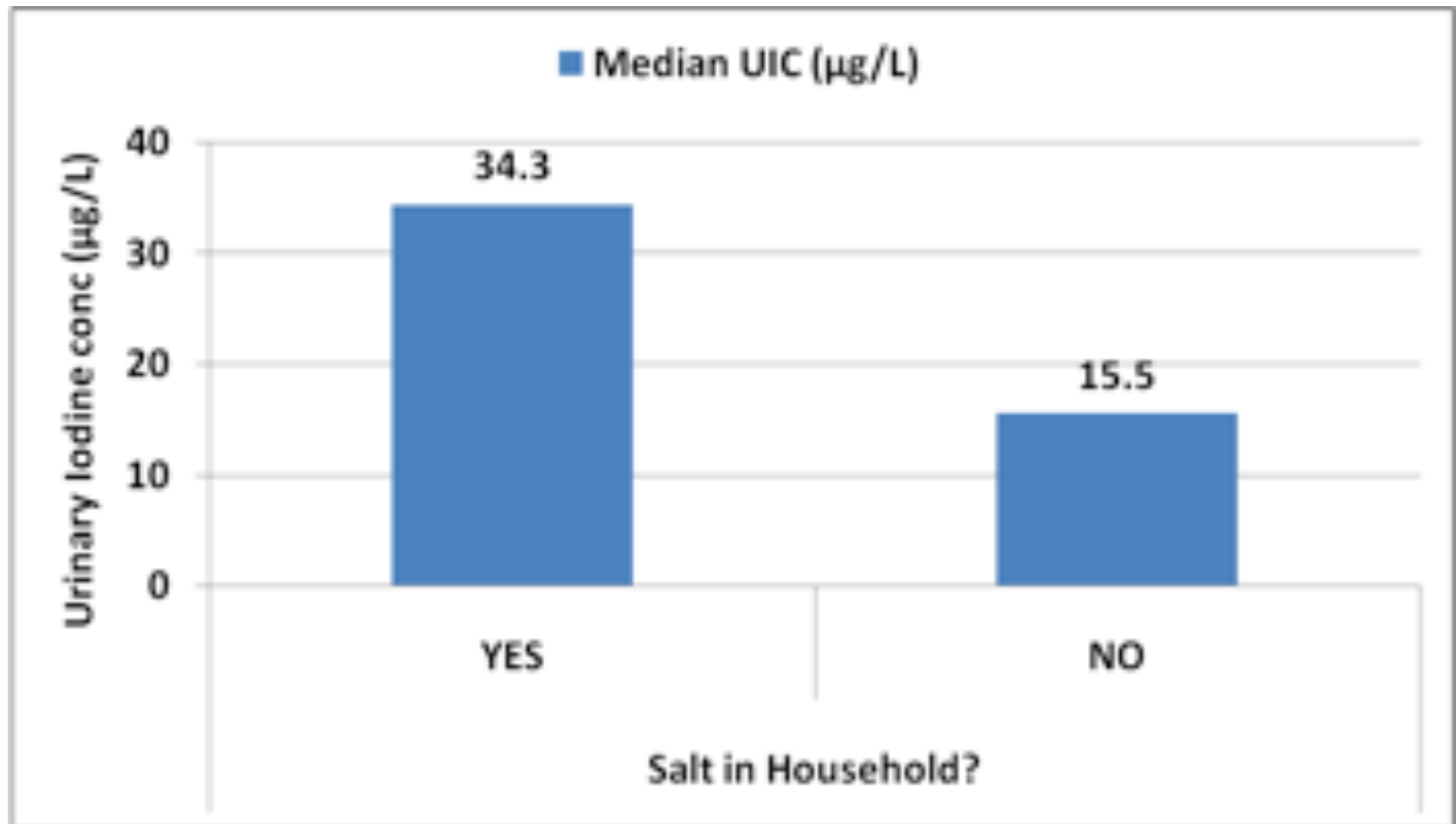
Status of urinary iodine concentration ($\mu\text{g/L}$) and iodine nutrition for children 6-12y



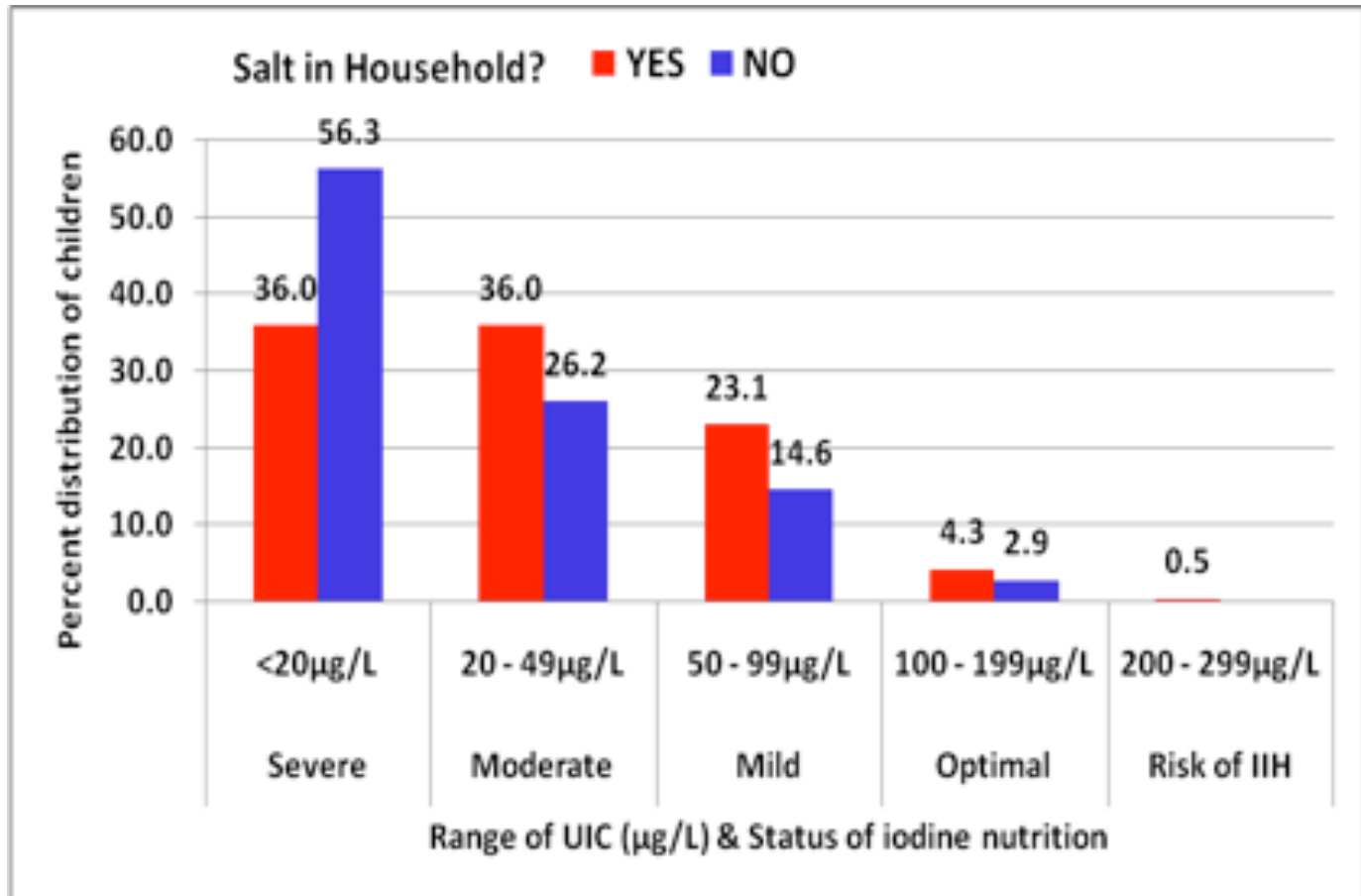
Status of Iodine Nutrition among children

- Iodine deficiency children (age 6 – 12y)
significant public health problem in study area
- Great concern to program planners District, Province, Region and the National Health Department

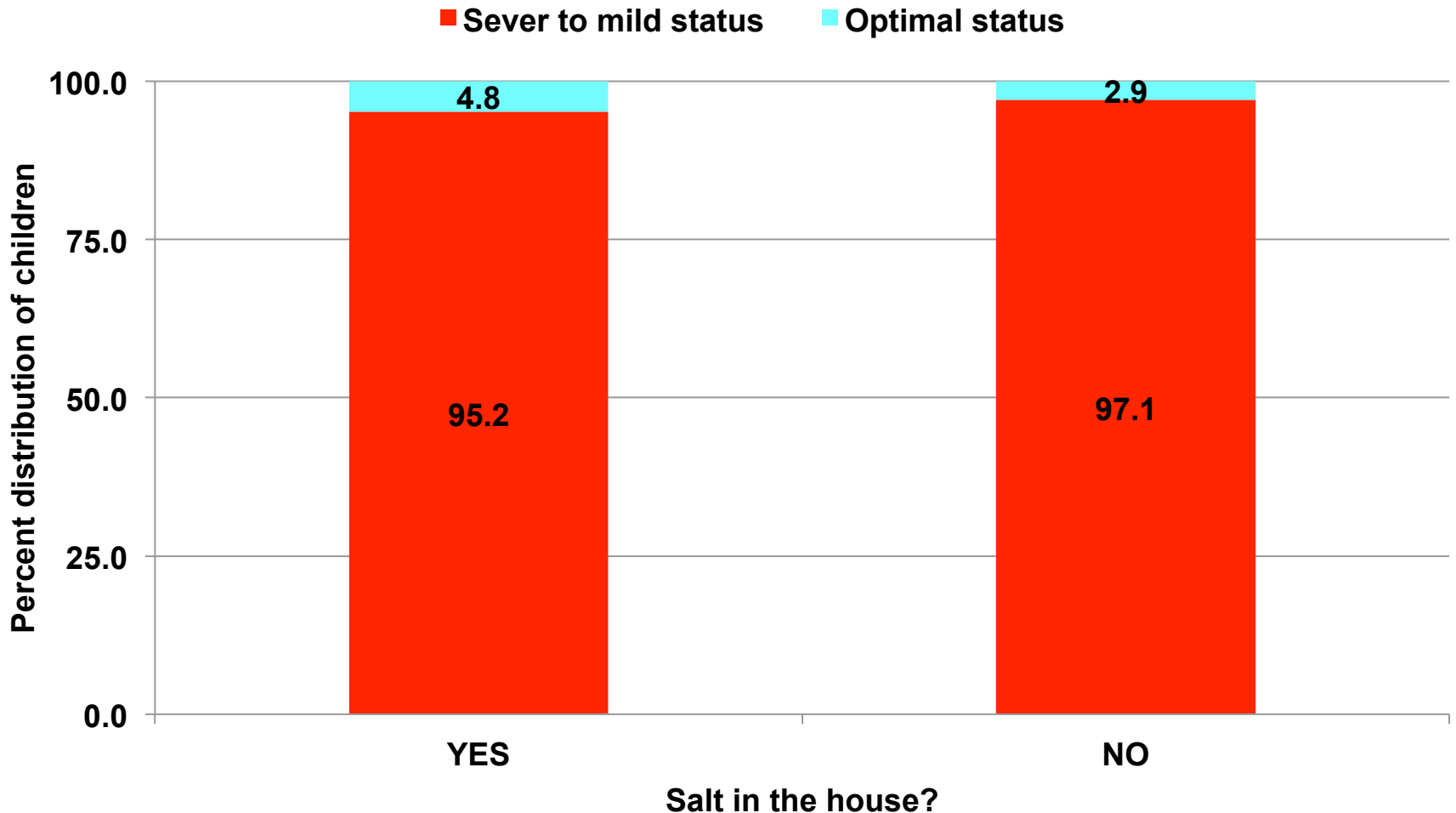
Median Urinary Iodine Concentration for children in HH with salt and without salt



Percent distribution of children in HH with and without salt according to Urinary Iodine Concentration and Status Iodine Nutrition



Suboptimal status of iodine nutrition children (6-12y) in HH with salt and without salt





Questionnaires KAP: Women visiting markets 1

- Total of 153 women
- Mean age of the women: 32.3 years
- 91% of the women reported they cannot read
- 97% do not work for money
- 87% do not listen to the radio
- 47% regularly use salt at home
 - ✓ 57% for cooking only
 - ✓ 43% for cooking and add before eating

KAP: Women visiting markets 2

- Only 2% have knowledge iodised salt
 - 35% keep salt in plastic container
 - 65% keep salt in piece of bamboo/original plastic bag
 - 97% have never eaten seafood
 - None has knowledge iodine deficiency
 - 86% think it is good to prepare food with salt
 - 94% have no money to buy salt
- There was a positive relationship between working for money and use of iodised salt by women:
- Chi-square = 4.69 ($p < .05$).

KAP: stallholders selling salt

- All stallholders selling salt (36)
- Male traders 64% and Females traders 36%
- 67% reported they cannot not read
- 67% do not listen to the radio
- 100% reported they sell only iodised salt;
- 44% reported to have some knowledge iodised salt
- None has knowledge about iodine deficiency
- 88% think it is good to prepare food with salt
- 96% say difficult to make salt available-distance
89% reported people do not have money

KAP: stakeholders

- 43 stakeholders (health, education staff, community leaders) from 9 villages across Kotidanga LLG
- 74% do not listen to the radio
- 12% reported to have knowledge iodised salt
- 95% are unsure how to best store salt
- 92% do not have knowledge about iodine deficiency
- Only 6% have idea about foods containing iodine, including iodised salt
- 72% reported it is good to prepare food with salt
- 100% said community do not buy salt because they do not have money to buy it.

Conclusions

Urgent need for:

- Increased access to adequately iodised salt
- Improved processing, packaging, and storage of iodised salt
- Nutrition education
- Information & awareness raising campaign to advocate for adequate regular intake of iodised salt
- Strengthening and maintaining an efficient functional monitoring system on implementation of Universal Salt Iodisation

Invest and impact PNG's future

1. Iodine deficiency is the single most common cause of preventable mental impairment in children with suboptimal intake of iodine
2. Access to adequately iodised salt, adequate iodine intake and a healthy diet is the foundation for inclusive and sustainable economic development of PNG
3. Network building, partnerships and community empowerment are needed to help improve the nutrition status of vulnerable PNG communities.

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THANK YOU

