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BACKGROUND

Worldwide, diets of poor quality are the main contributors to all forms of malnutrition. However, emphasis should not only be put on promoting a healthy diet but also the environmental sustainability aspects of production and consumption of foods should be taken into account. To be able to evaluate diets for healthiness and sustainability we developed the WISH (World Index Sustainability and Health) - Diet Index.

METHODOLOGY

The WISH index intends to assess the adherence to an existing set of recommendations from the EAT-lancet commission¹ for a healthy and sustainable diet for the general population, and globally applicable across multiple settings and populations. Scoring of the 13 food group components is based on 2 dimensions: diet quality and the environmental sustainability of the diet. The scores of the 13 components are added up in a total score and to assess the individual dimensions 4 sub-scores are created, a healthy and less healthy sub-score for the diet quality dimension and a high environmental impact and a low environmental impact sub-score for the sustainability dimension. **Table 1** summarizes the background for the scoring of the 13 food groups based on the healthiness (protective, neutral or limiting) and environmental impact (low, medium, high) of the diet.

Table 1: The components included in the WISH.

| Dietary component | Healthiness* | Environmental impact** | Recommended intake (g/day) |
|---------------------|--------------|------------------------|----------------------------|
| Whole grains | Protective | Low | ≥125 (100-150)*** |
| Vegetables | Protective | Low | 300 (200-600) |
| Fruits | Protective | Low | 200 (100-300) |
| Dairy foods | Protective | Medium | 250 (0-500) |
| Red meat | Limiting | High | 14 (0-28) |
| Fish | Protective | High | 28 (0-100) |
| Eggs | Neutral | Medium | 13 (0-25) |
| Chicken and poultry | Neutral | Medium | 29 (0-58) |
| Legumes | Protective | Low | 75 (0-100) |
| Nuts | Protective | Medium | 50 (0-75) |
| Unsaturated oils | Protective | Low | 40 (20-80) |
| Saturated fats | Limiting | High | 11.8 (0-11.8) |
| Sweeteners | Limiting | Low | 31 (0-31) |

*Based on the supplementary material of the EAT-Lancet recommendations¹

**Based on the assessment of Clark et al.² with sustainability indicators: greenhouse gas, land use, eutrophication, acidification, and scarcity weighted water.

***Recommended amount of intake obtained from Global Burden of Disease study³

All food group scores range from 0 to 10 and the cut-off values, when to score 0, 10 or a number between 0 and 10 are as set by the EAT-lancet commission. A higher score means a healthier diet with lower impact on the environment. This includes the component scores and the total and sub-scores. This also holds for the less healthy and low environmental impact sub-scores, as the negative components are scored inversely.

RESULTS

The WISH index was evaluated using a dataset with information from duplicate 24-hR in 396 Vietnamese adults. High scores were observed for saturated oils (mean 10 (SD0.7) **figure 1**) and added sugars (10 (0.7)). Food groups which score low in this population are: whole grains, vegetables, fruits, dairy, legumes, nuts and unsaturated oils because the minimum recommendations of intake are not met by a large part of the population and red meat and fish because they are consumed in higher amounts than recommended.

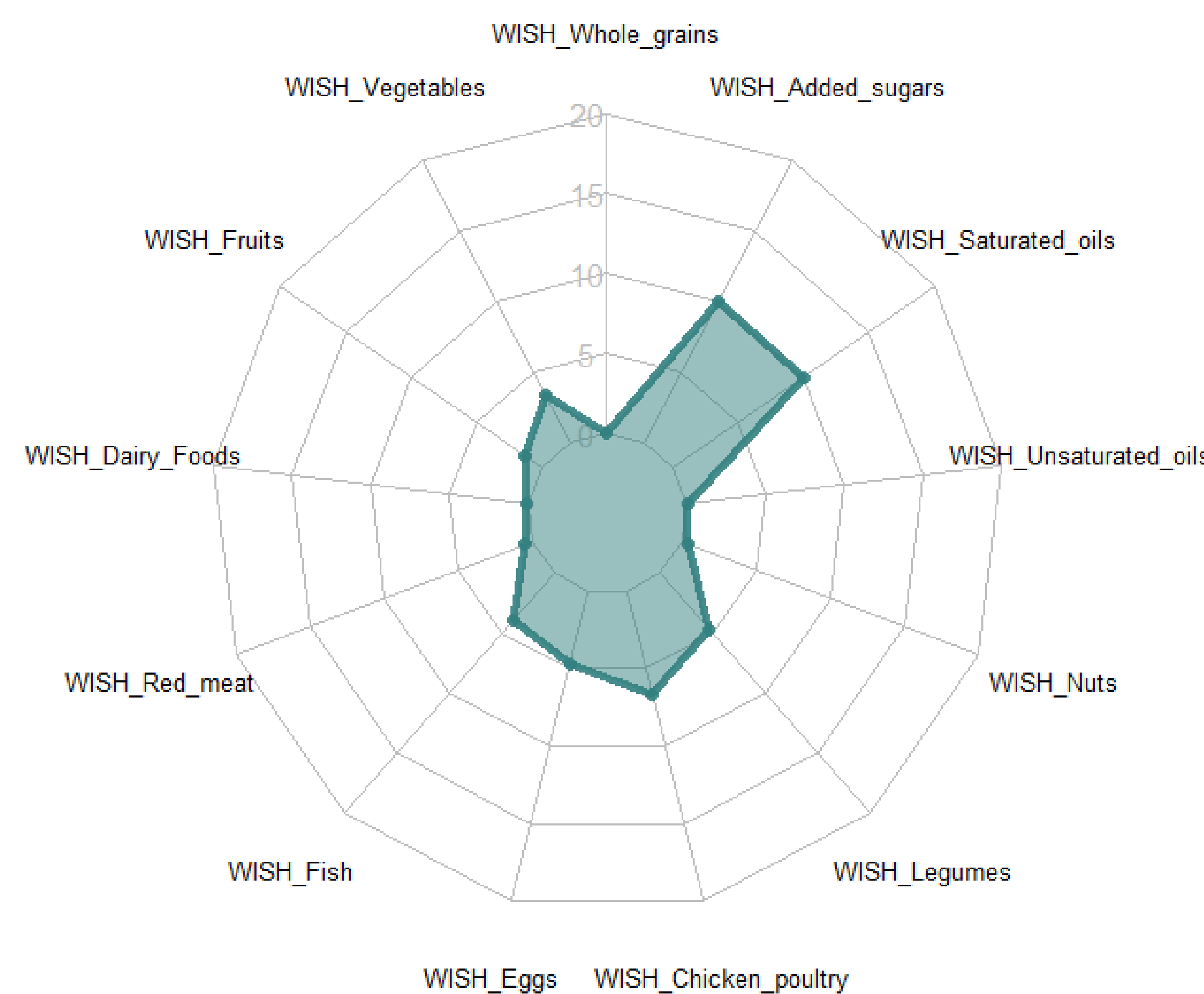


Figure 1: Mean scores of the components of the WISH in a Vietnamese population.

As you can see in **figure 2**, this resulted in a mean total score of 46 out of 130. For the sub-scores this population scores especially low on the healthy sub score (25 out of 100), but rather well on the consumption of the less healthy food groups with a score of 20 out of 30. Whereas a score of 26 out of 70 was observed on the high environmental impact sub-score and 20 out of 60 on the low environmental impact sub-score.

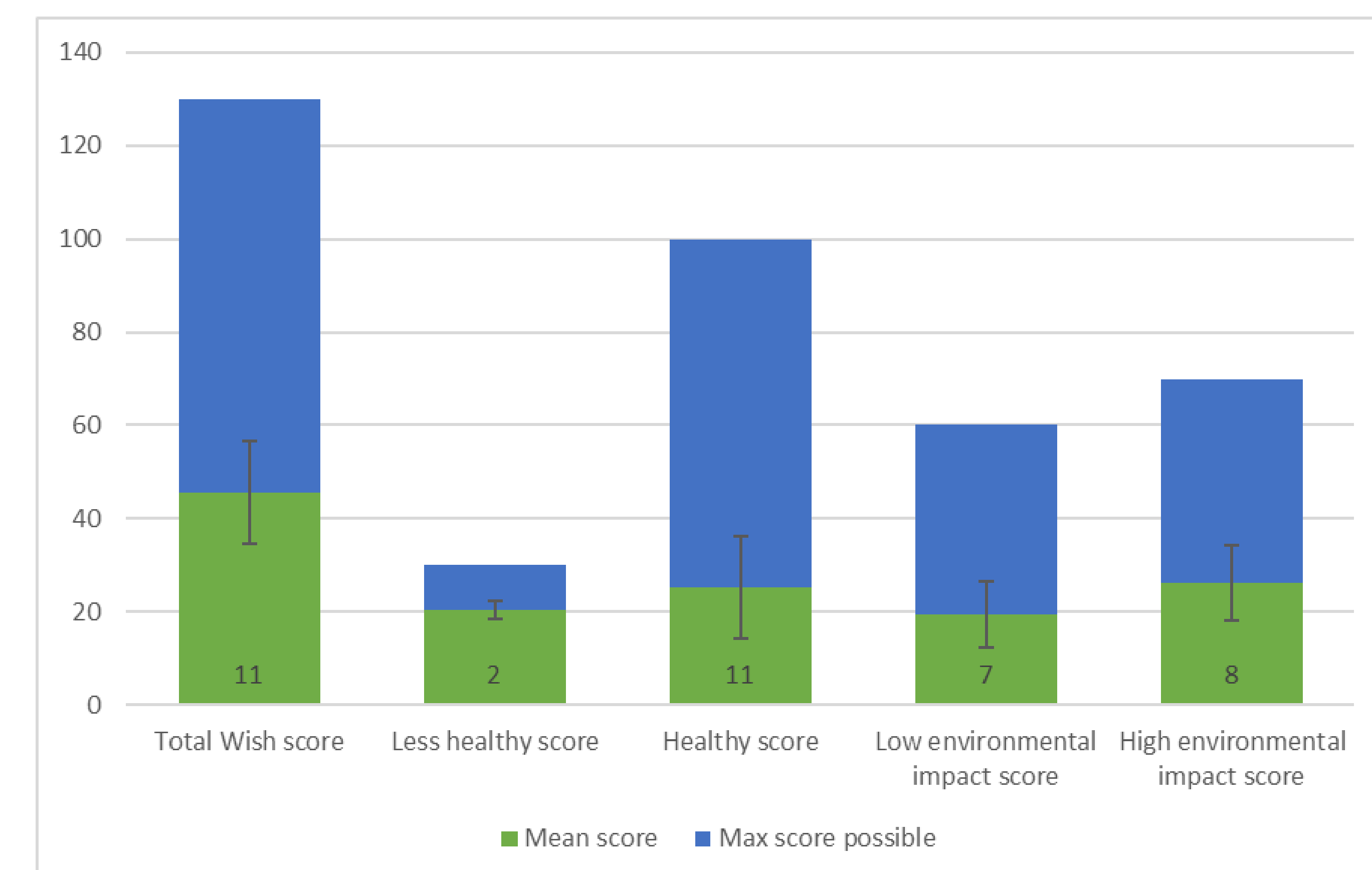


Figure 2: Total and sub-scores for the WISH in a Vietnamese population SDs are given below the error bars.

CONCLUSIONS

- Our initial analysis shows that the WISH index is able to differentiate between the healthiness and the environmental sustainability of a Vietnamese diet.
- This sustainable diet quality index seeks to measure two complex multidimensional concepts; diet quality and environmental sustainability, in one scoring system.
- One globally applicable diet quality index allows for comparing the diet quality of various countries which is often an important prerequisite of such a metric in food system research.

REFERENCES

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