

Generalidades del curso

Maicel Monzón

Que los sean capaces de usar R para desarrollar procesamientos estadísticos consistentes en:

1. Leer datos desde ficheros con formato comunes (xls, csv, sav, dat, etc.).
2. Ordenar datos.
3. Realizar transformaciones.
4. Realizar análisis y presentar los resultados de forma tabular y gráfica.

- Módulo 1: Introducción a R y RStudio
- Módulo 2: Importación de datos
- Módulo 3: Ordenar datos
- Módulo 4: Manipulación de datos
- Módulo 5: Representación tabular
- Módulo 6: Representación gráfica
- Proyecto Final: Informes con R Markdown

Plan temático del curso desde el enfoque de ciencias de datos.

O'REILLY®



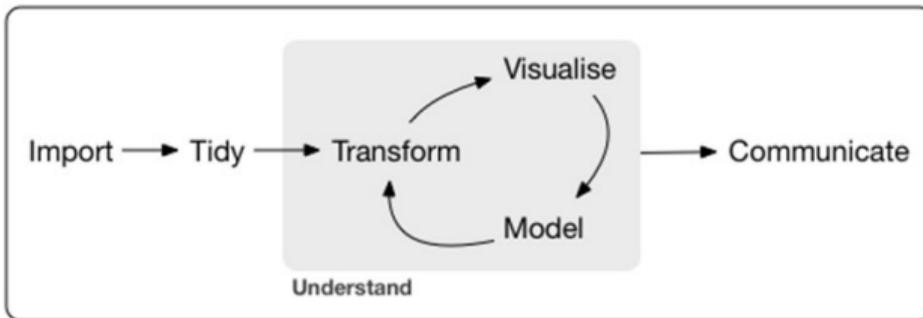
R for Data Science

IMPORT, TIDY, TRANSFORM, VISUALIZE, AND MODEL DATA

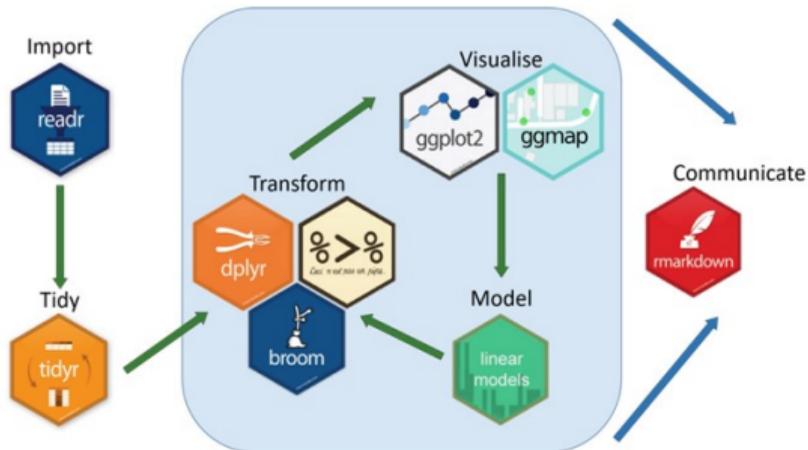
Hadley Wickham & Garrett Grolemund

www.allitebooks.com

Enfoque de ciencia de datos



Program

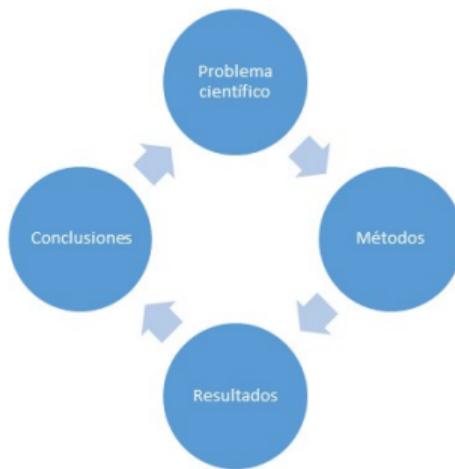


Metodología de la Investigación

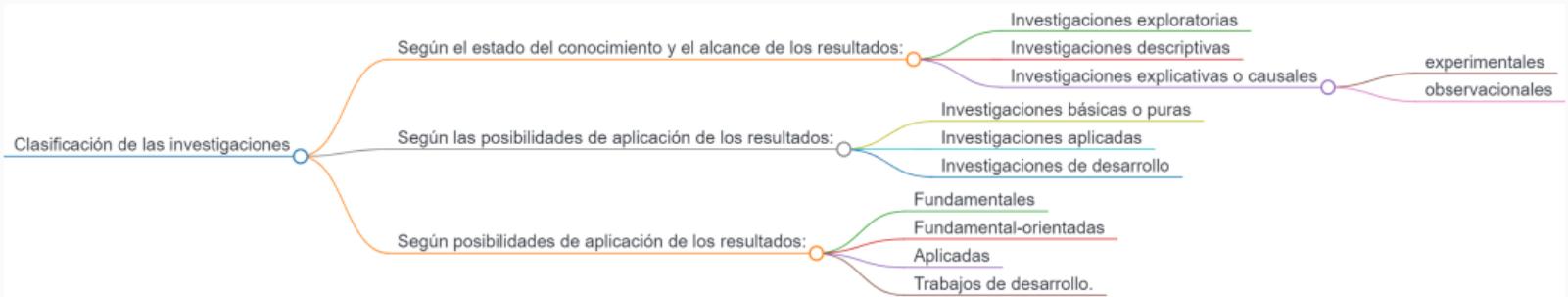
ELEMENTOS BÁSICOS PARA LA INVESTIGACIÓN CLÍNICA

ROSA JIMÉNEZ PANEQUE

Enfoque del proceso de investigación científica



Tipos de estudios



Muchos de los procedimientos de este curso se pueden implementar en análisis de datos de fortificación de alimentos a gran escala.



“Se suele decir que los científicos de datos pasamos el 80 por ciento del tiempo **limpiando, preparando y re-organizando datos** y tan solo un 20 en el **análisis** propiamente dicho”

Hadley Wickham

“De 80% limpieza a 20% análisis, a la magia de los datos ordenados”

```
library(gtsummary)
trial %>%
  tbl_summary(by = trt, include = c(age, grade)) %>%
  add_p()
```

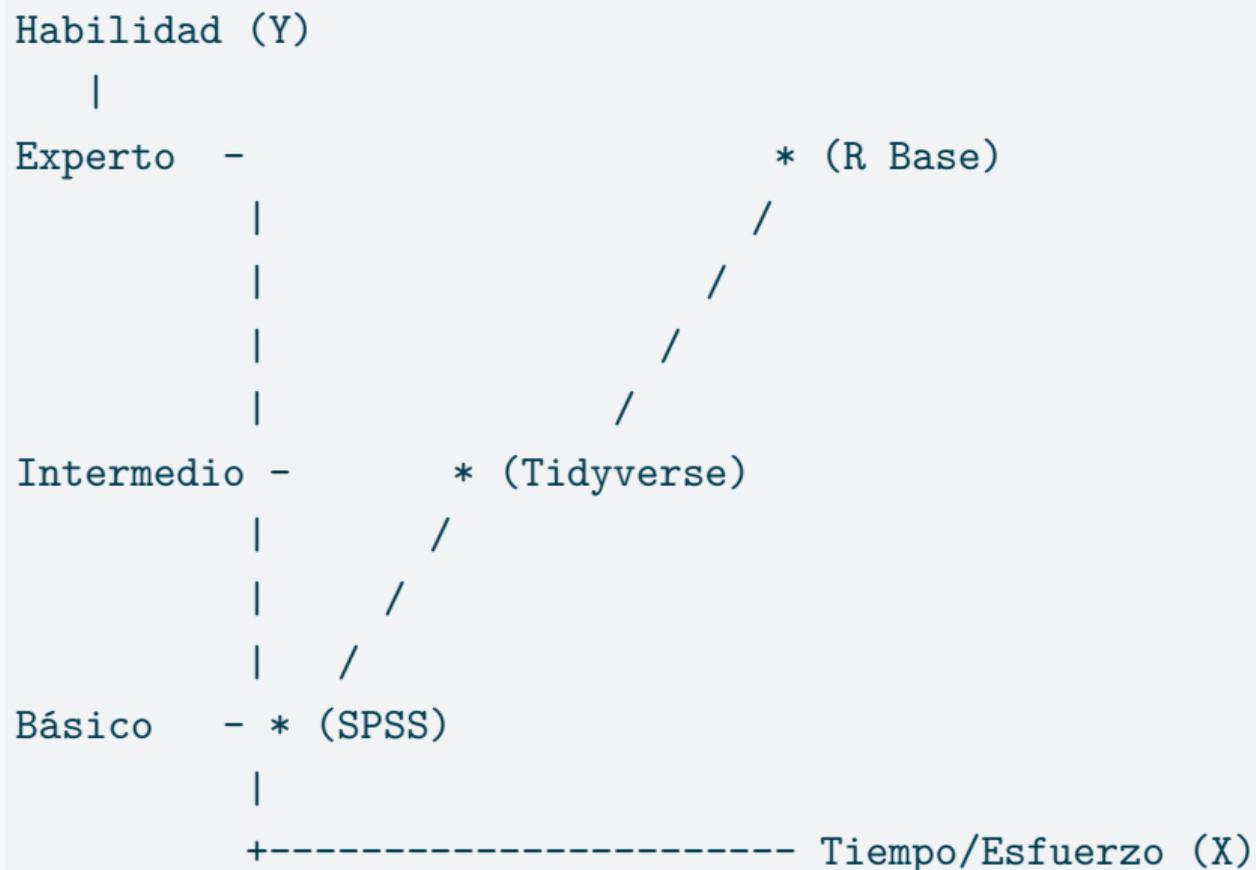
Characteristic	Drug A N = 98 ¹	Drug B N = 102 ¹	p-value ²
Age	46 (37, 60)	48 (39, 56)	0.7
Unknown	7	4	
Grade			0.9
I	35 (36%)	33 (32%)	
II	32 (33%)	36 (35%)	
III	31 (32%)	33 (32%)	

¹Median (Q1, Q3); n (%)

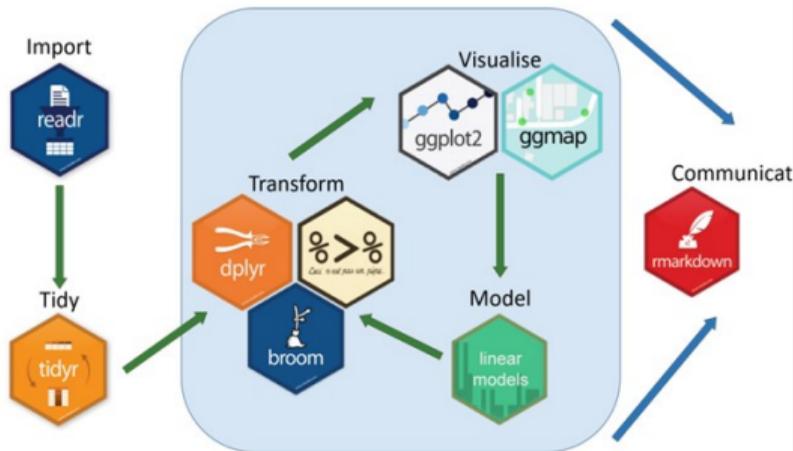
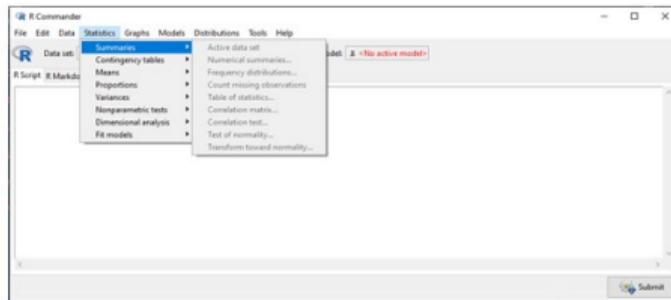
²Wilcoxon rank sum test; Pearson's Chi-squared test

Tidyverse ofrece una sintaxis más **intuitiva** y **legible**, es más **accesible para principiantes** y está optimizado para **análisis complejos**, mientras que R Base es más flexible y rápido en operaciones simples, pero con una **curva de aprendizaje más pronunciada**.

Curva de aprendizaje



Tidyverse; como pequeñas elementos se pueden convertir en sistemas poderosos y al alcance de todos.



¿Te sientes abrumado por R?

- No estás solo. Todos empezamos igual.

Cuando comencé con R hace 10 años...

- No entendía nada.
- Copiaba código de internet.
- Lo adaptaba a mis necesidades.

Pasos simples para empezar:

1. Copia código.
2. Adáptalo.
3. Aprende mientras avanzas.

No necesitas ser un experto desde el principio.

¡Solo empieza!

¿Qué ofrece este curso?

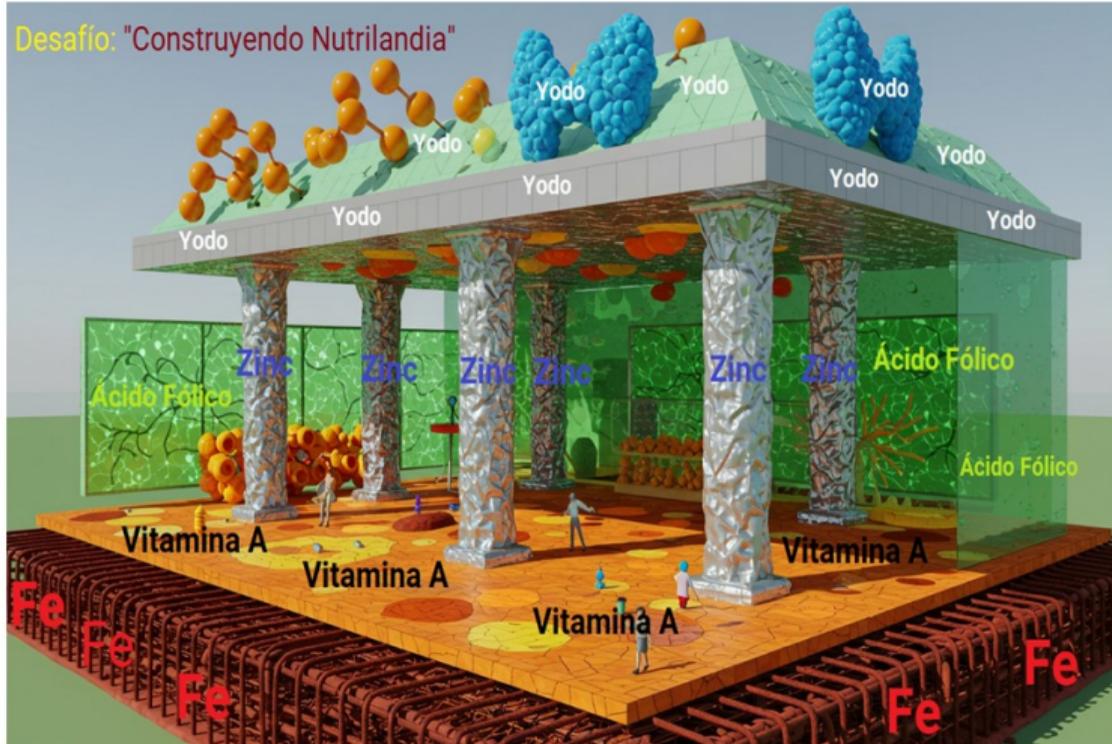
- **Estructura clara:** 6 módulos divididos en sesiones matutinas (4 horas) y vespertinas (3 horas).
- **Pausas activas:** Aplicamos principios de **neurodidáctica** con pausas de 10-15 minutos entre bloques para evitar la fatiga mental.
- **Storytelling:** Historias como esta te inspirarán y te mostrarán que está bien cometer errores o depender de recursos externos al principio.
- **Gamificación:** Ejercicios prácticos individuales y en grupo para reforzar los conceptos aprendidos.

Imagina un “Edificio de la Fortificación” donde cada elemento arquitectónico representa un micronutriente clave . Los estudiantes “construyen” el edificio completando módulos y desafíos, mientras aprenden sobre análisis de datos en R y la importancia de cada nutriente.

La metáfora de Nutrilandia (Gamificación)

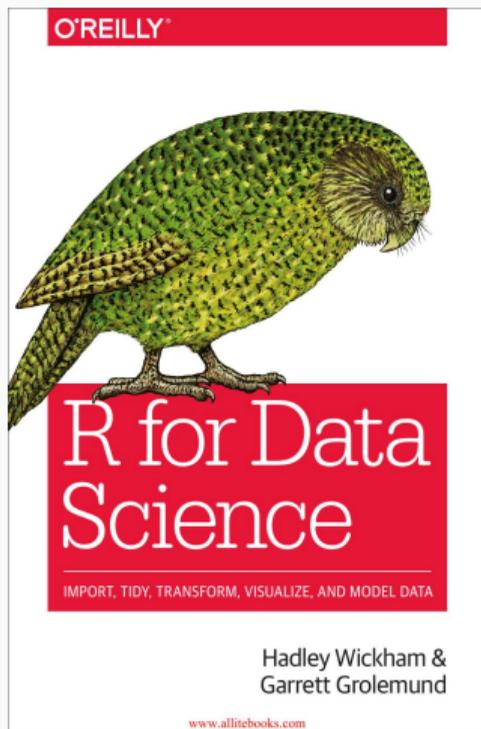
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Desafío: "Construyendo Nutrilandia"

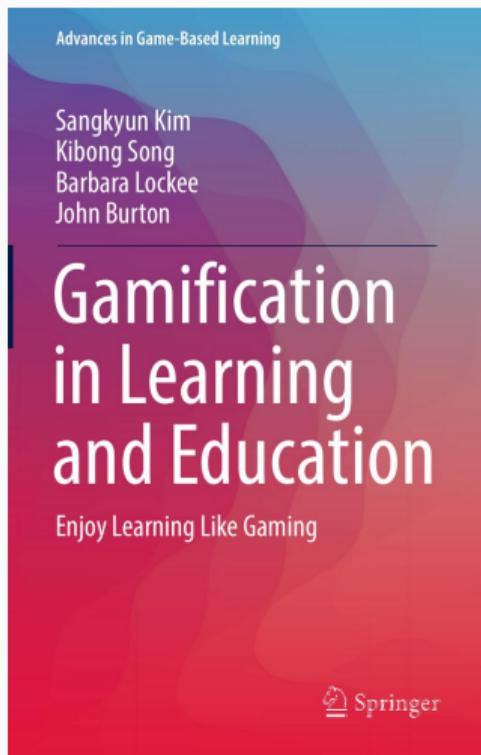


- Cimientos:** Hierro (datos limpios).
- Columnas:** Zinc (manipulación de datos).
- Pisos:** Vitamina A (visualización).
- Ventanas:** Ácido fólico (limpieza de datos).
- Techo:** Yodo (informes finales)

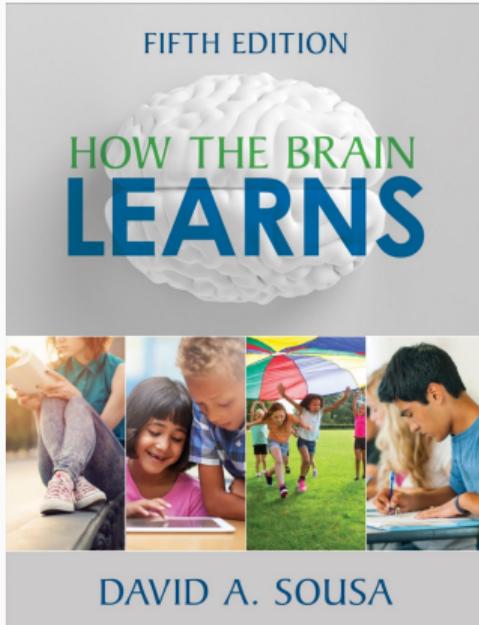
R for Data Science - Hadley Wickham (<https://r4ds.had.co.nz/>)



Gamification in Learning and Education - Sangkyun Kim



How the Brain Learns - David A. Sousa



Original Article

Modeling food fortification contributions to micronutrient requirements in Malawi using Household Consumption and Expenditure SurveysKevin Tang,^{1,2} Estevão P. Aguiar,³ Elaine L. Ferguson,⁴ Monica Potts,^{1,2} Alexander A. Kuhnlein,⁵ Beatrice Litsman,⁶ Jennifer Mathwick,⁷ Margaret Ostry,⁸ Susie Phelan,⁹ Luis Quijón De La Hoz,¹⁰ Chris Day,¹¹ K. Louise Aldred,¹² and Edward M. Mufson

¹International Food Policy Research Institute (IFPRI), Washington, DC, USA; ²International Center for Research on Women (ICRW), Washington, DC, USA; ³International Center for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Ghatampur, Bangladesh; ⁴International Center for Research on Women (ICRW), Washington, DC, USA; ⁵International Center for Research on Women (ICRW), Washington, DC, USA; ⁶International Center for Research on Women (ICRW), Washington, DC, USA; ⁷International Center for Research on Women (ICRW), Washington, DC, USA; ⁸International Center for Research on Women (ICRW), Washington, DC, USA; ⁹International Center for Research on Women (ICRW), Washington, DC, USA; ¹⁰International Center for Research on Women (ICRW), Washington, DC, USA; ¹¹International Center for Research on Women (ICRW), Washington, DC, USA; ¹²International Center for Research on Women (ICRW), Washington, DC, USA

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Large-scale food fortification and the use of other interventions to increase micronutrient intake in the food system can complement other agriculture, nutrition, and behavior change strategies that aim to improve the nutritional status of the population. This study developed a mathematical modeling framework for assessing food system sources and their contributions to meeting the total micronutrient requirements of the population. The model was applied to assess the potential contributions of food fortification, other agriculture, nutrition, and behavior change strategies to meeting the total micronutrient requirements of the population. The model was applied to assess the potential contributions of food fortification, other agriculture, nutrition, and behavior change strategies to meeting the total micronutrient requirements of the population. The model was applied to assess the potential contributions of food fortification, other agriculture, nutrition, and behavior change strategies to meeting the total micronutrient requirements of the population.

Keywords: large-scale food fortification; HCES; micronutrient; household survey; Malawi

Introduction

Micronutrient malnutrition burdened billions of people worldwide, with significant consequences for their physical and mental health. The global approach to reducing and understanding food system sources of micronutrient requirements is to use household consumption and expenditure surveys (HCES) to estimate the total micronutrient requirements of the population. The model was applied to assess the potential contributions of food fortification, other agriculture, nutrition, and behavior change strategies to meeting the total micronutrient requirements of the population.

doi:10.1111/j.1365-3113.2012.04788.x

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Methods of using Household Consumption and Expenditures Survey (HCES) data to estimate the potential nutritional impact of fortified staple foods

Beth Imhoff Kuech, Rafael Flores, Oscar Dary, and Reynolds Matamoros

Abstract

Background: Micronutrient malnutrition, contributing to malnutrition, dietary intake, is a global public health problem that adversely affects health, child growth and development, work capacity, and quality of life. Also, populations of low income countries often do not have the potential to increase micronutrient intake, and are often also very vulnerable to drought. Although fortified food data about food consumption patterns are often not available, household consumption and expenditure surveys (HCES) are available, especially for one national survey conducted over a 12-month period every 2 or 3 years, primarily in developing countries.

Objective: To describe how expenditure data from HCES can be used to estimate the nutritional composition and the use of food in a household (which food to fortify) and to determine the total use of micronutrient in all of the household members.

Methods: We describe methods of using HCES data to estimate the nutritional composition of staple foods.

Results: There are several limitations of using HCES data to describe apparent food consumption. HCES do not directly measure food intake, but rather estimate food intake through household expenditure data. The amount of purchased food on the food bill does not equal the amount of food consumed, and the amount of food on the food bill is often not equal to the amount of food consumed.

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Food and Nutrition Bulletin, vol. 31, no. 3, Supplement 2, 2012, © The Author(s), Cambridge University Press

Conclusions: Despite the limitations of using HCES data to estimate apparent food consumption, the timing of national food consumption surveys (HCES) data might be changing food fortification programs.

Key words: fortification, household consumption and expenditure survey, micronutrient, nutrient, staple food

Introduction

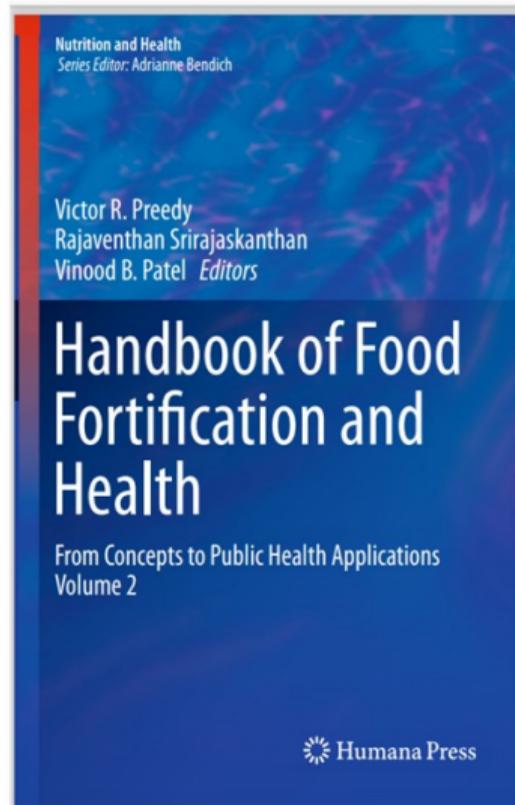
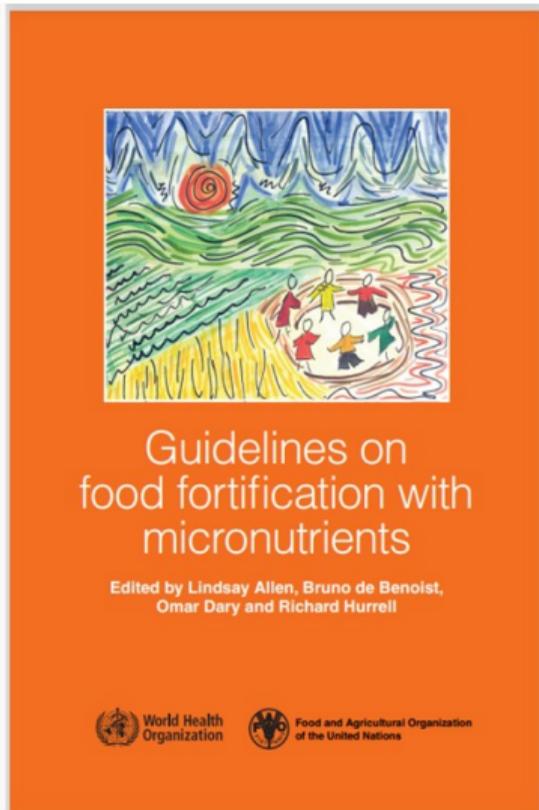
Micronutrient malnutrition can have damaging effects on health, child growth and development, work capacity, and quality of life during childhood and through the life cycle. Micronutrient deficiencies, such as iron deficiency, can lead to poor health, poor work capacity, and poor health performance in poor, vulnerable groups such as women of reproductive age and young children living in low income countries. Well-represented household consumption and expenditure surveys (HCES) are available in many national survey systems, such as countries with single foods, yet because micronutrient data are not always available, the burden of micronutrient malnutrition is not always known. Many household consumption and expenditure surveys (HCES) are available in many national survey systems, such as countries with single foods, yet because micronutrient data are not always available, the burden of micronutrient malnutrition is not always known. Many household consumption and expenditure surveys (HCES) are available in many national survey systems, such as countries with single foods, yet because micronutrient data are not always available, the burden of micronutrient malnutrition is not always known.

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Participación de



QWEN CHAT



deepseek



perplexity



ImageFX



GitHub



posit™



