



# Food Insecurity & Mental Health: Contextualizing Nutrition in Psychosocial Functioning

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# Objectives

- 1) Definitions
- 2) U.S. Population
- 3) Emerging: Mental Health
- 4) Psychosocial Functioning
- 5) Veteran Populations
- 6) Moving Forward

# Poll Question #1

What are your primary areas of expertise? (select all that apply)

- Clinical Care
- Research
- Nutrition/Dietetics
- Public Health
- Policy
- Administration
- Other

# Poll Question #2

What (if anything) have you heard about food insecurity? (select all that apply)

- I haven't heard of food insecurity
- It's about hunger and poverty
- It's about geography (i.e. "food deserts")
- It affects homeless Veterans
- Programs like SNAP (food stamps) and WIC address food insecurity

# Definitions

USDA:

“A household-level and social condition of **limited** or **uncertain** access to food<sup>1</sup>.”



# Definitions

Food Security defined as:

**Binary**                      Yes/No

**Categorical**              High  
                                    Marginal  
                                    Low  
                                    Very Low

# Definitions

Food Security defined as:

Binary

Yes/No

Categorical

High

Marginal

Low

Very Low

Any time in the past **12 months**

**Physical** food shortages and/or **worry** about food shortages

# U.S. Population

In 2016,

- 12.6% of households experienced decreased food security<sup>2</sup>
- ~5% of households experienced Very Low food security
- 8% of households with children were food insecure (binary)  
(1 in 6 children)



# U.S. Population

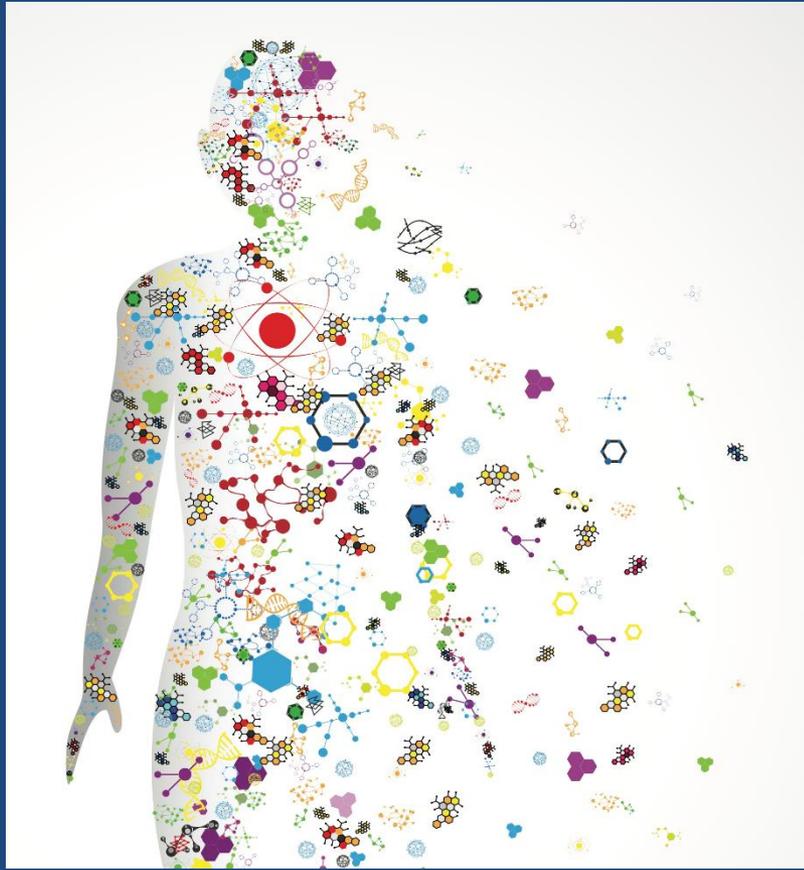
Common among people with food insecurity<sup>2</sup>...

- Live at/near the federal **poverty line**
- Live **alone** or are **single** parents
- Live either within a **principal city** or in a **rural area**
- Are African American or Hispanic



# U.S. Population

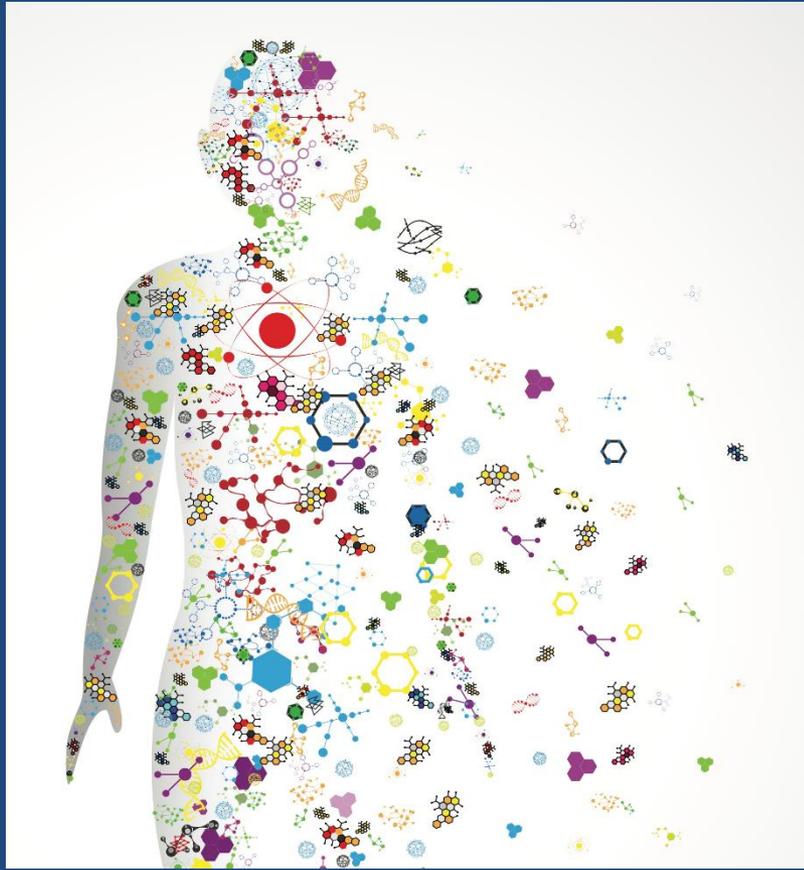
What does this mean for **health outcomes**?



<https://www.biospectrumindia.com/views/21/8951/mapping-human-health.html>

# U.S. Population

What does this mean for **health outcomes**?



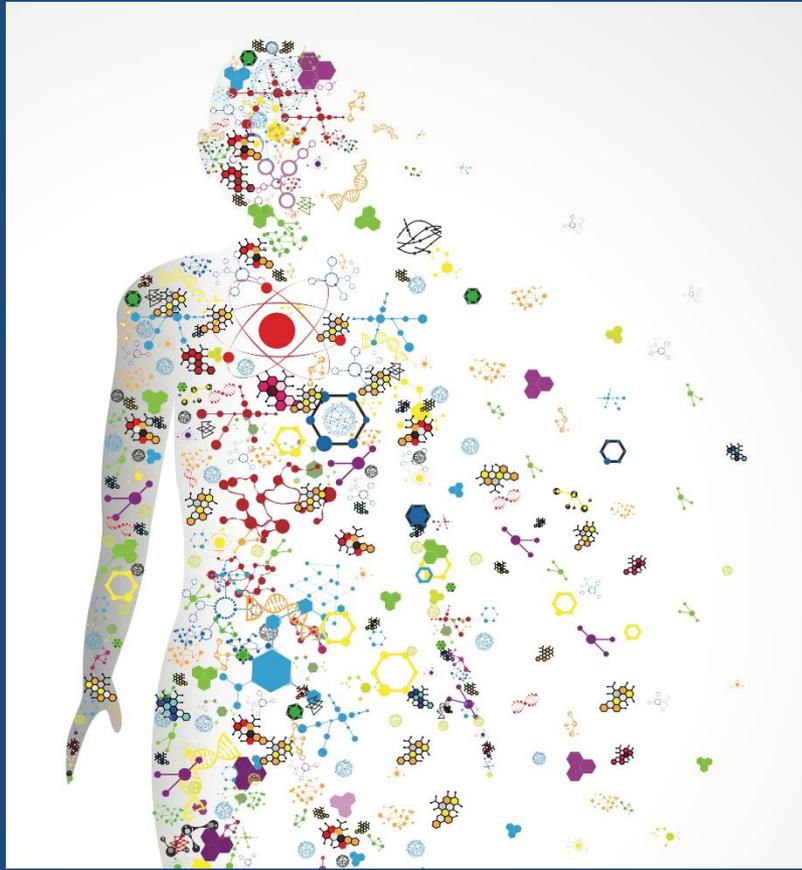
<https://www.biospectrumindia.com/views/21/8951/mapping-human-health.html>

The focus, historically:

- 1) Physical hunger
- 2) Finances
- 3) Geographic access

# U.S. Population

What does this mean for **health outcomes**?<sup>3-10</sup>



<https://www.biospectrumindia.com/views/21/8951/mapping-human-health.html>

- Malnutrition...
- Immune dysfunction
- ↑ Inflammatory processes
- Cardiovascular disease
- Metabolic disturbances

**Long term:**

↓ health status and

↓ quality of life

# U.S. Population

But,

food insecurity  
(and nutrition)

are not **isolated**...

# U.S. Population



Adapted: Seligman HK, Schillinger D. *N Engl J Med.* 2010;363:6-9.

# U.S. Population



Adapted: Seligman HK, Schillinger D. N Engl J Med. 2010;363:6-9.

# Emerging: Mental Health

**STRESS**



# Emerging: Mental Health

## Cross-sectional<sup>11-14,17-20</sup>

- Depression
- Schizoaffective disorders
- Substance abuse
- Alcohol abuse
- **Suicidal ideation**



**STRESS**

# Emerging: Mental Health

## Cross-sectional<sup>11-14,17-20</sup>

- Depression
- Schizoaffective disorders
- Substance abuse
- Alcohol abuse
- **Suicidal ideation**

**STRESS**

## Longitudinal<sup>15,16,21</sup>

Depression



Food insecurity

and

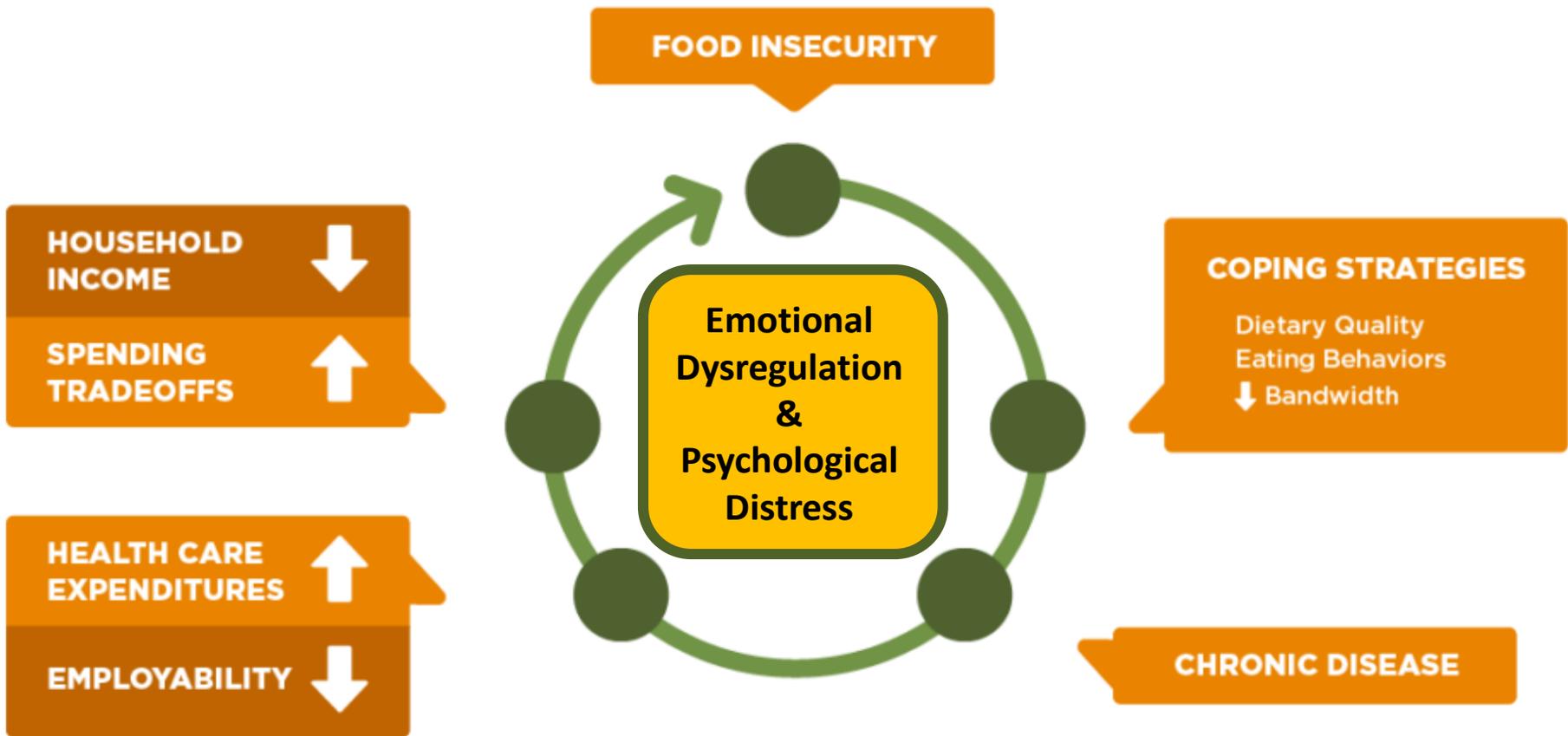
Δ Depression



Δ Food insecurity



Adapted: Seligman HK, Schillinger D. N Engl J Med. 2010;363:6-9.



Adapted: Seligman HK, Schillinger D. N Engl J Med. 2010;363:6-9.

There's a tendency to think of  
food insecurity as **physical**...



Or as an issue of **age** and **mobility**...



Or as an issue of **age** and **mobility**...



# What about the Bigger (Psychosocial) Picture?





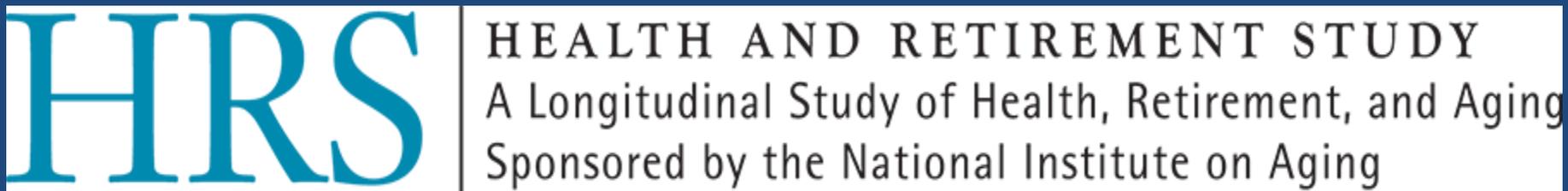
# What about **Veterans**?



<http://www.leegov.com/dhs/veterans>

Much less data available...

# What data **are** available?



- Based at the University of Michigan<sup>22</sup>
- Nation's **largest longitudinal study of aging**
- Participants aged 50+
- Survey every 2 years since 1990
- **2013**: Assessed food insecurity via single **inter-wave survey**

# What data **are** available?

**HRS**

HEALTH AND RETIREMENT STUDY  
A Longitudinal Study of Health, Retirement, and Aging  
Sponsored by the National Institute on Aging

**Two secondary analyses:**<sup>23,24</sup>

1. Food insecurity & Veteran status
2. Food insecurity & weight status

# Results: Veteran Status

(n = 8,073 respondents → n = 2,560 eligible men)

	Male Veterans	Male Non-Veterans	Male Veterans, 65+	Male Veterans, <65
	n=1,254	n=1,306	n=937	n=317
<b>FI (yes/no)</b>	6.4%	11.9%	3.7%	11.5%
<b>FI (categorical)</b>				
<b>High FI</b>	4.9%	7.8%	2.6%	9.2%
<b>Moderate FI</b>	12.8%	18.0%	8.7%	20.3%
<b>Nutrition assistance</b>	11.2%	17.2%	8.2%	16.6%

# Results: Veteran Status

Veterans less likely to be food insecure, BUT

FI male Veterans more likely to:

- Be younger (50-64)  
African American  
current smokers
- Have a lower income  
psychiatric diagnosis  
functional disability

# Results: Veteran Status

Veterans less likely to be food insecure, BUT

FI male Veterans more likely to:

- Be younger (**50-64**)  
African American  
current smokers
- Have a lower income  
**psychiatric diagnosis**  
functional disability
- Score as **clinically depressed**



<http://www.womansday.com>

# Results: Veteran Status

	All Male Veterans	65+	<65
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
<b>Age (increasing)</b>	0.92 (0.87, 0.97)	0.97 (0.89, 1.06)	0.77 (0.65, 0.91)
<b>Annual income (\$10,000 increments)</b>	0.84 (0.74, 0.97)	0.80 (0.64, 1.00)	0.88 (0.70, 1.10)
<b>Current smoker</b>	2.24 (0.99, 5.07)	5.26 (1.69, 16.35)	1.51 (0.45, 5.04)
<b>Any difficulty with ADLs</b>	2.44 (1.20, 4.96)	1.41 (0.49, 4.02)	<b>4.49 (1.37, 14.68)</b>
<b>Psychiatric diagnosis</b>	1.92 (0.86, 4.32)	<b>4.19 (1.40, 12.56)</b>	0.91 (0.25, 3.35)
<b>Depression (CES-D)</b>	<b>3.78 (1.59, 9.00)</b>	<b>6.99 (1.42, 34.42)</b>	<b>3.63 (1.06, 12.39)</b>

Brostow, D. P., et al. (2017). "Food insecurity among veterans: Findings from the health and retirement study." The Journal of Nutrition, Health & Aging: 1-7.

# Results: **Weight** Status...not significant...

	<b>Total n=2,868</b>	<b>Normal Wt. n=892</b>	<b>Overweight n=1,103</b>	<b>Obese n=873</b>
<b>Food secure (no)</b>	17.9%	15.2%	17.6%	21.2%
<b>Food security (categorical)</b>				
<b>Very Low</b>	5.0%	3.4%	5.3%	6.4%
<b>Low</b>	6.8%	5.7%	5.9%	9.1%
<b>Marginal</b>	6.1%	6.1%	6.4%	5.8%
<b>High</b>	82.1%	84.8%	82.4%	78.7%
<b>Nutrition assistance benefits</b>	15.3%	13.5%	15.4%	16.9%

# Results: Weight Status

FI: All weight categories	FI: Overweight & Obese <b>only</b>
Non-White	Single/un-partnered
Hispanic	Any difficulty with ADLs
Poorer overall health status	Any difficulty with IADLs
Chronic lung disease	Any difficulty with mobility
Decreased word recall scores	
Current smoker	
Did not finish high school	
<b>Psychiatric diagnosis</b>	
<b>Depression</b>	

These associations are all independent of **income**...



Other Veteran populations?

Younger Veterans?

Other Veteran populations?

Younger Veterans?



<https://www.biloxi.va.gov/services/returning/index.asp>

Two 'snapshots' of  
post-9/11 Veterans:

~27% reported being  
food insecure<sup>25</sup> ...

but ~10% receive  
nutrition assistance<sup>26</sup> ...



<https://www.biloxi.va.gov/services/returning/index.asp>

- Longest-running Military engagements in U.S. history
- Unprecedented polytraumatic injuries<sup>27-31</sup>:
  - Traumatic Brain Injury (TBI)
  - Post-Traumatic Stress (PTSD)
  - Depression & Anxiety
  - Suicidal ideation
  - Adverse long term health outcomes???



<https://www.biloxi.va.gov/services/returning/index.asp>

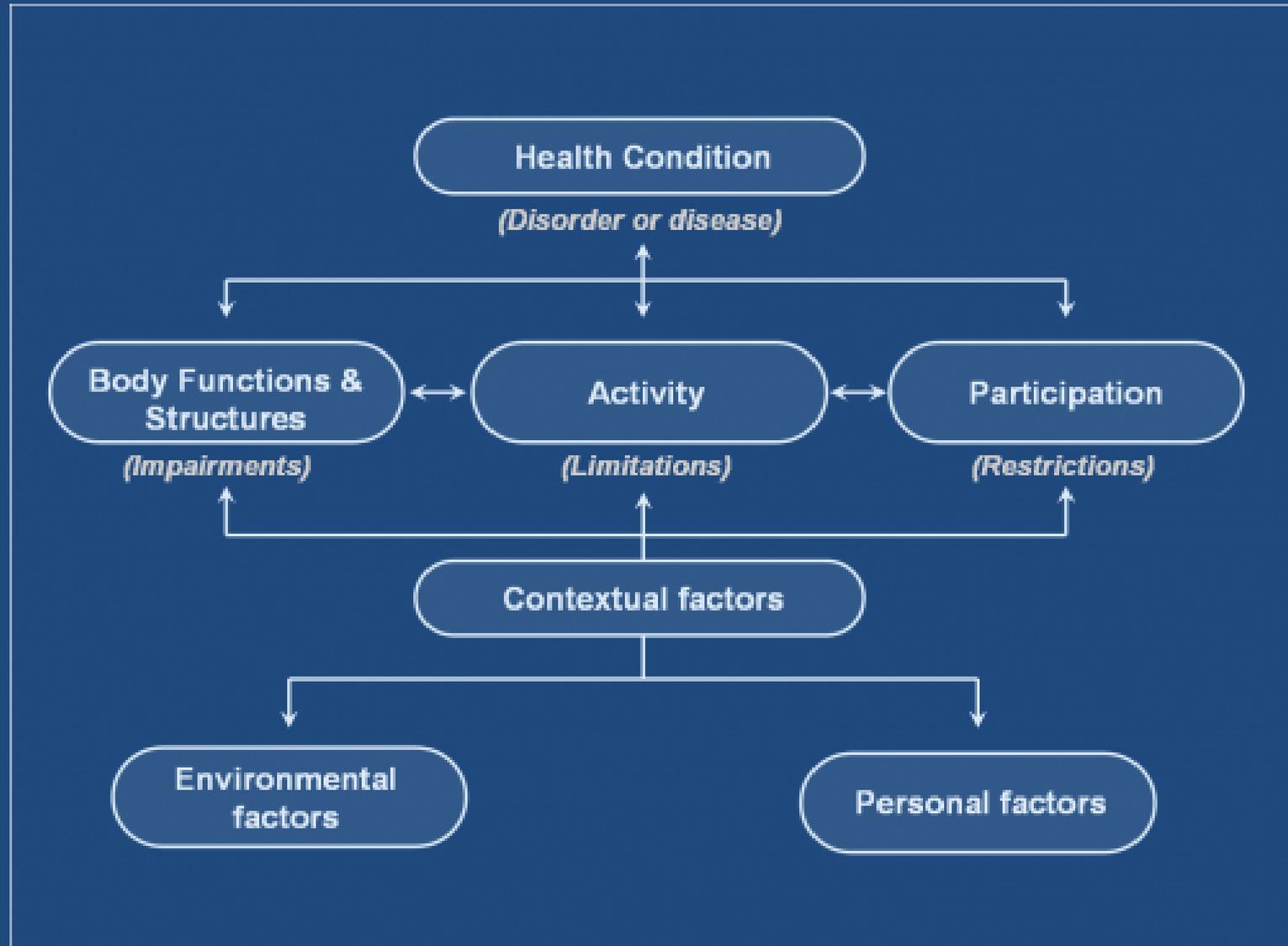
- **Reintegration** can be tough<sup>32-38</sup> ...
- Their civilian peers are 'ahead' ...
- Often drop out of college...
- ↓ Job competitiveness...
- Life's **Purpose & Direction**???

# (My) Emerging Hypothesis...

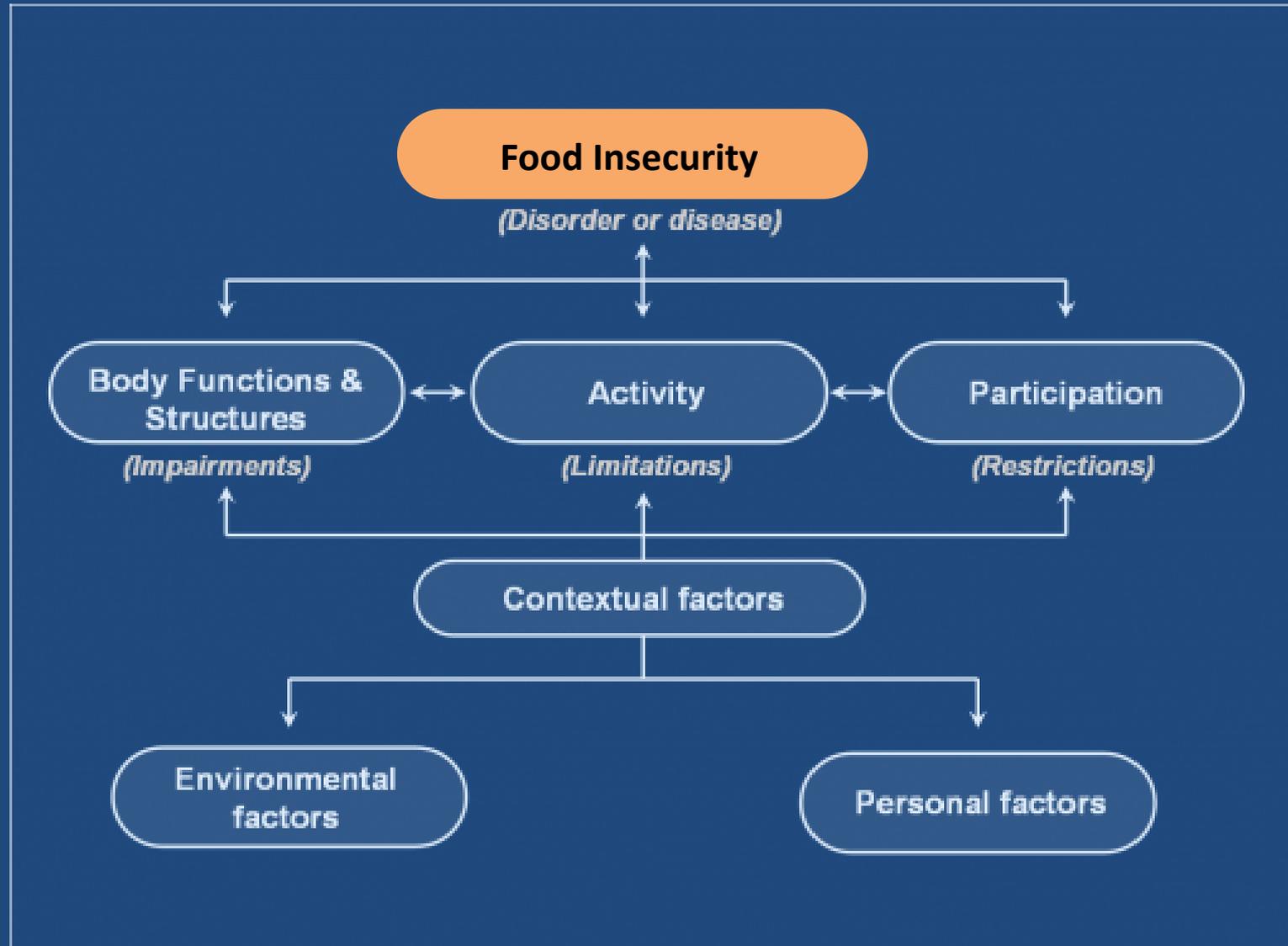


[alanrudnick.org](http://alanrudnick.org)

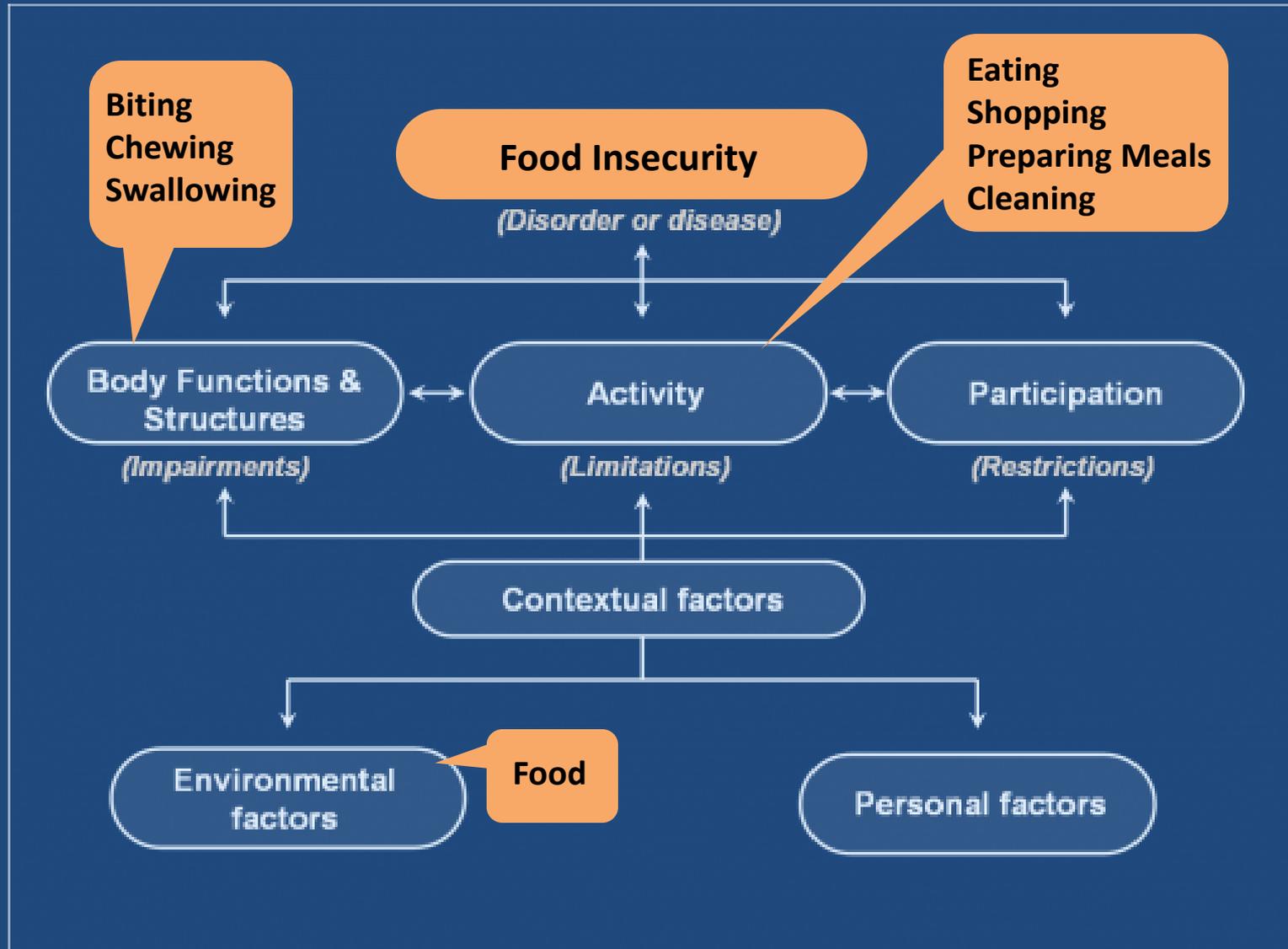
# International Classification of Functioning, Disability, and Health



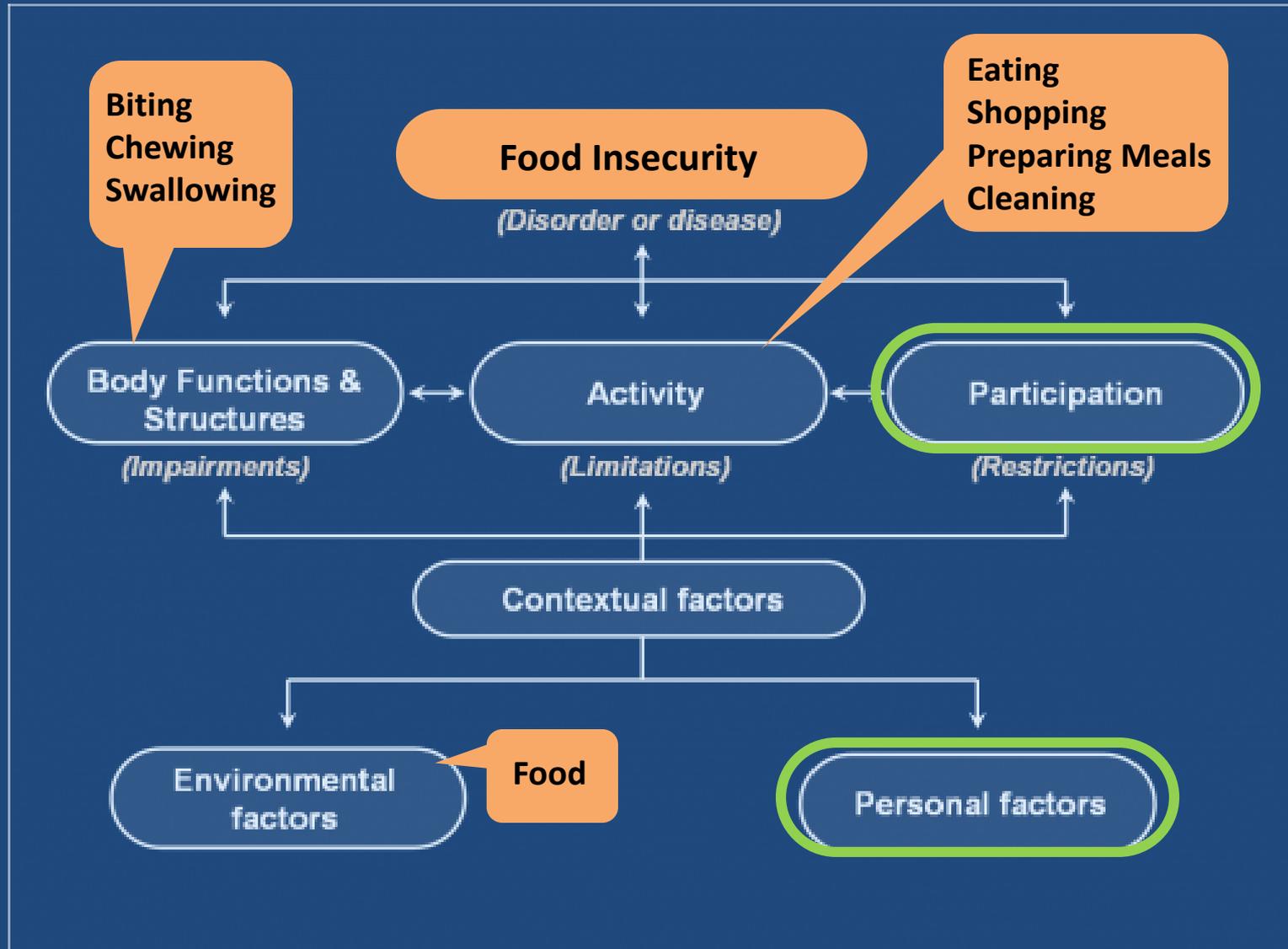
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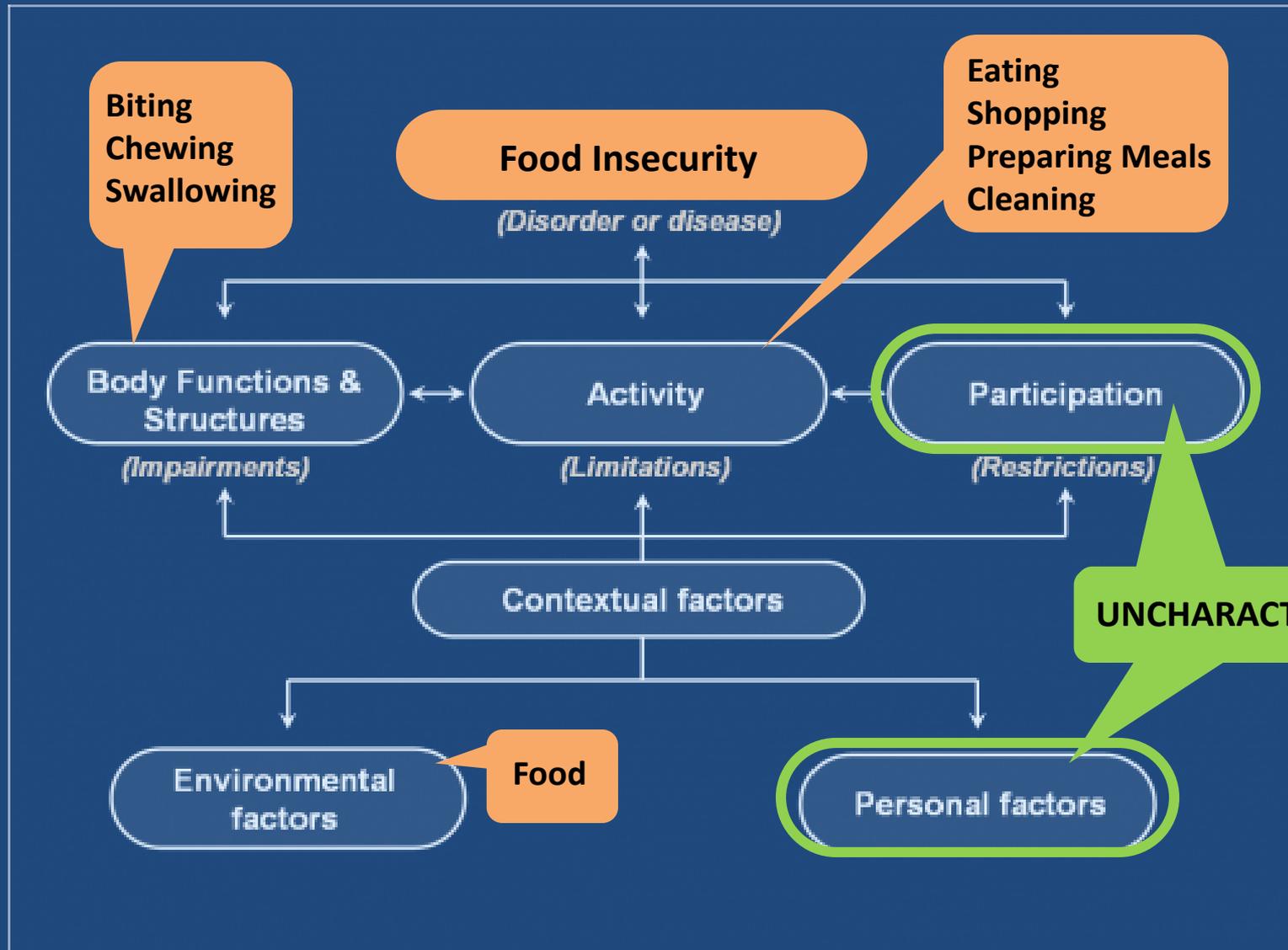


# International Classification of Functioning, Disability, and Health



# International Classification of Functioning, Disability, and Health





# Food Insecurity

```
graph TD; FI[Food Insecurity] --- BF[Body Functions & Structures]; FI --- Act[Activity]; FI --- Env[Environmental Factors]; FI --- PF[Personal Factors]; FI --- Part[Participation];
```

## Body Functions & Structures

Biting  
Chewing  
Swallowing

## Activity

Eating  
Shopping  
Preparing Meals  
Cleaning

## Environmental Factors

Food

## Personal Factors

????

## Participation

????

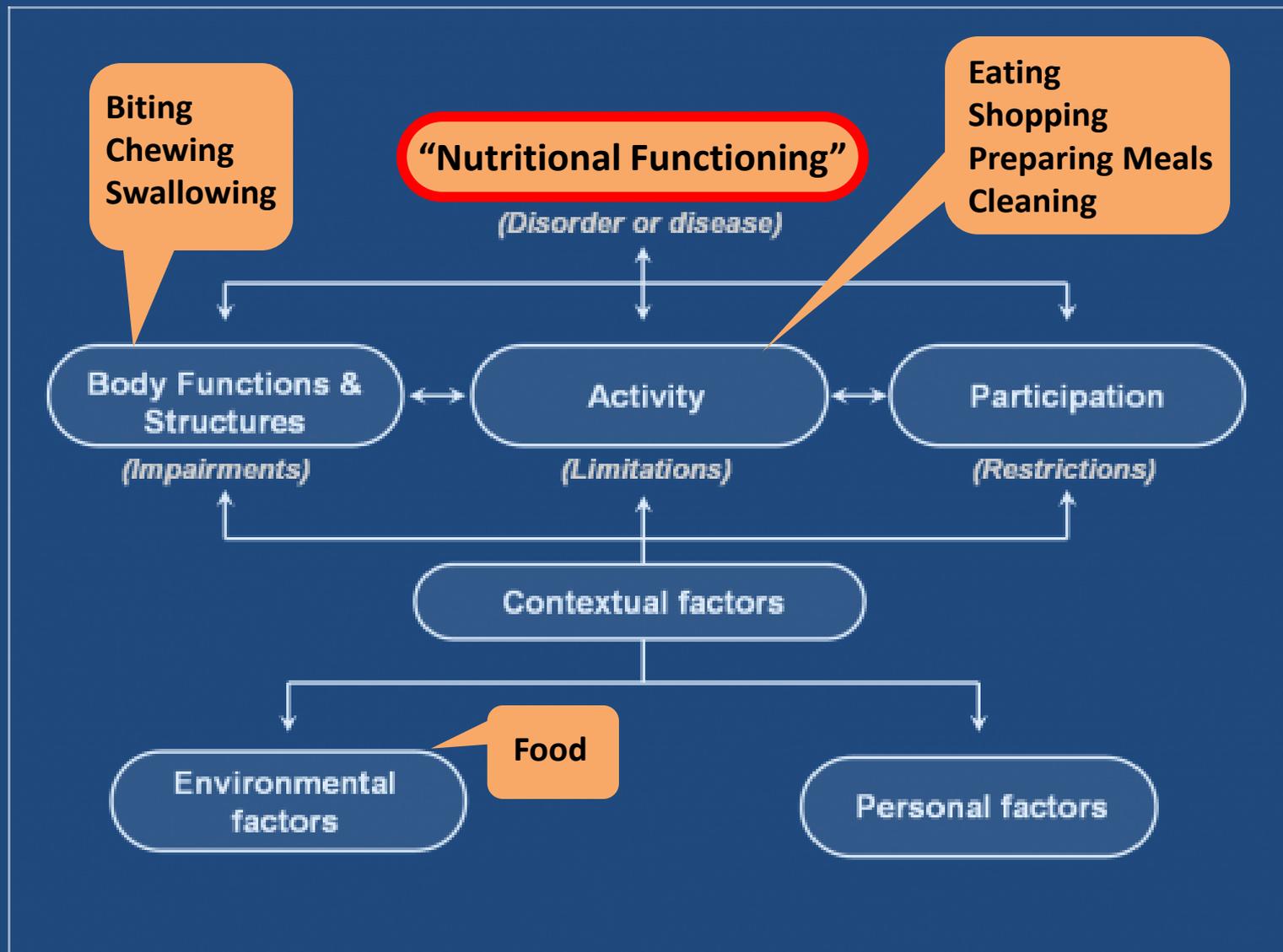
# Psychosocial Functioning

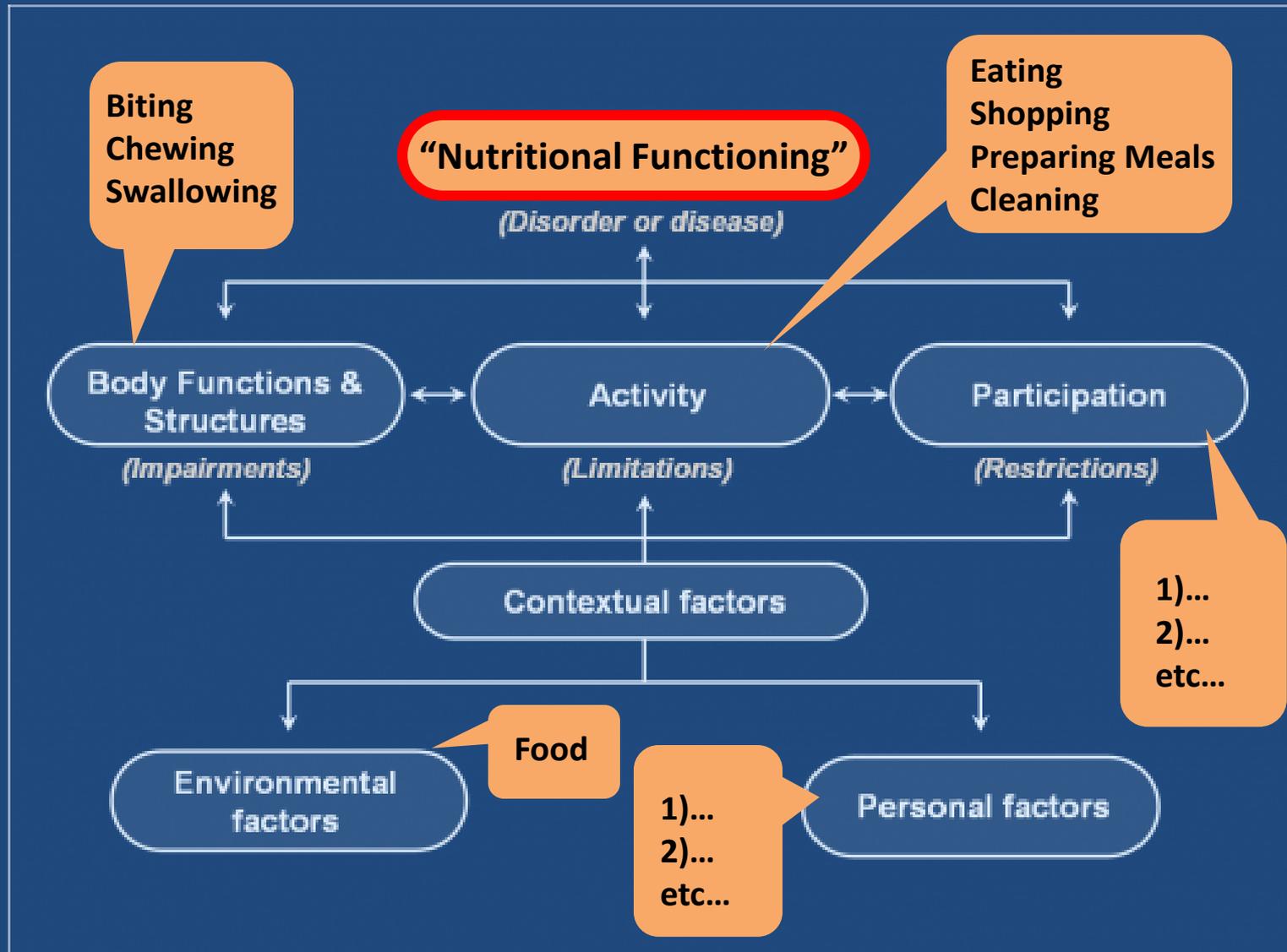
Personal Factors	Participation <sup>39-41</sup>
Values	Learning & applying knowledge
Habits	General tasks & demands
Preferences	Communication
Attitudes	Self-care
Coping strategies	Social & civic life

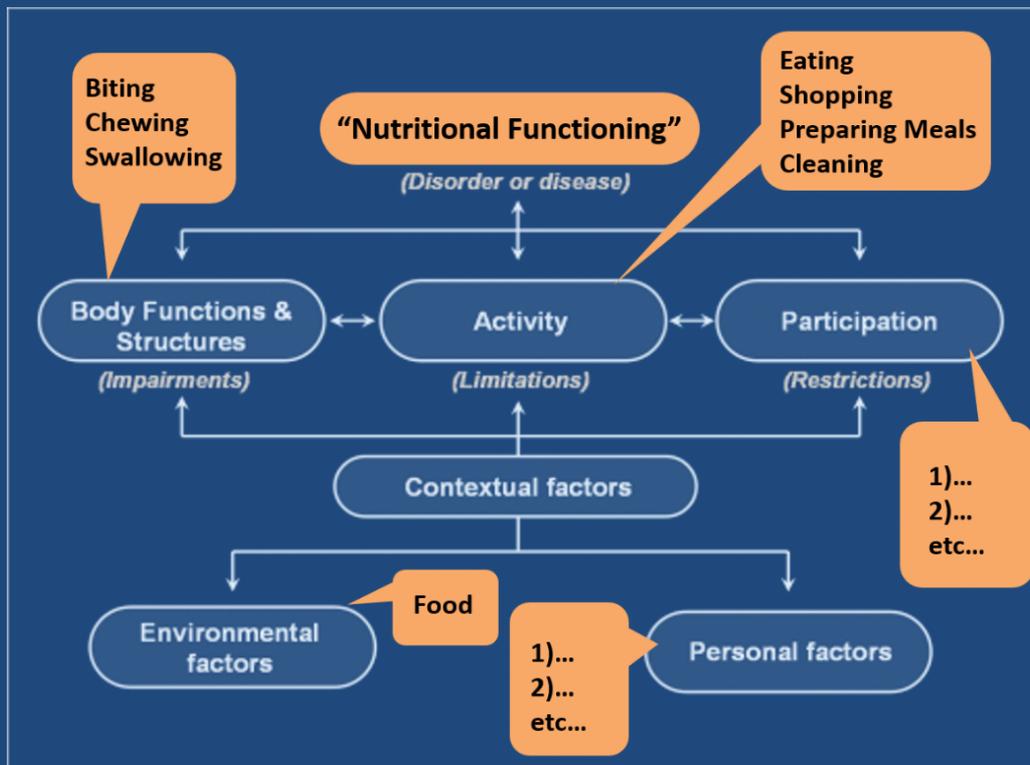
# Psychosocial Functioning

Personal Factors	Participation <sup>39-41</sup>
Values	Learning & applying knowledge
Habits	General tasks & demands
Preferences	Communication
Attitudes	Self-care
Coping strategies	Social & civic life

Or, to put it another way...

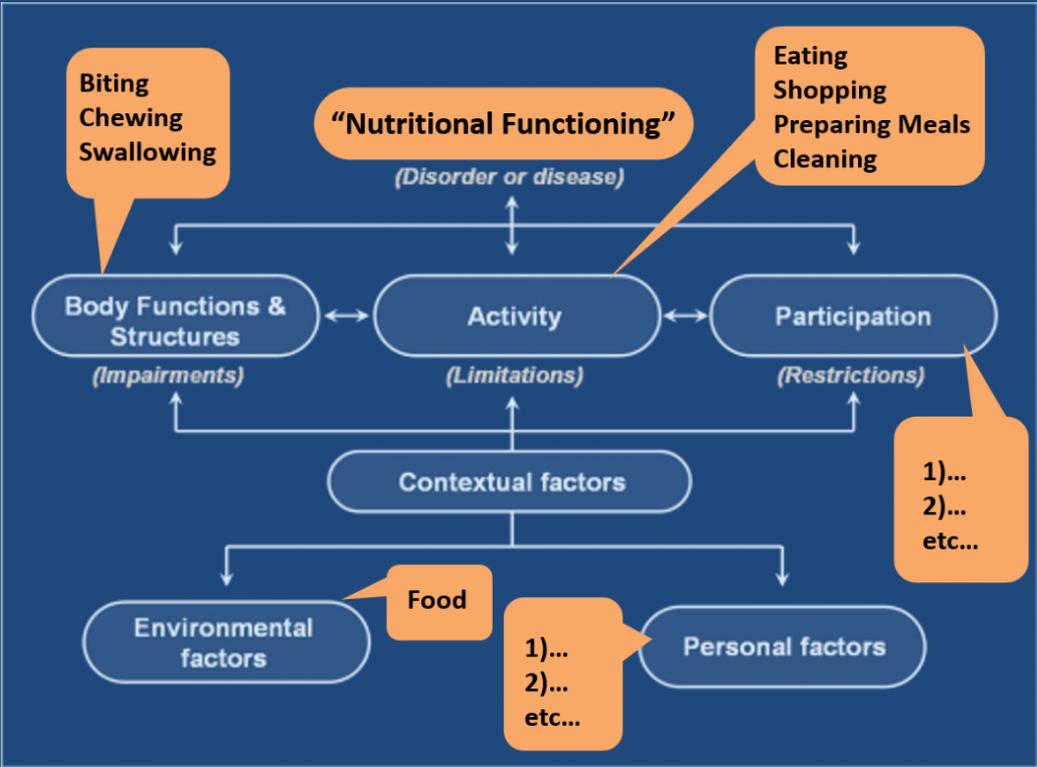






Barriers

Facilitators



Barriers

Facilitators

Psychological Distress?

Injuries & Traumas?

Income & Competing Expenses?

Employment & Housing?

Social Supports?

Family/Household Dynamics?

??????

## Preliminary Data...in progress...

- **Surveys + qualitative interviews**
- Reintegration program for OEF/OIF/OND Veterans
- Vocation-focused horticulture

Some **themes** so far:

- PTSD & isolation
- Cognitive (TBI) issues
- Physical injuries
- Nutrition knowledge
- Camaraderie
- Finding direction  
and purpose



# Moving Forward



- Continue qualitative research →  
What questions need to be asked?
- Surveys →  
What does food insecurity look like, nationally, among OEF/OIF/OND Veterans?
- Evaluations and Trials →  
What are these Veterans already doing/seeking out?  
What else do they need? Who should be facilitating?
- Longitudinal →  
Does this change over time? Long term health outcomes?

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# Resources & Additional Info

National VA Ensuring Food Security in Veterans Work Group

[Clinical reminder for food insecurity screening in CPRS](#)

What's Food Got To Do With It? Food Insecurity and Mental Health

(Good national overview, with details on social determinants of hunger)

<https://www.ctacny.org/sites/default/files/trainings-pdf/food%20insecurity%20and%20mental%20health%20webinar%20for%202-8-FINAL.pdf>

Veterans to Farmers

(Organization working to help Veterans transition to civilian life using agriculture)

<http://veteranstofarmers.org/>

Hunger Free America

(Look up nutrition assistance resources by zip code)

<https://www.hungerfreeamerica.org/>

**Talk to your local VA Dietitians!**

Chances are, they already have local resources mapped out...



<https://www.mindcharity.co.uk/wellbeing-article/food-and-mood/>

# Thank you!

## Questions/Comments?

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