Reflections on 40 years in Nutrition Education and Challenges/Opportunities on the Horizon

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Objectives

- Explain the importance of the big view in nutrition education and research
  - Literacy, health literacy, economics, food security and other society factors
- Discuss some challenges and opportunities in community and clinical (human) nutrition research.
  - Technology and political milieu
- Identify professional resources
Beyond the statistics
- Migrant farm worker, 6 year old, parent

Our efforts in NS 4130, GNO, Department may be the only nutrition education many people receive

Ability to demonstrate effectiveness of nutrition education has been limited due to assessment, but that is changing
Challenges to Nutrition Education

- No 1 agency in the US responsible for nutrition research, education, monitoring.

- No systematic approach to nutrition education in schools (k–12, universities), worksites)

- Lack of funding to keep up with translating basic and clinical research into nutrition education (fiber example)

- Social Determinants of Health (SDOH)
US life expectancy lags 43 in the world, after some other industrialized nations, lagging last of the G5 (Japan, France, Germany, UK, US).


Medical debt is the #1 cause of personal bankruptcies

https://www.cnbc.com/id/100840148
Growing Economic Inequality sustains health disparities

- 30 years ago, life expectancy in the US was 5 years longer for the upper quintile of income than for the lowest quintile. Today that difference is 12 years for men and 14 years for women.

- “How much can we improve population health without a commensurate effort in closing income gaps?”

(Vega and Sribney, AJPH Oct 2017)
Social Determinants of Health

http://thenationshealth.aphapublications.org/site/misc/sdohinfographics.xhtml
The Truth About ACEs

What are they?

ACEs are Adverse Childhood Experiences

How prevalent are ACEs?

What impact do ACEs have?

The three types of ACEs include:

- **Abuse**
  - Physical
  - Emotional
  - Sexual

- **Neglect**
  - Physical
  - Emotional

- **Household Dysfunction**
  - Mental Illness
  - Incarcerated Relative
  - Mother treated violently
  - Substance Abuse
  - Divorce
What Impact Do ACEs Have?

As the number of ACEs increases, so does the risk for negative health outcomes.

Possible Risk Outcomes:

**Behavior**
- Lack of physical activity
- Smoking
- Alcoholism
- Drug use
- Missed work

**Physical & Mental Health**
- Severe obesity
- Diabetes
- Depression
- Suicide attempts
- STDs
- Heart disease
- Cancer
- Stroke
- COPD
- Broken bones
Today, 185 Texas children will be victims of abuse (4 will be in Lubbock).

In one year, more than 65,000 cases of child abuse were confirmed in Texas.

1 in 4 Girls is sexually abused before her 18th birthday.

1 in 6 boys is sexually abused before his 18th birthday.

Number of children abused in Lubbock every year is more than twice the state average

https://www.cactx.org/child-abuse-in-texas
Illiteracy in Texas

“Basic Prose Literacy Skills” (BPLS)

Unable to read newspaper articles, brochures, identify basic information

On the average 19% of adult Texans can’t read a newspaper

National Center for Education Statistics (1)
Contributors to Illiteracy

- High minority population (English as 2\textsuperscript{nd} language)

- Caveat: may have low literacy in 1\textsuperscript{st} and 2\textsuperscript{nd} languages

- Income and education disparity

- Low literacy \neq \text{Low intelligence}

- Low literacy – low academic and economic opportunity
By age 3, children from privileged families have heard 30 million more words than children from underprivileged families (2).

Measures of accomplishment at 3 years old predicted 3rd grade school achievement.
While 70% of 2–year-olds with normal development function well when playing with other children, only 11% of 2–year-olds with poor language skills manage to play with others (3).

• Children with poor language skills also have problems keeping up when playing.

• This causes other children to stop including them; meaning children with poor language skills are excluded from an important part of physical and social development.

• Has implications for inclusion in physical activity and thus obesity
Healthy People 2010 defines *health literacy* as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.” (4)

More simply, Health Literacy is the ability to read, understand, and act upon basic health information.

Centers for Disease Control and Prevention (CDC) – great resource
http://www.cdc.gov/healthliteracy/
Low *health literacy* cuts across lines of age, race, education, and income, but particularly affects (5):

- those with limited education and/or general literacy skills,
- those with limited proficiency in English regardless of literacy in their native language
- older adults
- minorities
- English major
- TTU students 200 to 10,000 kcal
Former US Surgeon General Richard H. Carmona: “Health literacy can save lives, save money, and improve the health and well-being of millions of Americans.” (6)

Low health literacy is estimated to cost the U.S. economy up to $238 billion every year. (7)
Nearly 1/2 of all American adults--90 million people, or almost one in three U.S. residents--lack health literacy skills adequate to:

• allow them to understand their diagnoses

• follow medical instructions

• make appropriate health decisions

• navigate our complicated health care system (5)
People with inadequate health literacy skills (8):

- understand health information less well,
- receive less preventive care, and
- use expensive health services, such as emergency departments, more often

- Probably don’t respond to print announcements to participate in research studies.
Researchers analyzed the reading level of print materials for parents of children with a cleft palate (10).

- They found that the average reading level was between 8th and 10th grade.
- It is recommended that health-related information be written at a 6th grade level.
- Thus, many parents may not be able to understand these education materials and be missing out on the opportunity to learn parenting practices that foster optimal development of their children.

Depending on the readability index used, 30–100% of patient education materials were written above the 8th grade level (Stossel, 2012).
Health Literacy Considerations for Researchers

- IRB Consent Forms
- Recruitment
  - may eliminate potential subjects and decrease diversity of sample if language is not clear, is not inviting, looks complicated
- Directions to follow before clinical testing (e.g., fasting) may not be followed if not simple/clear
- Accuracy reduced if data collection forms require high reading level
- Nutrition education intervention --- messages for participants need to be at 6th grade level
Clinical trials (CTs) are important for advancing public health and medical research; however, CT recruitment is challenging.

High reading level of information and technical language can be barriers to recruitment.

One study examined the readability of CT recruitment education resources used in 1 state.

Overall mean readability level was Grade 11.7.
Ensure print materials (education, consent, data collection) follow guidelines --- 6th grade reading level, simple language, short sentences, visuals); pretest all materials

Advocate for simple health information in medical settings (doctor’s office, hospital)

Promote health literacy through classes in community settings (k-12 schools, churches, worksites, etc.)
SNAP–Ed Nutrition Education Materials low literacy materials (13)

Health Effects of Food Insecurity across the Life Span

- Pregnancy
- Infant and Young Child
- School Age Youth
- Adult
- Seniors
Costs of Food Insecurity in Young Children

Food Insecurity, Prenatal
- Low birthweight
  - Increased perinatal and infant mortality
  - Cognitive delays
    - Overweight/Obesity
      - Decreased socialization
        - Fair/poor health
          - Infection and acute illness
            - Decreased parent work attendance/performance
      - Special education
        - Lower educational attainment
        - Mental health counseling
          - Medical Visits and Costs
            - Hospitalization

Food Insecurity, Ages 0-3
- Birth defects; neurological impairment
- Small placenta, adrenals, liver
  - Social, emotional, behavioral problems
    - Iron-deficiency anemia; micronutrient deficiencies
      - Impaired immune system function
        - Underweight
          - Poor child feeding practices
            - Maternal depression
College Age Adults

2016 Survey – sample included 3,765 students in 12 states attending 8 community colleges and 26 four-year colleges and universities. 48% reported food insecurity in the previous 30 days, 22% with very low levels of food security.

College and University Food Bank Alliance (CUFBA) 400+ members

https://studentsagainsthunger.org/hunger-on-campus/
Healthcare Costs Related to Hunger

- $130.5 billion a year:
  - Hospitalizations $16.1 billion
  - Depression $29.2 billion
  - Suicide $19.7 billion

- For every $1 spent on food, and feeding an individual who is food insecure or experiencing hunger, approximately $50 is saved in Medicaid expenses

- It is less expensive to feed an individual healthy food for a year, than to cover the costs of hospitalization and related medical expenses for one day

www.alliancetoendhunger.org
USDA FNIC Resources

- Nutrition Education Materials (pre-tested)

- Photo Gallery
  https://snaped.fns.usda.gov/photo-gallery

- Info for researchers
  https://www.nal.usda.gov/fnic/resources-educators-health-professionals-and-researchers
Technology Opportunities

- **Dietary Assessment**
  Digital photos are promising for adults, older children, and parents, maybe not elderly or those who lack technical experience

  Validation via non-invasive methods

- **Intervention and Education**
Electronic Food Photos taken with Smart Phones

Image taken by an adolescent before eating a breakfast meal.

Image taken by an adult before eating a dinner meal.
Reflectance Spectroscopy via Veggie Meter to Measure Skin Carotenoid Levels
Political Climate

- The White House Gave the CDC a List of Forbidden Words — Including “Evidence-Based”
  Dec. 2017
  https://futurism.com/cdc-forbidden-words-science-based/

- Discontinuation of Programs/Reduction of funding related to prevention/nutrition – USDA’s SuperTracker
  https://www.supertracker.usda.gov/

- Static funding/decreased funding for nutrition education programs that are effective
Roundtable on Health Literacy of the National Academies of Sciences, Engineering, and Medicine (12)

March 2, 2016, the Roundtable convened a workshop to examine “the relevance of health literacy to precision medicine, a growing field that takes into account individuals’ differences in genes, environments, and lifestyles.”

Thus, medical terminology is becoming more complicated, increasing the need for greater literacy and health literacy.
Food Is Medicine Working Group started in House

Members of the U.S. House of Representatives Hunger Caucus launched a bipartisan Food Is Medicine Working Group Jan. 17

“When families don’t have access to nutritious food, their health suffers. Too many families struggle to put food on the table. It is imperative that Congress and other policymakers understand that food is medicine. “We simply cannot address hunger and health as two separate issues. They’re two sides of the same coin. Community organizations are already doing incredible work across the country to connect chronically-ill patients with the food they need,” Congressman Jim McGovern (D–MA) said. “With today’s launch of our new bipartisan Food is Medicine working group, we will work to elevate this issue and advance policy solutions that will help to ensure more chronically-ill people have access to medically tailored meals.
All Politics is Local

Despite what is going on at the national level...

- plug into the local level — local nutrition and health needs and perceptions
- continue outreach to the TTU campus and broader community (as individuals, GNO, NS Department)
- involve the community (partners, stakeholders) in developing nutrition education programs
- explore local funding (focus group participant)
Use Resources for Evidence-based Research and Practice

- Position and Practice Papers -- Academy of Nutrition and Dietetics

- USDA Nutrition Evidence Library
An Ounce of Prevention is Worth a Pound of Cure

- Benjamin Franklin -

1706–1790
References

1. Texas Center for the Advancement of Literacy & Learning. Percentage by County of Illiterate Adult Texans. Available at: www-tcall.tamu.edu/docs/09illitmap.html.


3. Stavanger Project at the Norwegian Reading Center, University of Stavanger, 2015. Available at: http://lesesenteret.uis.no/research/the–Stavanger–project/.


