Academic Stress & Biobehavioral Profile of Senior Nursing Students

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Learner Objectives

- Explain the significance of biobehavioral interactions within the study setting
- Interpret the meaning of correlations between psychosocial and biological responses

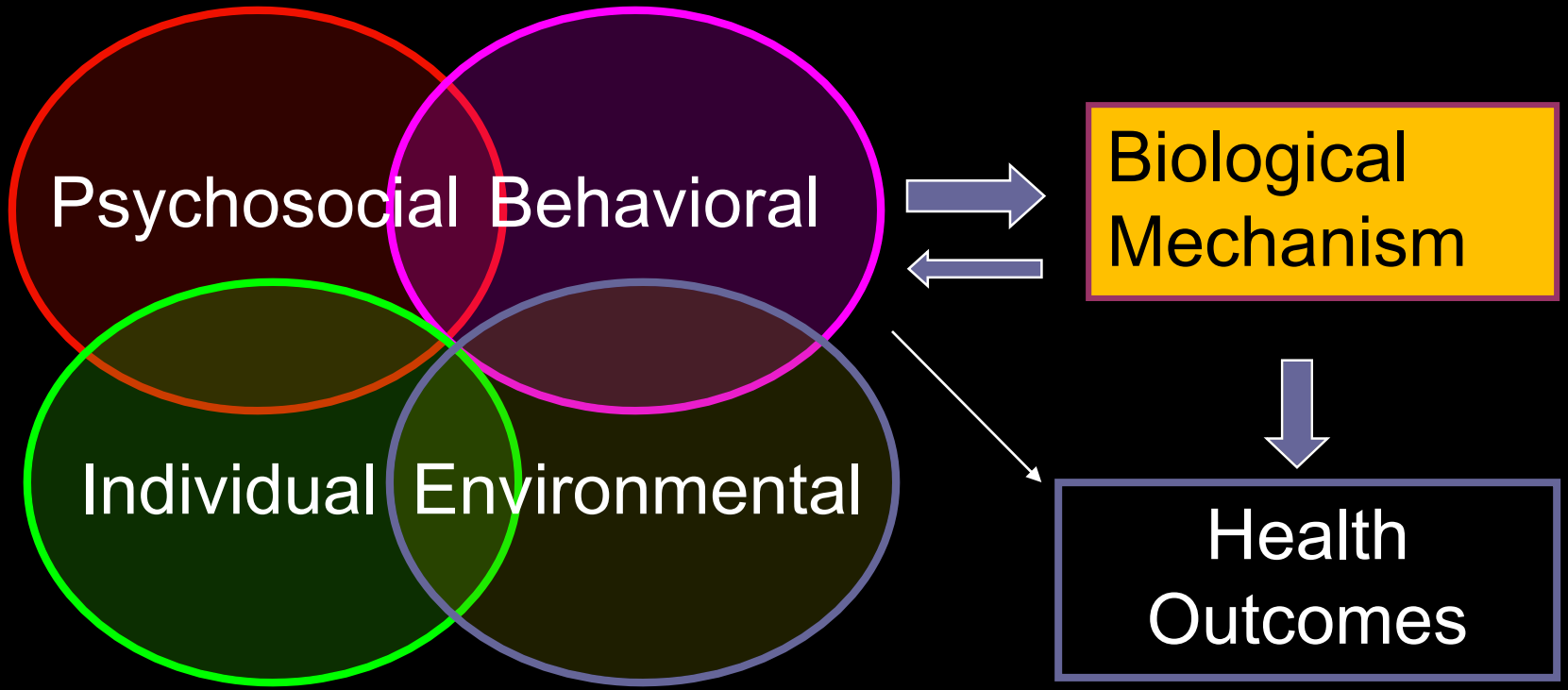
- Supported by Lee & Joseph D. Jamail Endowment to DK

- No conflict of interest

Background

- ↑Intensity of nursing education with ↑complexity of care need
- Both academic & clinic competencies must be met
- Stress, mood, loneliness, and fatigue
- Biomarkers: cortisol, alpha amylase, crp, IL-1, estradiol, & testosterone
- Need to investigate biobehavioral interactions
- Consideration of diversity in student population & curricular tracks

Significance of Biobehavioral Research



Definitions

- Biobehavioral research: research exploring links among psychosocial, behavioral, and biological factors in relation to health and health-related outcomes (Kang et al., 2010)
- Biobehavioral research encompasses the interactions among biological, behavioral, and social factors and their effect on outcomes (NIH NINR)

Purposes of Study

- To determine the levels of stress, mood, loneliness
- To examine associations b/w psychosocial factors and salivary biomarker responses
- To compare biobehavioral responses b/w 2 curricular tracks (traditional vs. pacesetter), age groups (<26 vs. older), & prior degree status in senior graduating nursing students in a baccalaureate program

Methods

- Design: A cross-sectional descriptive study
- Sample: 77 undergraduate senior nursing students
- Inclusion criteria: senior nursing student; ability to provide saliva
- Exclusion criteria: psychiatric and physical illness with active treatment; use of CS or antidepressant; current infection; substance abuse

Data Collection & Analysis

- Stress: College Readjustment Rating Scale
- Mood: Profile of Mood State
- Loneliness: R-UCLA Loneliness Scale
- Salivary biomarkers: all saliva collection 0800-1200; batch processing with enzyme immunoassays
- Data Analysis:
  - Biological data were transformed
  - Pearson's correlations
  - Student's t-test

Participant Characteristics

- Age: 26.6 yo
- Gender: F-58; M-18 (23.7%)
- BMI: 23.1
- Ethnicity: C (53%); Hisp (18.5%); Asian (22.4%)
- Marital status: single (71%); married (25%)
- Finance: family (41%); self (22.4%)
- Prior degree: yes (39.5%)
- Curr. Tracks: Traditional (60.5%); pacesetter

Means & Ranges

Concept	Instrument	Possible Score	Mean	Score Range
Stress	CRRS	0-1440	123.6	0-581
Mood	POMS	0-148	34.7	0-102
Loneliness	R-UCLA	20-80	32.3	21-56
CRP (pg/ml)			5,604	968-70,641
IL-1b (pg/ml)			180	1-887
Cortisol (µg/ml)			.24	.04-.79
AA (U/min)			30.9	2-196
Estradiol (pg/ml)			2.4	.01-11.3
Testosterone			60	14-247

Psychological Factors: Correlations

Concept	Stress	Anxiet	Depre	Anger	Fatig	Conf	Lonely
Stress	1	.23	.04	.05	.32**	.27*	.05
Anxiety		1	.60**	.54**	.65**	.76**	.17
Depres			1	.67**	.64**	.64**	.31**
Anger				1	.53**	.50**	.39**
Fatigue					1	.65**	.20
Confuse						1	.28*
Lonely							1

Biobehavioral Correlations

Psychological Factors	Biological Factors	r	p
Stress	Estradiol	-.25	.039
Stress	AA	-.31	.007
Anger	Testosterone	.27	.02
Fatigue	AA	-.25	.03
Confusion	Testosterone	.24	<.05

Group Differences

- By Age:
  - No differences in psychological or biological factors
  - Younger group – tendency for higher CRP & estradiol
- By Curricular Track:
  - No differences in psychological or biological factors
- By Prior Degree:
  - Students with a prior degree had significantly higher stress, p=.039

Conclusion & Discussion 1

- Overall levels of stress, mood, loneliness not particularly high
- However, 26% moderate; 5% high levels of stress - ↑health risk
- Stress → depression → suicidal tendency in other studies with students → caution and early counseling
- Loneliness – internet addiction & ↓self-esteem
- Loneliness → anxiety → poor sleep quality

Conclusion & Discussion 2

- Overall profile of biomarker response – unremarkable & similar to other findings
- Inverse correlations of alpha amylase with stress and fatigue are intriguing – dysregulation?
- Estrogen protective against anxiety & depression – consistent
- Testosterone – positive corr with anger – consistent
- Test & confusion – literature mixed findings

Conclusion & Discussion 3

- Nursing education is rigorous → can be stressful → generally normal response → good coping?
- Limitations:
  - Cross sectional
  - Small sample
  - Limited generalizability
- Strong biobehavioral contribution
- Identifying a vulnerable subgroup → support → future studies

Acknowledgment

- Study is designed to expose undergraduate honor's students to fun of research
- Several honor's students participated in the design, finding instruments, subject recruitment, and data and sample collection
- Students earned co-authorship in a published paper

Thank You