

Using the Arizona Lifestyle Inventory (ALI) to better understand wellbeing in medical students.

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Introduction

Physicians are honored with the task of serving, counseling, and attempting to heal patients with a multitude of medical concerns. Inherent in their daily work is a variety of stressful responsibilities, some of which could have life or death implications. This speaks to the great potential these stressors have to overwhelm practitioners and lead to physician burnout. Unfortunately, review of the current literature^[1,2,3,4] suggests that medical students are already showing signs of depression and burnout, even before starting residency. It is imperative that the community of medical educators address these trends in order to protect the well-being of future generations of doctors. Before action can be taken to address the needs of students at risk for burnout and depression, we must first be able to identify those at risk. Several tools have been developed regarding burnout, depression, perceived stress, and satisfaction with life, but these tools must be administered separately and could be overly cumbersome. The Arizona Lifestyle Inventory (ALI) was created and previously validated as a comprehensive assessment tool to better characterize the multi-dimensional measures of well-being.

Methods

- Questions for each wellness behavior domain were identified from literature on evidenced-based preventive services, as well as other areas emphasized by integrative medicine practitioners.
- The ALI questionnaire was then co-administered with other questionnaires that are validated measures of wellbeing. This was performed in a previous study as a means to validate the results of the ALI.
- The responses of medical student participants were then independently analyzed to assess for correlation between wellness behaviors and outcomes.

Arizona Lifestyle Inventory - ALI

36- item scale assessing behaviors in the following areas:

- Diet
- Supplements
- Spiritual and Mind-Body Medicine
- Family/Social Relationships
- Exercise/Leisure
- Sleep
- Work
- Health Status

Wellbeing Measure for Construct Validation

- Maslach Burnout Inventory
- Center for Epidemiologic Studies Depression Scale
- Perceived Stress Scale
- Satisfaction with Life Scale

Analytic Approach

- Pearson's correlation between ALI items and wellbeing measures
- Z score analysis

Characteristics	N	n	Mean (SD) / % Yes
Age	18	6	27.6 (3.4)
Female	30	20	68.3%
Race	14	7	
		10	
		5	62.9%
		35	21.0%
		11	6.0%
		10	6.0%
		6	3.6%
Ethnicity	16	7	
		20	12.0%
Marital Status	3		
		87	60.8%
		34	23.8%
		22	15.4%
Having Children	28	6	5.6%
Living with Children	28	8	7.7%
Chronic Medical Condition(s)	29	8	22.8%
Taking Medication for Chronic condition(s)	29	4	20.1%
Physical Pain Per Week	29	7	1.2 (1.7)
BMI	2		
		12	4.3%
		20	74.1%
		9	16.7%
		14	5.0%
Working hours	29	5	
		14	49.8%
Taking prescription medication for mood, anxiety or stress	29	5	12.5%
Taking natural herbal products for mood, anxiety or stress	29	5	1.7%

Results

Table 1. The descriptive statistics of the ALI items

Domain/Items	N	n	Mean / %	Std. Dev.	Range
<i>Diet/Nutrition</i>					
5 Servings Fruits & Vegetables	299		3.3	2.2	0-7
Eat Calcium Rich Foods	298		5.0	1.9	0-7
Eat Breakfast	299		5.2	2.0	0-7
Eat Home Cooked Dinner	298		4.3	1.9	0-7
<i>Exercise</i>					
Moderate Physical Activity ≥ 30 min ¹	143				
None		15	11%		
1-2 days		35	24%		
3-4 days		53	37%		
5-6 days		29	20%		
Everyday		11	8%		
Vigorous Physical Activity ≥ 10 min	299		2.3	2.0	0-7
Moderate Physical Activity ≥ 10 min	297		2.6	1.9	0-7
Percent Sedentary Average Day	272				
30% and less		65	24%		
31-50%		78	29%		
51-70%		86	32%		
71-100%		43	16%		
<i>Mind-body/Spiritual Practices</i>					
Activity to Relax or Manage Stress	286		3.7	2.2	0-7
Breathing for Stress Reduction	297		0.8	1.6	0-7
Progressive Muscle Relaxation	274		0.2	0.9	0-7
Spiritual ritual or rite (not including prayer)	298		0.8	1.8	0-7
Pray	296		2.3	2.8	0-7
Personal Reflection	297		2.1	2.2	0-7
<i>Social Relationships</i>					
Time in nurturing relationships with family/friends	297		4.9	2.1	0-7
Receive Healthy Touch	296		4.6	2.4	0-7
Socialize with friends	296		2.8	1.7	0-7
Sense of Belonging Groups	296				
Yes		247	83%		
Not sure		24	8%		
No		25	9%		
Number Groups Belong including gaming group	298		2.3	1.4	0-7
<i>Sleep</i>					
Get 7-9 hours of sleep	296		4.3	2.0	0-7
Feel rested after you woke up from sleep	294		3.7	2.0	0-7
Have trouble staying asleep	295		1.4	1.9	0-7
<i>Work</i>					
Enjoy Work	296		4.2	1.8	0-7
Feel Overwhelmed by Work	296		2.0	2.0	0-7
Hours Worked per Week	295				
0-40		58	20%		
41-50		90	30%		
51-60		78	26%		
61-70		35	12%		
71-80		22	7%		
81-90		8	3%		
91-100+		4	2%		

Item added after 1st administration of ALI

Outcomes	Sleep 3	Work allz	Social 5z
BMI	-0.096		-13*
Physical Pain	-0.19**		
Chronic medical condition	-0.14*	0.13*	
Taking medication for a chronic medical condition	-0.13*	0.12*	
Perceived stress	-0.46**	0.51**	-0.25**
Depression	-0.47**	0.47**	-0.31**
Emotional Exhaustion	-0.34**	0.59**	-0.27**
Depersonalization	-0.22**	0.27**	-0.18**
Personal Accomplishment	0.18**	-0.27**	0.31**
Mindfulness	0.38**	-0.34**	0.24**
Satisfaction with Life	0.29**	-0.24**	0.28**
Wellbeing past month	0.42**	-0.44**	0.28**
Physical Wellbeing	0.28**	-0.23**	0.20**
Mental Wellbeing	0.37**	-0.39**	0.25**
Emotional Wellbeing	0.35**	-0.39**	0.29**
Spiritual Wellbeing	0.31**	-0.30**	0.22**
Social Wellbeing	0.27**	-0.30**	0.48**
Wellbeing at the moment	0.38**	-0.38**	0.31**

*P<0.05; **P<0.01

Conclusions

In this study, the ALI was utilized to assess for correlations between wellness behaviors and outcomes. The results essentially demonstrated the pervasive nature of individuals to struggle with stressors despite pre-existing factors such as BMI, chronic medical conditions, or medications taken for mood / anxiety / stress.

- Instead, three domains of wellness behaviors (sleep, work, and social) are again highlighted as the most highly correlated with positive outcomes..

References

1. Mohammadreza, Hojat, PhD, Michael J. Vergare, MD Kaye Maxwell, George Brainard, PhD, Steven K. Herrine, MD, Gerald A Isenberg, MD, Jon Veloski, MS, and Joseph S. Gonnella, MD. The Devil is in the Third Year: A Longitudinal Study of Erosion of Empathy in Medical Students. *Academic Medicine*. **84**, 1182-1191 (2009).
2. Ayala, Erin E., Rani Berry, Jeffery S Wnseman, and Hyacinth RC Mason. A Cross-Sectional Snapshot of Sleep Quality and Quantity Among US Medical Students. *Academic Psychiatry*. **41**, 664-668 (2016).
3. Kroska, Emily B., Chadi Calarge, Michael W. O'Hara, Emira Deumic, and Lilian Dindo. Burnout and depression in medical students: Relations with avoidance and disengagement. *Journal of Contextual Behavioral Science*. **6**, 404-408 (2017).
4. Tucker, Tara, Maryse Bouvette, Shauna Daly, and Pamela Grassau. Finding the sweet spot: Developing, implementing and evaluating a burn out and compassion fatigue intervention for third year medical trainees. *Evaluation and Program Planning*. **65**, 106-112 (2017).

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