Promoting Wellness for Architecture and Landscape Architecture Students: Lessons Learned from a Mixed Method Study

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ABSTRACT

Background: Universities face increasing pressure to model healthy campuses in response to the ongoing mental health crisis, yet limited research explores ways to improve student wellness.
Aim: This study explored strategies architecture and landscape architecture students adopt to overcome stress and solutions for promoting wellness in a school of architecture.
Methods: The study utilized a convergent mixed methods research design. First, design students (n = 277) responded to an online wellness survey to explore how they lower stress during their academic studies. Second, semi-structured interviews (n = 37) uncovered students' coping mechanisms to overcome stress during their academic studies and recommendations for creating a more healthful environment.
Results: Strategies students most often adopted to lower stress were socializing, sleeping, exercising, taking personal time, spending time outdoors, and improving time management. Students

recommended improving communication and time management, a sense of community, and building a health and wellness culture. Findings were translated into design considerations for creating healthier places on college campuses.

Conclusions: Design students employ a variety of strategies to overcome the debilitating effects of mental distress. Policies and campus planning efforts should work toward student-informed solutions to promote wellness.

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INTRODUCTION

Universities are forming task forces and creating new leadership positions in response to declining student health and an uptick in demand for psychological and counseling services. Worry, anxiety, burnout, and excessive stress are significant obstacles for students jeopardizing academic performance. More troublesome, unprecedented suicide rates at some universities, mainly from science, technology, engineering, and mathematics majors, are causing leaders to pause and reassess campus planning strategies. Data from the American College Health Association (2023a) revealed that half of all college students regularly experienced moderate psychological distress, and more than a quarter of those screened positive for suicidal behaviors through an assessment with a standard screening tool.

Architecture and landscape architecture programs have been frequently cited for their toxic culture and deleterious effects on student health and well-being (American Institute of Architecture Students [AIAS], 2020). Students in these programs routinely struggle to find a work-life balance, creating a critical juncture for academic programs. This necessitates exploring innovative approaches to address the escalating threats to student health. The purpose of this study is three-fold. First, uncover the healthful practices and strategies architecture and landscape architecture students use for lowering stress. Second, ask students for advice on ways academic programs can promote student wellness. Third, translate findings into environmental considerations for improving student wellness on college campuses.

BACKGROUND

Mental Strain on Architecture and Landscape Architecture Students

The most recent National Center for Educational Statistics (2022) estimates that around 19 million students are enrolled in tertiary institutions as undergraduate and post-baccalaureate learners. Unfortunately, in recent years, these students have reported a staggering high prevalence of mental health disorders and mental health service utilization (Lipson et al., 2019; Lipson et al., 2022). The prevalence of some eminent mental illnesses (i.e., anxiety and depression) has significantly increased in the overall young adult population in recent years (Hernández-Torrano et al., 2020; Misra & Castillo, 2004; Mojtabai et al., 2016).

In the 2020-2021 academic year, about 27,917 architecture students were enrolled in 173 National Architectural Accrediting Board (NAAB) accredited degree programs in the United States. Likewise, in 2020-2021, there were about 5,658 in 100 Landscape Architectural Accreditation Board (LAAB) accredited programs in the U.S. Many of these

programs are studio-based, meaning most students work long hours in academic buildings on college campuses. The long hours, demands, and competition in architectural education result in damaging repercussions that often affect students' mood, behavior, overall health, and academic performance. As the semester progresses, increasing pressure can lead to student exhaustion, fatigue, and self-neglect. As evidence, AIAS (2020) has claimed that pursuing a degree in architecture or landscape architecture is a tumultuous undertaking that degrades students' well-being. Specifically, these programs boast a culture that fails to explicitly describe expectations concerning the realities of sleepless nights and fiercely competitive environments.

One of the mainstream hallmarks of architecture and landscape architecture education is the design studio, where many maladaptive and unhealthy habits start. Xie et al.'s (2021) qualitative study describes the stressful experiences of 12 architecture students due to their high-demand workloads with unrealistic expectations, an overemphasis on subjective appraisals of aesthetics by professors, and the scathing critiques from jurors. These experiences are common in architecture and landscape architecture and put these students at risk for poor mental health.

Health Promotion for Students in Higher Education

Mental and physical health are interrelated; the mind and body cannot be separated. The World Health Organization (2005) states, "…there is no health without mental health" (p. 11). While protective factors are necessary for optimal mental health, negative tensions often tug for simultaneous attention. Considerable literature identifies key factors that affect general health outcomes, including sleep, nutrition, physical activity, and social engagement. First, sleep patterns and deprivation influence attention habits, cognitive performance, creativity, and feelings of anxiety and depression (Alhola & Polo-Kantola, 2007; Lovato & Gradisar, 2014; Pires et al., 2016). Architecture is a discipline where many students suffer from sleep deprivation (AIAS, 2020). One study showed that architecture students got an average of 5.6 hours of sleep a night (Bachman & Bachman, 2006), below the recommended average of seven hours or more per night to achieve health benefits (Chaput et al., 2018). Further, the final cycle of sleep, the Rapid Eye Movement (i.e., REM) cycle, necessitates quiescent periods of sleep to achieve the full cognitive health benefits of a sleep cycle (Peever & Fuller, 2017), which students in architecture and landscape architecture may not reach.

Second, those with healthy dietary patterns have a reduced risk for chronic diseases (Neuhouser, 2019), score better in health-related quality-of-life metrics (Vajdi & Farhangi, 2020), and boast better mental health statuses among children and adolescents (O'Neil et al., 2014). However, research shows that college students struggle to achieve the recommended dietary guidelines (Plotnikoff et al., 2015). Students in programs like architecture and landscape architecture work on campus for long hours and rely on inexpensive food options within walking distance from their studio workspaces, which may not be the healthiest.

Third, physical inactivity is associated with physical and mental health problems like ischemic heart disease, stroke, type 2 diabetes, osteoporosis, various cancers, and depression (Brockway, 2012). Conversely, physical activity has known effects in reducing chronic diseases and improving health status (Warburton, 2006). Increased physical activity also enhances overall sleep (Bartel et al., 2015). The number of students between 18 and 24 years of age who meet physical activity recommendations is declining (Reiner et al., 2013). Many disciplines and student populations do not achieve these recommendations. Students in high-stress programs may be at higher risk for forgoing exercise as deadlines and pressure escalate during the semester.

Finally, social isolation and loneliness are associated with a higher risk of poor health (Leigh-Hunt et al., 2017; Pantell et al., 2013). The demanding workload, long hours spent working outside of class time, and competitive nature of architecture and landscape architecture education may discourage opportunities for social interaction and meaningful relationships to form outside of the school.

Academic Environments and Health Promotion

The campus environment and academic programs are essential partners in achieving healthy lifestyles for students (Jackson & Weinstein, 1997). College campuses host a mix of functional programs (e.g., classrooms, housing, restaurants, recreation centers, theaters, athletic events), and many collegiate campuses have been planned to be walkable and healthy communities (Jackson & Weinstein, 1997). The programs, planning, and design quality of the campus environment can encourage or discourage healthy choices and behaviors. For example, without dedicated bike lanes on campus, it is unsafe to ride a bike to school as a mode of transportation or to get exercise. Additionally, without access to affordable, healthy food on campus, students will often choose less expensive food, given most students are on a budget.

There is an increasing number of initiatives dedicated to creating healthy campuses. For example, the American College Health Assessment's Healthy Campus initiative has been working on a framework that provides tools and resources to help campuses progress toward becoming health-promoting colleges and universities (American College Health Association, 2023b). This initiative has moved away from clinically focused national health objectives over the last ten years and now focuses on serving the broader spectrum of health promotion.

Another example of a health-promoting initiative in universities is found in the Okanagan Charter (International Conference on Health Promoting Universities & Colleges, 2015). Experts compiled the Charter from 45 countries. *The Okanagan Charter: An International Charter for Health Promoting University and Colleges* "calls on post-secondary schools to embed health into all aspects of campus culture and to lead health promotion action and collaboration locally and globally." The Charter elaborates on these two strategies and provides actionable goals. As of 2023, 19 schools have joined the Charter which began in 2020.

Theoretical Frameworks

To contextualize our exploration of student wellness in architecture and landscape architecture programs, we employed three foundational health-promoting models: the socio-ecological, biopsychosocial, and salutogenic models. These frameworks provide a multidimensional lens through which we can examine the complex interplay of factors influencing student mental health. The first model defines the complexity of health through health determinants found in the socio-ecological model (SEM), initially proposed by Urie Bronfenbrenner in the 1970s and officially theorized in the 1980s (Bronfenbrenner, 1977, 1986). The SEM depicts the factorial complexity of well-being through four primary domains of health: individual, relationship, community, and societal. These domains outlined by the SEM can help us map the specific stressors and supports within the educational environment of these students, from personal coping mechanisms to the broader institutional culture.

The second model, the biopsychosocial model, recognizes the overlapping influences of the biological, psychological, and social dimensions on health. In 1977, the primary model of health was that of biomedicine. George

Engel, a renowned psychiatrist at the time, thought this to be an incomplete description of health and healing and proposed the biopsychosocial model, which added psychological and social realms of health (Engel, 1977). This early work encouraged the models of today that highlight health promotion rather than solely focusing on studying diseases, illnesses, and treatment modalities (McGinnis et al., 2002). This study acknowledges that students' well-being is not simply the result of individual choices or biological predispositions but also influenced by the psychological strains and social dynamics inherent in the demanding educational settings of architecture and landscape architecture programs.

More recently, there has been a shift in expanding health promotion through salutogenesis. Salutogenesis, a concept initially defined by the sociologist Aaron Antonovsky (1991) in his book *Health, Stress and Coping,* aims "to achieve a state of wellness, or optimal health, by harnessing people's resources and their capacity to move toward health. Seen from a preventative health orientation, it utilizes the interrelated physical, mental, social, and spiritual resources needed to achieve wellness, rather than simply reacting to disease" (Battisto & Wilhelm, 2020, p. 9). A related model proposed by Blum (1981) proposed the seminal four determinants of health: environment, lifestyle, heredity, and medical care. Determinants of health affect—and often predict—one's health outcomes and wellness. This framework and focus on wellness through a salutogenic model are helpful strategies and adaptive practices for architecture and landscape architecture students to employ.

Conclusively, all models suggest that a college student's mental health is multidimensional. This study seeks to offer comprehensive insights into promoting student wellness in architecture and landscape architecture programs by understanding the multi-layered influences on student wellness through the SEM; recognizing the interplay of biological, psychological, and social factors via the biopsychosocial model; and identifying paths toward wellness as highlighted by the salutogenic model.

METHODS

Research Approach

A convergent mixed methods research design (Creswell & Plano Clark, 2018) was selected to explore the strategies architecture and landscape architecture students adopt to overcome stress and the solutions they recommend for promoting wellness in a school of architecture. Researchers collected quantitative data from students using a wellness survey and qualitative insights from semi-structured interviews. This approach allowed for a statistical analysis of students' wellness strategies and a deeper, contextual understanding of their experiences and advice through personal narratives. The study received Institutional Review Board approval before beginning the research to satisfy compliance requirements. In addition, researchers on the team completed human subjects training and a certificate from the Collaborative Institutional Training Initiative Program.

Overview of Case, Participants, and Study Design Procedures

The study occurred during the fall of 2021 in a school of architecture at a four-year public land-grant university in the southeast region of the United States. The research team invited all 645 students in the school to participate in the study at the time (398 undergraduate and 143 graduate students in architecture, and 91 undergraduate and 13 graduate

students in landscape architecture). All students voluntarily participated, were required to be at least 18 years old, and provided informed consent. Each student was eligible to receive gift cards as an incentive for participating through a secondary secure site; no names or personal identifiers were collected with the data collection tools. All data were securely stored and de-identified before being analyzed.

Data Collection Methods and Analysis

This study utilized two data collection methods: (1) a wellness survey and (2) semi-structured interviews with students in the architecture and landscape architecture programs.

Wellness Survey

The research team created a wellness survey with purposefully designed items to probe into the specific challenges and stressors faced by students in the architecture and landscape architecture programs. The cross-sectional survey had 17 questions, including closed-ended questions using a frequency Likert Scale and a limited number of open-ended questions. The survey was organized into four related sections, including (1) informed consent, (2) demographics, (3) strategies adopted to promote wellness or lower stress, and (4) advice to the school on how to promote student wellness.

The survey, administered to all students through an online tool (Qualtrics), took 10 to 15 minutes to complete. A total of 645 students received the invitation, and 277 students participated (213 architecture students and 64 landscape architecture students), comprising a 43% response rate. Survey data were entered into Excel for cleaning and then imported into SPSS Statistics for descriptive analyses and Chi-square tests.

Semi-Structured Interviews

Semi-structured interviews were conducted with 37 students. The sample was comprised of 8 undergraduate landscape architecture students, 1 graduate landscape architecture student, 17 undergraduate architecture students, and 11 graduate architecture students. The face-to-face or Zoom interviews lasted between 10 to 40 minutes. Interview questions were organized into five related sections: (1) informed consent, (2) demographics, (3) "What things do you do as a student to help maintain or promote your overall health and wellness?" (4) "What strategies have you found helpful to lower your stress and anxiety levels?" and (5) "What advice would you offer to the School of Architecture faculty and administration to help promote students' health and well-being?"

All interviews were confidential, and personal identifying characteristics were anonymized and de-identified. Following each interview, audio recordings were transferred to a computer, and data were analyzed using qualitative software (i.e., Atlas.ti). To ensure the dependability of the analysis, the research team maintained a transparent and systematic process of coding and theme development, which was documented thoroughly. The research team first identified a list of initial categories based on a literature review to understand the stressors and stress responses. After reviewing these categories in the context of the interview transcriptions, a set of codes was generated (MacQueen et al., 1998), using an inductive approach (DeCuir-Gunby et al., 2011). Two researchers independently coded interviews in Atlas.ti, compared results, and discussed discrepancies in coding. Krippendorff's alpha value for the agreement of

codes between the two coders improved from 0.41 to 0.72 after three rounds of consensus coding. The study team enlisted an external coder who did not participate in the interview process. This independent coder reviewed and coded the data separately, enabling cross-verification of the coding scheme and reducing potential bias in identifying and developing themes. Inclusion, deletion, and revision of codes resulted in a final list of five themes and 14 codes related to the healthful practices that students adopt, and four themes and 19 codes related to advice students recommended to promote wellness.

RESULTS

Generally, students in both programs used similar strategies to alleviate mental distress as discovered in the survey and interviews.

Strategies Adopted to Promote Wellness and Lower Stress – Wellness Survey

The top five strategies students utilized to promote wellness and lower stress were consistent between architecture and landscape architecture students, including (1) spend time or socialize with family or friends, (2) sleep, (3) enjoy a favorite hobby, (4) going out, and (5) spend time outdoors. Table 1 highlights the findings. Notably, three factors were statistically significant of the 12 strategies investigated. Landscape architecture students were more likely than architecture students to spend time outdoors, engage in a spiritual practice or meditation, and take medication.

Table 1

Strategies Architecture and Landscape Architecture Students Use to Promote Wellness and Lower Stress

	Item	All Students $n = 277$			Architecture $n = 213$			Landscape Architecture $n = 64$			
		M	*SD*	%	*M*	*SD*	%	*M*	*SD*	%	*p*
1	Enjoy a favorite hobby	2.37	.81	35	2.36	0.80	33	2.42	.85	43	.147
2	Exercise	2.13	.84	27	2.12	0.88	27	2.19	0.71	26	.103
3	Go out (e.g., movies, dinner, concert, etc.)	2.28	.76	35	2.29	0.77	34	2.27	0.74	37	.448
4	Take time away from school	2.10	.71	25	2.08	0.70	23	2.21	0.72	31	.559
5	Take time for yourself or practice self-care	2.24	.73	31	2.22	0.71	3	2.31	0.77	34	.703
6	Seek Counseling and Psychological Services (CAPS)	1.16	.45	2	1.14	0.42	2	1.21	0.54	3	.691
7	Seek other professional help	1.35	.67	8	1.32	0.62	7	1.44	0.81	11	.106
8	Sleep	2.50	.75	44	2.52	0.74	44	2.41	0.77	42	.185
9	Spend time outdoors (e.g., riding a bike, going to a park, visiting a beach)	2.29	.80	33	2.19	0.80	29	2.61	0.75	48	.002**
10	Spend time or socialize with family or friends	2.53	.76	45	2.54	0.79	46	2.53	0.69	48	.459
11	Spiritual practice or meditation	1.78	.94	20	1.70	0.92	19	2.06	0.94	31	.013*
12	Take medication	1.54	.99	16	1.46	0.94	13	1.80	1.10	23	.022*

Note. Mean (1 *never*, 2 *sometimes*, 3 *often*, 4 *always*). % = percent of respondents who responded *often* (3) or *always* (4). *p-value ≤ 0.05. **p-value ≤ 0.01.

Table 2 depicts differences discovered while comparing the undergraduate and graduate populations to examine commonly used outlets to alleviate their high level of stress. Undergraduate students' top strategy was spending time or socializing with family or friends (M = 2.53). The graduate population reported that their primary method of promoting personal wellness was to sleep (M = 2.68). However, no statistical differences were observed between the two groups.

Table 2

Strategies Undergraduate and Graduate Students Use to Promote Wellness and Lower Stress

	Item	All Students n = 277			Undergraduate n = 202			Graduate n = 75			
		M	*SD*	%	*M*	*SD*	%	*M*	*SD*	%	*p*
1	Enjoy a favorite hobby	2.37	.81	35	2.43	0.82	38	2.23	0.80	29	.264
2	Exercise	2.13	.84	27	2.20	0.85	29	1.93	0.76	20	.101
3	Go out (e.g., movies, dinner, concert, etc.)	2.28	.76	35	2.29	0.75	36	2.25	0.79	31	.587
4	Take time away from school	2.10	.71	25	2.10	0.69	24	2.15	0.75	28	.856
5	Take time for yourself/practice self-care	2.24	.73	31	2.22	0.74	30	2.28	0.69	33	.718
6	Seek Counseling and Psychological Services	1.16	.45	2	1.18	0.45	2	1.09	0.44	3	.081
7	Seek other professional help	1.35	.67	8	1.32	0.65	8	1.41	0.72	8	.311
8	Sleep	2.50	.75	44	2.43	0.73	41	2.68	0.77	52	.071
9	Spend time outdoors (e.g., riding a bike, going to a park, visiting a beach)	2.29	.80	33	2.29	0.78	34	2.28	0.88	32	.428
10	Spend time or socialize with family or friends	2.53	.76	45	2.53	0.77	45	2.52	0.74	48	.748
11	Spiritual practice or meditation	1.78	.94	20	1.73	0.93	20	1.91	0.92	24	.217
12	Take medication	1.54	.99	16	1.51	0.98	15	1.60	1.03	16	.638

Note. Mean (1 *never*, 2 *sometimes*, 3 *often*, 4 *always*). % = percent of respondents who responded *often* (3) or *always* (4).

Strategies Adopted to Promote Wellness and Lower Stress – Semi-Structured Interviews

Two questions in the interview aimed to understand student resiliency during their studies, including (1) "What healthful strategies do you employ to promote wellness?" and (2) "What strategies do you employ to lower stress and anxiety?" Researchers analyzed the responses to the two questions, and five themes emerged from the 37 interviews. The numbers in parentheses after the themes indicate the number of responses that were coded from the interviews. Five themes highlighted in Table 3 are mental and emotional self-care (64), social self-care (49), physical self-care (46), time management (20), and environmental self-care (16). In addition, the top healthful practices students adopt to promote health include taking personal time, socializing or seeking social support, exercising, sleeping, spending time in nature, improving time management, spending time with family, and participating in extracurricular activities. Definitions in Table 3 capture the responses documented from the interviews.

Table 3

Healthful Practices and Strategies to Promote Wellness or Lower Stress and Anxiety

Theme 1: Mental and Emotional Self-Care (64)		
Code	**Definition**	**Quotation Examples**
Take personal time (35)	Getting off campus; getting out of the architecture building; separate work and home; personal time; journaling; art, painting, or drawing; football/tailgate; take short breaks; walk around the studio; having a cat to care for; music; mindless self-care; decompress; do something fun; take a half day off each week; shopping; cooking; doing things that make me happy; personal hobbies/interests	▪ "I just have to tell myself to stop working for the day and take time for myself, no matter if I am behind on stuff. I just can't take more work after that." ▪ "I try to spend 20 to 30 minutes a day doing something that I enjoy to keep my mental headspace in a good place. But obviously sometimes when you're super stressed, that doesn't even happen." ▪ "I like to unwind by watching a movie."
Spiritual practices and mindfulness (9)	Breathing techniques; aromatherapy; movement; meditation; church-related activities	▪ "I try to be mindful, and say, okay, well, let's just be aware of your surroundings to kind of calm down a little" ▪ "I do a lot of breathing exercises and I am trying mindfulness exercises."
Positive mindset (9)	Positive affectivity; patience with oneself; realize I am not perfect; don't hold myself to impossible standards	▪ "I try to remind myself once a day that it's okay if I'm not okay." ▪ "I think it's mostly my mindset, just try to remember like, I love architecture."
Clinical counseling or therapy (9)	Seek counseling and psychological services; talk to someone	▪ "I have a therapist that I see every at least every month or so." ▪ "I see a psychiatric counsel once every two weeks just to help maintain the stress and like work through the anxiety."
Take medication (2)	Take prescribed medication for mental illness	▪ "I regularly take my medications for depression and anxiety."
Theme 2: Social Self-Care (49)		
Code	**Definition**	**Quotation Examples**
Socialize or social support (23)	Interacting with people; spend time with people; spend time with family or friends; relationships with other students; being with others; social support	▪ "I'm a big extrovert. So just interacting with people whenever I can." ▪ "Spending time with my loved ones and friends is the biggest way I can alleviate stress and anxiety." ▪ "The socialization aspect of being in studio together helps us all be less stressed...And everyone is going through the same things as you."
Time with family (13)	Spend time with family or spouse, talk with loved ones; spend time with loved ones	▪ "I talk to me family so they can give me perspective when I am really starting to like kind of freak out." ▪ "I spend time with family because they're my number one supporter."
Engage in extracurricular activities (13)	Being involved in student organizations is a nice break; organized activities	▪ "Good attendance in my clubs has helped. Last year, I did not engage in clubs and I noticed a decline in my mental health because of it. So making sure I am in clubs is important. It's the social interaction that helps."
Theme 3: Physical Self-Care (46)		
Code	**Definition**	**Quotation Examples**
Exercise (22)	Focus on physically staying healthy; working out	▪ "I feel like when I exercise, my stress levels are drastically reduced."
Sleep (17)	Trying to catch up on sleep	▪ "I keep a consistent sleep routine." ▪ "I force myself to sleep because otherwise the next day I will be super emotional."
Healthy diet (7)	Pre-plan meals; eat healthy	▪ "I eat regular meals." ▪ "I try to eat healthy as much as I can throughout the semester. I do not think there are enough resources to eat healthy around campus." ▪ "I try to keep close track on my meals and meal prep and get enough healthy foods."

Theme 4: Time Management (20)		
Code	**Definition**	**Quotation Examples**
Better time management (14)	Avoid procrastination; time management (plan ahead, make a schedule, lists, and manage time, write lists and set priorities, consistent routine and schedule, etc.); work at home saves time and helps better schedule; work-life balance; go to studio at nights when there are fewer people; start on assignments early	▪ "If I know something is due in a few days from now, I try my best to get parts of it done each day." ▪ "I make lists of things I need to do. After making a list of things I need to do, I go back and figure out which ones are more important to do first. And I try to follow that list to do." ▪ "I keep a routine schedule."
Everyday routine (6)	Plan for the week; consistent routine	▪ "I attempt every night before I go to sleep, just to break down my next day to try to give myself a timeframe of when I'm going to be doing certain things and then have a few hours of downtime and buffer room. But it never works because things are always changing."
Theme 5: Environmental Self-Care (16)		
Code	**Definition**	**Quotation Examples**
Spend time in nature (16)	Hiking; biking; kayaking; walking; outdoor activities	▪ "I like going on walks at the botanical gardens, you know, getting to touch some plants." ▪ "I love being outside in nature." ▪ "I go outdoors into nature and take walks, hike and go biking."

Note. The numbers in parentheses after the themes indicate the number of responses from the interviews.

How to Promote Student Wellness – Semi-Structured Interviews

The final interview question asked students to recommend how to promote student wellness in the School of Architecture. Four themes emerged from the 37 interviews, including communication and community (44), time management and flexibility (36), health and wellness (34), and academic and professional development (30). The codes (or strategies) that received more than ten comments were to improve communication, better understanding of student population, reassess workloads, encourage a health and wellness culture, include therapy animals, and clear assignments and deadlines. Table 4 provides details of the findings.

Table 4

Advice to the School of Architecture for Promoting Student Wellness

Theme 1: Communication and Community (44)		
Code	**Definition**	**Quotation Examples**
Improve communication (18)	Improve teacher-to-teacher and teacher-to-student communication; use multiple forms (mouth and digital) for both learner types; transparency between students and professors	▪ "Having open lines of communication between students and professors and other professors would be the biggest way to help."
Better understanding of student population (17)	Break down the hierarchy between faculty and students in university settings; resistance to change; with awareness comes compassion; recognize diversity in the population and seek better ways to communicate; faculty should get to know students' learning styles; clear assignments are needed for people who struggle with ADHD, anxiety, or other mental health issues; better understanding of the student population	▪ "I think professors have made an attempt to acknowledge that mental health and like stress levels in our classes are high and we have a lot going on, but it is not like a clear effort is put in to help." ▪ "There is a disconnect between professors and students about how the students are feeling. Students have a natural tendency to portray a sense of doing well, because people want to be perceived as doing well."

Mental health literacy and sensitivity training (6)	Offer training for students to learn protective strategies to cope with the stressors of architecture school; training for professors to learn how to recognize signs of unhealthy behaviors of students and the warning signs of mental health issues; show empathy towards people who have anxiety; offer practical tips on how to manage stress	▪ "Offer professors sensitivity training to mental health issues. So, students who really do struggle with like mental disorders could actually go and talk to your professor and say, I am losing my mind here." ▪ "I think it is important for students to understand mental health and like what's the difference between being kind of stressed and being anxious. But it is also important, like for the faculty and administration to know that too, and be like aware of the warning signs of when someone may be looking like they are overboard, when someone is like, show socially shutting down, isolating themselves, like those are dangerous signs."
Engage in extracurricular activities (3)	Incorporate activities to de-stress or take the edge off like basketball; more communal events for bonding and sense of community; set boundaries between studio and life	▪ "If I am pretty active with different things, then I am usually better overall." ▪ "Even though my involvement in student organizations is a ton of work, I like being involved in them, spending time with them is good and a break from sitting behind a screen."
Theme 2: Time Management and Flexibility (36)		
Code	**Definition**	**Quotation Examples**
Reassess workloads (17)	Be aware of stress levels among students, and have clear effort to help reduce it; reduce workload and pressure for students	▪ "Studio professors must take into consideration that we have like, other classes, we have stuff for minors, some of us have jobs, and other things like that on top of what we have for studio, like that adds to our stress. We might have a test on the same day we have something due for studio."
Mandatory breaks during studio (8)	Allow students to take a break during the four-hour studio period; take time away from school; take breaks	▪ "The way I felt was better when there was time set aside by faculty or by my professors to go outside or go for a walk." ▪ "Encourage students to just go outside and take like five to ten minutes and like recuperate before we go back inside."
Better time management (6)	Help with understanding the amount of time it takes or should take to do certain tasks like drawing something; wasted time during studio; better planning of studio time; value time in studio better	▪ "For those of us new to architecture, it would be helpful to understand the time it takes to draw something or is it an accepted reality that it takes 20 hours to draw something." ▪ "Teach students about time management, especially for freshmen because like, the last thing I would want is for freshmen not to learn how to manage their time until like the third year."
Scheduling flexibility (5)	Accommodate personal issues for students and faculty	▪ "Give us more leeway. I know a lot of people in my class this semester has had like family emergencies, like family deaths, and they have had to miss class for other reasons related to mental health and they are grieving."
Theme 3: Health and Wellness (34)		
Code	**Definition**	**Quotation Examples**
Encourage health and wellness (13)	Create a culture where mental health is important; regular mental health checks for students and professors; better student health and wellness culture in studio; mental health awareness; time dedicated to checking in on students	▪ "It would be nice to have reassurance that it is just okay to stop and take a break. If we don't have that than it's just like, we gotta keep going." ▪ "We need a culture that lets us know that it's okay to set boundaries between schoolwork and outside work, like being able to have a life outside of studio. We need a culture that lets us know that mental health is important."

Therapy animals (11)	Bring in dogs, cats, and other emotional support animals	▪ "I love the dogs, the therapy dogs. They have been super helpful. So, if they can come more days a week or have more dogs and stay longer that would be great."
Healthful environment (5)	Incorporate healthy vending machines, student respite space, and better food options; make space more comfortable	▪ "I think there should be, like, maybe some sort of vending available that actually has a few things in it. And if we are going to be here late, then more food options on campus that are opened later. And not just Starbucks to get coffee and feel anxious and caffeine up."
Spend time in nature (3)	Encourage walking, hiking, and biking	▪ "I think also just providing opportunities to get students like outdoors as a group and work on things like that would definitely be a big help."
Encourage exercise (2)	Encourage physical activity, active transportation to school (biking, scootering, etc.), and being outside	▪ "Being outside exercising has been really beneficial for myself. So, I'm assuming it would be for others as well."
Theme 4: Academic and Professional Development (30)		
Code	**Definition**	**Quotation Examples**
Clear assignments and deadlines (11)	Coordinate deadlines across courses for a cohort to avoid sleepless weeks; clear assignments with deliverables and deadlines; ample lead time for assignment deadlines or changes to assignments; manage expectations; write out assignments rather than verbal assignments; smaller assignments that focus on learning concepts; better communication about expectations and the purpose of assignments	▪ "It would be better if they (professors) like, could have a, like a more laid out type of assignment system." ▪ "I have ADHD, and like for people who have other mental illnesses, it would be better to have like more laid-out type of assignments and like tell us in person, because faculty have a habit of emailing us when important changes are made to an assignment. So, I like word of mouth communication over like digital communication. But best to have two forms of communication."
Regular student assessments (5)	Ensure students are on schedule with deadlines; provide ongoing evaluations and standing in terms of grades	▪ "Professors should give feedback to students so we know where we stand."
Education enjoyment (5)	Enjoy being in school; have fun	▪ "It's definitely been tough. Like I mean it's fun what we do, and I really enjoy it. But it's just hard to enjoy when you're not given an opportunity to enjoy it."
Re-think design reviews (3)	Everyone should talk; students undervalued in the review process; waste a lot of time	▪ "During reviews, the critics just rip you apart and I don't think it needs to be like that. It feels a little vicious. Students are not allowed to say anything. Like, doesn't their opinion matter? Yeah, only like the jury matters. I think that devalues the students."
Solicit student feedback (3)	Avenues for students to voice themselves (open invitation, small groups, an anonymous forum, etc.); open discussions for students to voice concerns; suggestion boxes for students to comment anonymously	▪ "I think it'd be great if there was a way, you know, maybe it's like, like, public forums, or kind of like, an open discussion or something that was hosted for students to kind of voice any concerns that they have to the faculty and the staff."
Better access to resources and materials (3)	Light tables; printing; labs; materials and supplies for course support; more opportunities to learn software	▪ "More print stations." ▪ "I kind of wish there were more opportunities to learn software, like through teaching."

Note. The definitions are the responses documented from the interviews.

A variety of students offered suggestions on activities they perceived could remedy their mental distress in the open-ended responses from the wellness survey. Frequently mentioned ideas were mental health and wellness days, programs to increase mental health self-awareness and mental limits for students, programs aimed at encouraging healthier lifestyles, embedded counseling and psychological services within colleges or academic units, mental health

checks from the faculty and staff, a dedicated place for respite and recovery, and mandatory breaks during the four-hour studio class time.

DISCUSSION

Pursuing a degree in architecture or landscape architecture is a demanding undertaking that often covertly degrades student well-being. Many students refer to their academic journey as a time of suffering partly due to the work-life imbalance. In line with long-established findings, students grapple with competition, heavy workloads, and unrealistic deadlines, frequently resulting in sleepless nights, missed meals, social isolation, and neglected physical activity in their push to meet project deadlines (AIAS, 2020). Design students spend countless hours in the studio working on design projects that are subjective, complex, and open-ended. The design studio–the foundation of the architectural curriculum–has been criticized for instilling unhealthy work habits, personal neglect, and a stress culture deeply engrained within the education paradigm and practice traditions of architecture and landscape architecture.

More than 46% of architecture students surveyed in 2019 reported spending more than 40 hours a week in the studio (a 6-credit hour course), up from 32 hours in 2015. Since most students enroll in studio plus at least three other courses per semester, their workload alone translates into a 67- to 76-hour work week or 11- to 13-hour days for six days a week (AIAS, 2020). Architectural programs have been identified as a time-consuming academic plan of study (Mahmoud Saleh et al., 2023). This time commitment becomes even more challenging for many non-traditional students with families, multiple jobs due to financial obligations, and outside responsibilities. The exhaustion, fatigue, and ongoing pressure often escalate throughout the semester.

Since lifestyle choices and behaviors may affect overall health outcomes (Short & Mollborn, 2015), schools of architecture must recognize that the academic environment influences students' ability to make healthy decisions regarding sleep, nutrition, physical activity, and social support. Good choices in these areas should not contradict high academic requirements. This will help students build confidence and self-efficacy, strengthening their ability to cope with stress, and allowing for better academic performance (Bachman & Bachman, 2006). Table 5 translates the findings from this current study into a set of design considerations for creating healthy places on academic campuses. Places to support wellness should be dispersed throughout campus and easily accessible to classroom space and work areas. Furthermore, areas should be accessible to all populations and with all abilities.

Table 5

Design Considerations for Creating Healthful Places on Academic Campuses

Places to Encourage Mental Wellness		
Theme	**Place Considerations**	**Examples of Places**
Mental and emotional well-being	Places for restoring mental wellness, pause, respite, relaxation, renewal, breathing, feeling safe, and contemplation; places for stimulating creativity and individual expression	Waking trails, reflecting ponds, seating areas, places for spiritual worship, areas for practicing mindfulness, dedicated safe spaces, art studios, music rooms, gardens, sensory rooms
Places for Social Engagement		
Theme	**Place Considerations**	**Examples of Places**
Social support	Public places for connecting with people, engaging in person-to-person interactions, people-watching, forming social bonds, promoting a sense of belonging to a	Public spaces, common areas in academic buildings and housing, student unions or centers, lounges, public outdoor areas, cafes, restaurants, athletic fields, public gathering areas, classrooms, amphitheaters, community gardens and playgrounds, community

	community, and encouraging intergenerational relations; places to spend time with friends and family; places that celebrate cultural diversity and allow for cultural expression; places to support student-led and university-supported organizations, intramural sports, or clubs	centers, adaptable event spaces, cultural centers, performance halls
Places for Physical Activity		
Theme	**Place Considerations**	**Examples of Places**
Physical activity	Places that support physical activity, movement, working out, and exercise	Exercise rooms for fitness areas, recreation centers, wellness facilities, tracks, athletic fields, barrier-free walking and bike trails, sidewalks, places for active living, active working spaces, play grounds
Places to Experience Nature		
Theme	**Place Considerations**	**Examples of Places**
Nature is therapeutic	Places for walking biking, hiking, and outdoor activities	Botanical gardens, parks, greenways, lakes, ponds, water features, walking trails through nature, bike trails, outdoor recreation centers, buildings with windows and outdoor areas, wilderness
Places to Eat or Purchase Healthy, Affordable Foods		
Theme	**Place considerations**	**Examples of Places**
Healthy foods	Places to eat healthy with local food sourcing and farm-to-table options; places to store or lightly prepare pre-plan meals	Various dining options, restaurants, café, healthy fast-food options during after business hours, small satellite grocery stores, portable food carts, healthy vending areas, farmers markets, food banks, kitchens in academic buildings, picnic area
Places to Learn Healthful Habits & Practices		
Theme	**Place Considerations**	**Examples of Places**
Time management and self-care	Places to learn healthy practices like time management, avoiding procrastination, setting priorities, self-care, and work-life balance	Classes that learn stress management, the importance of sleep, wellness coaching, nutritional coaching, a demonstration kitchen for learning to cook, physical trainers, health promotion, sexual health services, substance abuse training, sleeping pods, digital detox zones, private or small group study spaces, and various-sized meeting rooms
Places to Access Healthcare Services		
Theme	**Place Considerations**	**Examples of Places**
Medical care	Places for accessible and affordable healthcare services	Student health centers, clinic, mental health counseling, therapy, embedded counselors in academic programs, health coaching, mobile dental, vaccinations, health units, and 24-hour help hotline

Limitations

This study has limitations. First, findings from the study are based on self-reported data from a single institution, which may limit the generalizability to other academic contexts. Second, reliance on a cross-sectional design prevents understanding how student well-being may change over time within educational environments. Third, the non-response rate and the study's focus on sensitive health topics could introduce a selection bias, where individuals experiencing specific health challenges may be more inclined to participate. Fourth, the wellness survey and interviews did not include personal identifiers to connect the two methods. Additional research is necessary to fully understand and address student wellness in architecture and landscape architecture programs, particularly considering the interplay between mental and physical health.

CONCLUSION

Colleges and universities host heterogeneous student populations. These students arrive on campus representing different cultures with a rich mix of life experiences, learning approaches, resources, constraints, and responsibilities. A student's ability to cope with stressors while pursuing a college degree varies considerably. While some students thrive in a college environment, others struggle with stressors that stem from many predispositions like biological factors (e.g., underlying physical condition, heredity), psychological factors (e.g., low self-esteem, personality type, loneliness), lifestyle factors (e.g., food insecurity, lack of physical activity, drug abuse, inadequate sleep), social factors (e.g., inadequate social support, lack of involvement in social activities), financial factors (e.g., financial uncertainty), and academic factors (e.g., assignment deadlines, fear of poor grades, misaligned expectations with faculty, and studying in a non-native language) (American College Health Association, 2023a; Khan et al., 2020; Mofatteh et al., 2021). As a result, universities and faculty members must develop diverse and inclusive strategies for assisting students with many different conditions, minimize psychologically toxic events, and promote a safe space for all students, especially those prone to more rigorous coursework. Architecture schools must make it possible for students to make good choices regarding sleep, nutrition, physical activity patterns, and social support. A strong sense of community is essential to addressing mental health struggles.

Findings from this current study underscore the need for institutions to adopt ecological, health-promoting approaches that acknowledge that mental wellness is impacted by the learning and teaching culture of academic programs, physical environment, lifestyle choices, behavior, and even social contexts. Regarding architectural education, attention to these aspects is gaining momentum globally (Hussein & Mustafa, 2023; Oluwatayo et al., 2015). Universities must move from treatment-oriented strategies prioritizing crisis management to health-promoting approaches for keeping students healthy.

Moving forward, universities should consider adding supplemental education on the factors contributing to health outcomes. IN addition, they should teach, promote, and richly reinforce self-regulatory behaviors that encourage healthy living. Furthermore, academic programs should consider monitoring and anticipating threats that may lead to downward spirals in student behavior and show students how to exercise protective strategies to remain resilient.

Many institutions are allocating funding toward promoting physical health, and researchers are examining the effectiveness of these initiatives (Abu-Moghli et al., 2010; Plotnikoff et al., 2015). However, through studying associations between academic performance, physical health, and mental health of 3,855 northeastern first-year university students, Wilks et al. (2020) confirms that "successful interventions to increase student mental health would lead to considerably greater improvements in academic role performance than would successful interventions to increase student physical health" (p. 59). The bottom line is that investments in creating healthy environments on college campuses that promote mental health, particularly within schools of architecture, are essential for student wellness and the future success of academic programs.

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REFERENCES

Abu-Moghli, F. A., Khalaf, I. A., & Barghoti, F. F. (2010). The influence of a health education programme on healthy lifestyles and practices among university students. *International Journal of Nursing Practice*, *16*(1), 35–42. https://doi.org/10.1111/j.1440-172X.2009.01801.x

Alhola, P., & Polo-Kantola, P. (2007). Sleep deprivation: Impact on cognitive performance. *Neuropsychiatric Disease and Treatment*, *3*(5), 553–567.

American College Health Association. (2023a). *American College Health Association-National College Health Assessment III: Reference Group Executive Summary Fall 2022*. American College Health Association.

American College Health Association. (2023b). *The Healthy Campus Framework*.

American Institute of Architecture Students. (2020). *2020 Learning & Teaching Culture Policy Project*. https://www.aias.org/wp-content/uploads/2020/07/Final-Model-LTCPP.pdf

Antonovsky, A. (1991). *Health, stress, and coping* (1st ed., 6th print). Jossey-Bass Publ.

Bachman, L., & Bachman, C. (2006). Student perceptions of academic workload in architectural education. *Journal of Architectural and Planning Research*, *23*(4), 271–304.

Bartel, K. A., Gradisar, M., & Williamson, P. (2015). Protective and risk factors for adolescent sleep: A meta-analytic review. *Sleep Medicine Reviews*, 21, 72–85. https://doi.org/10.1016/j.smrv.2014.08.002

Battisto, D., & Wilhelm, J. J. (Eds.). (2020). *Architecture and health: Guiding principles for practice*. Routledge, Taylor & Francis Group. https://doi.org/10.4324/9780429021169

Blum, H. L. (1981). *Planning for health: Generics for the eighties* (2d ed). Human Sciences Press.

Brockway, I. (2012). *Risk factors contributing to chronic disease*. Australian Institute of Health and Welfare.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, *32*(7), 513–531. https://doi.org/10.1037/0003-066X.32.7.513

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723–742. https://doi.org/10.1037/0012-1649.22.6.723

Chaput, J.-P., Dutil, C., & Sampasa-Kanyinga, H. (2018). Sleeping hours: What is the ideal number and how does age impact this? *Nature and Science of Sleep*, 10, 421–430. https://doi.org/10.2147/NSS.S163071

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage.

DeCuir-Gunby, J. T., Marshall, P. L., & McCulloch, A. W. (2011). Developing and using a codebook for the analysis of interview data: An example from a professional development research project. *Field Methods*, *23*(2), 136–155. https://doi.org/10.1177/1525822X10388468

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, *196*(4286), 129–136. https://doi.org/10.1126/science.847460

Hernández-Torrano, D., Ibrayeva, L., Sparks, J., Lim, N., Clementi, A., Almukhambetova, A., Nurtayev, Y., & Muratkyzy, A. (2020). Mental health and well-being of university students: A bibliometric mapping of the literature. *Frontiers in Psychology*, 11, 1226. https://doi.org/10.3389/fpsyg.2020.01226

Hussein, A. Y., & Mustafa, F. A. (2023). Architecture students self-report wellbeing assessment based on quality learning environment in design studio. *Cihan University-Erbil Scientific Journal*, *7*(1), 21–28. https://doi.org/10.24086/cuesj.v7n1y2023.pp21-28

International Conference on Health Promoting Universities & Colleges. (2015). Okanagan Charter: An international charter for health promoting universities & colleges. Kelowna, British Columbia, Canada. https://doi.org/10.14288/1.0132754

Jackson, M. L., & Weinstein, H. M. (1997). The importance of healthy communities of higher education. *Journal of American College Health*, *45*(6), 237–241. https://doi.org/10.1080/07448481.1997.9936893

Khan, A. H., Sultana, Mst. S., Hossain, S., Hasan, M. T., Ahmed, H. U., & Sikder, Md. T. (2020). The impact of COVID-19 pandemic on mental health & wellbeing among home-quarantined Bangladeshi students: A cross-sectional pilot study. *Journal of Affective Disorders*, 277, 121–128. https://doi.org/10.1016/j.jad.2020.07.135

Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*, 152, 157–171. https://doi.org/10.1016/j.puhe.2017.07.035

Lipson, S. K., Lattie, E. G., & Eisenberg, D. (2019). Increased rates of mental health service utilization by U.S. college students: 10-year population-level trends (2007–2017). *Psychiatric Services*, *70*(1), 60–63. https://doi.org/10.1176/appi.ps.201800332

Lipson, S. K., Zhou, S., Abelson, S., Heinze, J., Jirsa, M., Morigney, J., Patterson, A., Singh, M., & Eisenberg, D. (2022). Trends in college student mental health and help-seeking by race/ethnicity: Findings from the national healthy minds study, 2013–2021. *Journal of Affective Disorders*, 306, 138–147. https://doi.org/10.1016/j.jad.2022.03.038

Lovato, N., & Gradisar, M. (2014). A meta-analysis and model of the relationship between sleep and depression in adolescents: Recommendations for future research and clinical practice. *Sleep Medicine Reviews*, *18*(6), 521–529. https://doi.org/10.1016/j.smrv.2014.03.006

MacQueen, K. M., McLellan, E., Kay, K., & Milstein, B. (1998). Codebook development for team-based qualitative analysis. *CAM Journal*, *10*(2), 31–36. https://doi.org/10.1177/1525822X980100020301

Mahmoud Saleh, M., Abdelkader, M., & Sadek Hosny, S. (2023). Architectural education challenges and opportunities in a post-pandemic digital age. *Ain Shams Engineering Journal*, *14*(8), 102027. https://doi.org/10.1016/j.asej.2022.102027

McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. *Health Affairs*, *21*(2), 78–93. https://doi.org/10.1377/hlthaff.21.2.78

Misra, R., & Castillo, L. G. (2004). Academic stress among college students: Comparison of American and international students. *International Journal of Stress Management*, *11*(2), 132–148. https://doi.org/10.1037/1072-5245.11.2.132

Mofatteh, M. (2021). Risk factors associated with stress, anxiety, and depression among university undergraduate students. *AIMS Public Health*, *8*(1), 36–65. https://doi.org/10.3934/publichealth.2021004

Mojtabai, R., Olfson, M., & Han, B. (2016). National trends in the prevalence and treatment of depression in adolescents and young adults. *Pediatrics*, 138(6), e20161878. https://doi.org/10.1542/peds.2016-1878

National Center for Education Statistics. (2022). *Undergraduate Enrollment (Condition of Education)*. U.S. Department of Education, Institute of Education Sciences. https://nces.ed.gov/programs/coe/indicator/cha

Neuhouser, M. L. (2019). The importance of healthy dietary patterns in chronic disease prevention. *Nutrition Research*, 70, 3–6. https://doi.org/10.1016/j.nutres.2018.06.002

Oluwatayo, A. A., Aderonmu, P. A., & Aduwo, E. B. (2015). Architecture students' perceptions of their learning environment and their academic performance. *Learning Environments Research*, *18*(1), 129–142. https://doi.org/10.1007/s10984-015-9172-7

O'Neil, A., Quirk, S. E., Housden, S., Brennan, S. L., Williams, L. J., Pasco, J. A., Berk, M., & Jacka, F. N. (2014). Relationship between diet and mental health in children and adolescents: A systematic review. *American Journal of Public Health*, *104*(10), e31–e42. https://doi.org/10.2105/AJPH.2014.302110

Pantell, M., Rehkopf, D., Jutte, D., Syme, S. L., Balmes, J., & Adler, N. (2013). Social isolation: A predictor of mortality comparable to traditional clinical risk factors. *American Journal of Public Health*, *103*(11), 2056–2062. https://doi.org/10.2105/AJPH.2013.301261

Peever, J., & Fuller, P. M. (2017). The biology of REM Sleep. *Current Biology*, *27*(22), R1237–R1248. https://doi.org/10.1016/j.cub.2017.10.026

Pires, G. N., Bezerra, A. G., Tufik, S., & Andersen, M. L. (2016). Effects of acute sleep deprivation on state anxiety levels: A systematic review and meta-analysis. *Sleep Medicine*, 24, 109–118. https://doi.org/10.1016/j.sleep.2016.07.019

Plotnikoff, R. C., Costigan, S. A., Williams, R. L., Hutchesson, M. J., Kennedy, S. G., Robards, S. L., Allen, J., Collins, C. E., Callister, R., & Germov, J. (2015). Effectiveness of interventions targeting physical activity, nutrition and healthy weight for university and college students: A systematic review and meta-analysis. International *Journal of Behavioral Nutrition and Physical Activity*, *12*(1), 45. https://doi.org/10.1186/s12966-015-0203-7

Reiner, M., Niermann, C., Jekauc, D., & Woll, A. (2013). Long-term health benefits of physical activity—A systematic review of longitudinal studies. *BMC Public Health*, 13, 813. https://doi.org/10.1186/1471-2458-13-813

Short, S. E., & Mollborn, S. (2015). Social determinants and health behaviors: Conceptual frames and empirical advances. *Current Opinion in Psychology*, 5, 78–84. https://doi.org/10.1016/j.copsyc.2015.05.002

Vajdi, M., & Farhangi, M. A. (2020). A systematic review of the association between dietary patterns and health-related quality of life. *Health and Quality of Life Outcomes*, *18*(1), 337. https://doi.org/10.1186/s12955-020-01581-z

Warburton, D. E. R. (2006). Health benefits of physical activity: The evidence. *Canadian Medical Association Journal*, *174*(6), 801–809. https://doi.org/10.1503/cmaj.051351

Wilks, C. R., Auerbach, R. P., Alonso, J., Benjet, C., Bruffaerts, R., Cuijpers, P., Ebert, D. D., Green, J. G., Mellins, C. A., Mortier, P., Sadikova, E., Sampson, N. A., & Kessler, R. C. (2020). The importance of physical and mental health in explaining health-related academic role impairment among college students. *Journal of Psychiatric Research*, 123, 54–61. https://doi.org/10.1016/j.jpsychires.2020.01.009

World Health Organization (Ed.). (2005). *Mental health: Facing the challenges, building solutions: report from the WHO European Ministerial Conference*. World Health Organization, Regional Office for Europe.

Xie, Y., Yaqoob, A., Mansell, W., & Tai, S. (2021). A qualitative investigation of stress related to studying architecture at degree level in the UK. *Arts and Humanities in Higher Education*, *20*(1), 3–20. https://doi.org/10.1177/1474022219871001

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