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**“Looking beyond Mental Health Stigma”: An Online Focus Group Study among Senior Undergraduate Nursing Students** [. \(1660-4601/20/5/4601\)](https://doi.org/10.3390/ijerph20054601)

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*Int. J. Environ. Res. Public Health* **2023**, *20*(5), 4601; <https://doi.org/10.3390/ijerph20054601> (registering DOI) - 05 Mar 2023

**Abstract** Evidence highlights the need for professionals to be aware of their stigmatizing attitudes and discriminatory practices in order to minimize the negative impact on the people they take care of. However, nursing students' perceptions of these issues have been poorly studied. This study [...] **Read more.** (This article belongs to the Special Issue **Literacy, Self-Care and Mental Health: Assessment and Intervention** ([/journal/ijerph/special\\_issues/literacy\\_selfcare\\_mental\\_health\\_assessment\\_intervention](https://journal/ijerph/special_issues/literacy_selfcare_mental_health_assessment_intervention)))

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**Estimating Mode of Transport in Daily Mobility during the COVID-19 Pandemic Using a Multinomial Logistic Regression Model** [. \(1660-4601/20/5/4600\)](https://doi.org/10.3390/ijerph20054600)

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*Int. J. Environ. Res. Public Health* **2023**, *20*(5), 4600; <https://doi.org/10.3390/ijerph20054600> (registering DOI) - 05 Mar 2023

**Abstract** At the beginning of 2020 there was a spinning point in the travel behavior of people around the world because of the pandemic and its consequences. This paper analyzes the specific behavior of travelers commuting to work or school during the COVID-19 pandemic [...] **Read more.**

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**Abstract** Providing early lung transplantation referral services should be considered to reduce pre-transplant mortality in patients with advanced disease. This study aimed to explore the reasons for lung transplantation referral decisions in patients and provide evidence for the development of transplantation referral services. This [...] **Read more.**

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*Int. J. Environ. Res. Public Health* **2023**, *20*(5), 4598; <https://doi.org/10.3390/ijerph20054598> (registering DOI) - 05 Mar 2023

**Abstract** The burnout rate among physicians is expected to be higher during COVID-19 period due to the additional sources of physical and emotional stressors. Throughout the current COVID-19 pandemic, numerous studies have evaluated the impacts of COVID-19 on physicians' burnout, but the reported results [...] [Read more.](#)

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**Abstract** Precaution taking is an important part of managing COVID-19 and has been since the start of the pandemic. Guided by the Health Belief Model, two studies conducted during the beginning of the COVID-19 pandemic aimed to identify possible individual difference predictors of precautionary [...] [Read more.](#)  
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*Int. J. Environ. Res. Public Health* **2023**, *20*(5), 4596; <https://doi.org/10.3390/ijerph20054596> (registering DOI) - 05 Mar 2023

**Abstract** Kindergarten teachers' quality of work life (QWL) is of great significance in ensuring teacher stability, improvement in education quality, and the development of education. This study used the newly developed and validated tool, the QWL scale for kindergarten teachers (QWLSKT) to investigate QWL [...] [Read more.](#)

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[Salt-Containing Recipes in Popular Magazines with the Highest Circulation in the United States Do Not Specify Iodized Salt in the Ingredient List](#) (</1660-4601/20/5/4595>)

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**Abstract** Iodine deficiency is a public health problem in the US, with the iodine status of women of reproductive age decreasing in recent years. This may be attributable to voluntary salt iodization in the US. Magazines, a common source of recipes and nutritional information, [...] [Read more.](#)

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*Int. J. Environ. Res. Public Health* **2023**, *20*(5), 4594; <https://doi.org/10.3390/ijerph20054594> (registering DOI) - 05 Mar 2023

**Abstract** The Coronavirus disease 2019 (COVID-19) pandemic has affected individuals' self-rated health (SRH) and social interactions, but their evolution during the pandemic needs further investigation. The present study addressed this issue using longitudinal data from 13,887 observations of 4177 individuals obtained from a four-wave [...]. [Read more.](#)

(This article belongs to the Special Issue [Behavioural Change and Socioeconomic Disparity in Health during and after the COVID-19 Pandemic](#) ([/journal/ijerph/special\\_issues/behavioural\\_change\\_socioeconomic\\_health\\_disparity](https://journal/ijerph/special_issues/behavioural_change_socioeconomic_health_disparity)))

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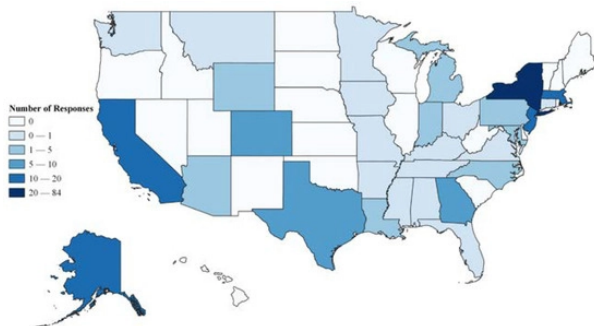
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Global Health Institute and School of Public Health, Xi'an Jiaotong University, Xi'an 710061, China

**Interests:** obesity and chronic disease prevention and control; health disparities; nutritional epidemiology; health promotion; global health

\* Section: Health Behavior, Chronic Disease and Health Promotion

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**Dr. David Berrigan \***

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*Section Editor-in-Chief*

Division of Cancer Control and Population Sciences, Behavioral Research Program, National Cancer Institute, 9609 Medical Center Drive MSC 7344, Bethesda, MD 20892, USA

**Interests:** cancer prevention; built environment; physical activity; obesity; energy balance; natural experiments; transportation and health; acculturation; geospatial approaches to cancer control; childhood obesity

\* Section: Health Behavior, Chronic Disease and Health Promotion

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Department of Psychological Medicine, Schneider Children's Medical Center of Israel, Petah Tikva 4920235, Israel

**Interests:** suicide; children; adolescents; depression; Tourette syndrome

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**Interests:** epidemiology; respiratory medicine; chronic obstructive pulmonary disease (COPD); asthma; allergy; risk factors

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*Editorial Board Member*

School of Sport, Exercise and Rehabilitation Sciences, University of Birmingham, Birmingham B15 2TT, UK

**Interests:** health psychology; environmental psychology; lifestyle physical activity; physical activity interventions



**Prof. Dr. Gregory W. Heath**

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Department of Health and Human Performance, University of Tennessee at Chattanooga, Chattanooga, TN 37403, USA

**Interests:** physical activity epidemiology; NCD prevention; physical activity interventions

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**Website** (<https://publichealth.indiana.edu/research/faculty-directory/profile.html?user=hendryx>)

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*Editorial Board Member*

Department of Environmental and Occupational Health, Indiana University, Bloomington, IN 47405, USA

**Interests:** health disparities; environmental justice; environmental exposures; Appalachia; public health effects of coal mining



**Prof. Dr. Steven Stack**

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*Editorial Board Member*

College of Liberal Arts & Sciences, Wayne State University, 4841 Cass Avenue, Detroit, MI 48201, USA

**Interests:** social risk & protective factors for suicide; culture of suicide; suicide acceptability; media and suicide; religion and suicide; economic strain and suicide; marital strain and suicide; temporal patterns and suicide; cross-national analysis of suicide



**Dr. Evangelos C. Alexopoulos**

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*Section Board Member*

Alexopoulos Evangelos Medical PC, Ellispontou 11, 156 69 Athens, Greece

**Interests:** occupational stress; employee wellbeing; ESG activities; occupational medicine; stress management; environmental health; preventive medicine; health promotion

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*Section Board Member*

Department of Kinesiology, California State University, San Marcos, CA 92096, USA

**Interests:** interval training; VO2max; metabolism; spinal cord injury

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**Dr. Maansi Bansal-Travers**

★ (<https://recognition.webofscience.com/awards/highly-cited/2021/>). **Website** (<https://www.roswellpark.org/maansi-bansal-travers>). **SciProfiles** (<https://sciprofiles.com/profile/41155>)

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Department of Health Behavior, Roswell Park Comprehensive Cancer Center, Buffalo, NY 14263, USA

**Interests:** tobacco; smoking; communication; marketing; packaging; health warnings; electronic nicotine products; consumer perceptions; surveillance; point of sale

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**Prof. Dr. Victoria Banyard**

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School of Social Work, Rutgers University, New Brunswick, NJ, USA

**Interests:** prevention; violence; resilience; relationship and sexual violence prevention; program evaluation

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**Dr. Franca Barbic**

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*Section Board Member*

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**Interests:** occupational and environmental health; cardiovascular autonomic nervous system and work ability; shift work; sleep disorders; syncope and orthostatic intolerance syndromes; heart rate, blood pressure and respiratory activity variability

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**Prof. Dr. Margo Barker**

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**SciProfiles** (<https://sciprofiles.com/profile/733817>)

*Section Board Member*

Food and Nutrition Group, Department of Service Sector Management, Sheffield Business School, Sheffield Hallam University, S1 1WB Sheffield, UK

**Interests:** food choice; diet; nutrition; epidemiology; public health

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**Prof. Dr. Heiko Becher**

**Website** (<https://www.uke.de/english/departments-institutes/institutes/medical-biometry-and-epidemiology/team/index.html>)

**SciProfiles** (<https://sciprofiles.com/profile/433025>)

*Section Board Member*

Department of Medical Biometry and Epidemiology, University Medical Center Hamburg-Eppendorf, 20246 Hamburg, Germany

**Interests:** social epidemiology; migrant research; stroke; cancer; statistical methods in epidemiology

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**Dr. Katy J. L. Bell**

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**SciProfiles** (<https://sciprofiles.com/profile/2508173>)

*Section Board Member*

Sydney School of Public Health, Faculty of Medicine and Health, University of Sydney, Sydney 2006, Australia

**Interests:** evidence-based health policy; decarbonisation of health care; clinical epidemiology; health services research; health technology assessment; screening and diagnostic test evaluation; medical overuse; overdiagnosis



**Dr. Francesco Bellanti**

**Website** (<https://www.unifg.it/ugov/person/3397>) **SciProfiles** (<https://sciprofiles.com/profile/602870>)

*Section Board Member*

Department of Medical and Surgical Sciences, Institute of Internal Medicine, University of Foggia, 71029 Foggia, Italy

**Interests:** redox biology; mitochondria; senescence; translational research; stem cells



**Prof. Dr. Karen A. Bonuck**

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*Section Board Member*

Department of Family Medicine, Albert Einstein College of Medicine, 1300 Morris Park Ave, Bronx, NY 10461, USA

**Interests:** pediatric sleep health; pediatric sleep problems; early childhood feeding; early childhood sleep; developmental disabilities



**Dr. Alberto Borraccino**

**Website** ([https://dssppen.campusnet.unito.it/do/docenti.pl/Show?\\_id=aborracc#tab](https://dssppen.campusnet.unito.it/do/docenti.pl/Show?_id=aborracc#tab))

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*Section Board Member*

Department of Public Health and Paediatrics, University of Torino, 10126 Torino, Italy

**Interests:** public health; programme planning and evaluation; health promotion; health education; adolescents health; quantitative methods; qualitative approaches in research

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**Prof. Dr. Hans Bosma**

**Website** (<https://www.maastrichtuniversity.nl/hans.bosma/research>) **SciProfiles** (<https://sciprofiles.com/profile/673586>)

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Section Board Member

Department of Social Medicine, CAPHRI Research School, Maastricht University, P.O. Box 616, 6200 MD Maastricht, The Netherlands

**Interests:** socioeconomic determinants of health; psychosocial factors and health; quantitative research methods; life-course epidemiology; type 2 diabetes; quality of life; social participation



**Dr. Soufiane Boufous**

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Section Board Member

Transport and Road Safety (TARS) Research, School of Aviation, University of New South Wales (UNSW), Sydney, Australia

**Interests:** road safety; data linkage; injury prevention; transport crashes in the media; burden of road trauma



**Dr. Stergios Boussios**

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Section Board Member

1. Faculty of Life Sciences & Medicine, School of Cancer & Pharmaceutical Sciences, King's College London, London SE1 9RT, UK

2. Medway NHS Foundation Trust, Windmill Road, Gillingham, Kent ME7 5NY, UK

3. Kent Medway Medical School, University of Kent, CT2 7LX, Canterbury, Kent, UK

4. AELIA Organization, 9(th)Km Thessaloniki-Thermi, 57001 Thessaloniki, Greece

**Interests:** ovarian cancer; cervical cancer; carcinoma of unknown primary; prostate cancer, renal cancer, colorectal cancer; cancer in pregnancy; metastatic spinal cord compression; cancer and autoimmune diseases

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**Prof. Dr. Deborah J. Bowen**

**Website** ([http://depts.washington.edu/hserv/faculty/Bowen\\_Deborah](http://depts.washington.edu/hserv/faculty/Bowen_Deborah)) **SciProfiles** (<https://sciprofiles.com/profile/502859>)

Section Board Member

Department of Bioethics and Humanities, University of Washington, Seattle, WA 98195, USA

**Interests:** cancer prevention; community intervention; health behavior change

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**Prof. Dr. Carmela Bravaccio**

**Website**

(<https://www.docenti.unina.it/#!/professor/4341524d454c4142524156414343494f425256434d4c36384835304638333957/curriculum>)

**SciProfiles** (<https://sciprofiles.com/profile/1295166>)

Section Board Member

Department of Translational Medicine, Federico II University, 80131 Naples, Italy

**Interests:** autism; child psychiatric; Rett syndrome; depression; psychopharmacology in children

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**Prof. Dr. Arthur L. Brody**

**Website** (<https://profiles.ucsd.edu/arthur.brody>) **SciProfiles** (<https://sciprofiles.com/profile/2165378>)

*Section Board Member*

1. Department of Psychiatry, University of California San Diego, La Jolla, CA 92093, USA
2. Department of Psychiatry, Veterans Administration San Diego Healthcare System (VASDHS), San Diego, CA 92161, USA

**Interests:** tobacco use disorder; positron emission tomography; treatment of cigarette smoking; brain imaging; substance use disorders



**Prof. Dr. Iain Broom**

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*Section Board Member*

Centre for Obesity Research and Epidemiology (CORE), School of Pharmacy and Life Sciences, Robert Gordon University, Garthdee Road, Aberdeen AB10 7QB, UK

**Interests:** diabetes; obesity; metabolism; nutrition; trauma; sepsis

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**Dr. Carlos Brotons**

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*Section Board Member*

Research Unit, Sardenya Primary Health Care Center, Biomedical Research Institute Sant Pau, 08025 Barcelona, Spain

**Interests:** cardiovascular disease prevention; primary health care; general practice; health promotion; cardiovascular diseases; dyslipidemias; risk factors



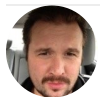
**Assoc. Prof. Stephanie Broyles**

**Website** (<https://www.pbrc.edu/research-and-faculty/faculty/?faculty=3622>) **SciProfiles** (<https://sciprofiles.com/profile/2164594>)

*Section Board Member*

Contextual Risk Factors Laboratory, Pennington Biomedical Research Center, 6400 Perkins Avenue, Baton Rouge, LA 70808, USA

**Interests:** physical activity; obesity; built environment; social environment; social determinants of health; health equity



**Dr. Ryan D. Burns**

**Website** ([https://faculty.utah.edu/u0708889-RYAN\\_DONALD\\_BURNS/hm/index.html](https://faculty.utah.edu/u0708889-RYAN_DONALD_BURNS/hm/index.html))

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*Section Board Member*

Department of Health and Kinesiology, University of Utah, Salt Lake City, UT 84112, USA

**Interests:** academic performance; adolescents; children; cognitive development; health; longitudinal analysis; physical activity; sports

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**Prof. Dr. Lauri O. Byerley**

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*Section Board Member*

Sports and Health Sciences, School of Health Sciences, American Public University System, Charles Town, WV 25414, USA

**Interests:** diet; gut microbiome; body composition; cancer cachexia; sports nutrition; assessment of dietary intake ([accept our cookies](#))

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constituents on health; nutrition education of health science students

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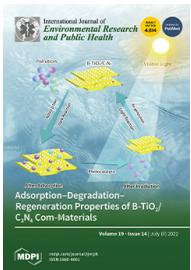
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by [Anh Truc Vo](#) (<https://sciprofiles.com/profile/2236119>),

[Thomas Patton](#) (<https://sciprofiles.com/profile/author/VTZUbDdIM2pmS0xTM2tvcFRva0tneFJyT0ZHYXY1UHIXMXo4K3pJNDEwYz0=>),

[Amy Peacock](#) (<https://sciprofiles.com/profile/380800>),

[Sarah Larney](#) (<https://sciprofiles.com/profile/author/dHZPOWpHSjg3L0gvdFFwTDg3TDN4SXRtbDhmZFFicFYxZzBZZk96aXN2RT0=>) and

[Annick Borquez](#) (<https://sciprofiles.com/profile/2341952>).

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8883; <https://doi.org/10.3390/ijerph19148883> (<https://doi.org/10.3390/ijerph19148883>) - 21 Jul 2022

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**Abstract** We carried out a scoping review to characterize the primary quantitative evidence addressing changes in key individual/structural determinants of substance use risks and health outcomes over the first two waves of the COVID-19 pandemic in the United States (US). We systematically queried the [...]

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(This article belongs to the Special Issue [Substance Use, Treatment, and Harms during COVID-19](#) ([/journal/ijerph/special\\_issues/substance\\_harm\\_covid](#)))

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by [Doina Chioran](#) (<https://sciprofiles.com/profile/1973461>),

[Adrian Sitaru](#) (<https://sciprofiles.com/profile/author/WnlsdWhMVXNWUWdab2Q2eGd5UVZZck10KzU2RUtRYWdKTG5oa2p1dGwwwbz0=>),

[Ioana Macasoi](#) (<https://sciprofiles.com/profile/1098000>), [Iulia Pinzaru](#) (<https://sciprofiles.com/profile/281136>),

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[Razvan Dragoi](#) (<https://sciprofiles.com/profile/1338958>)

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**Abstract** The use of tobacco products is a major global public health issue, as it is the leading cause of preventable death worldwide. In addition, nicotine (NIC) is a key component of electronic and conventional cigarettes. Although nicotine's addictive potential is well known, its [...] [Read more.](#)

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## [Price Promotions of E-Liquid Products Sold in Online Stores \(1660-4601/19/14/8870\)](#)

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**Abstract** Background: This study examined the relationship of physical activity (PA) combined with lower-body muscle strength to late-life depression and cognitive impairment in 10,097 participants (6062 females) ≥ 65 years of age. Methods: Exposures were PA, sit-to-stand test (STST), and depressive symptoms. Outcome was [...] **Read more.**

(This article belongs to the Special Issue **Cardiorespiratory Fitness and Its Health Implications** ([/journal/ijerph/special\\_issues/CFIHL/](/journal/ijerph/special_issues/CFIHL/)))



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**Executive Function-Related Improvements on a Commercial CBT-Based Weight Management Intervention: Pilot Randomized Controlled Trial** ([1660-4601/19/14/8763/](/1660-4601/19/14/8763/))

by [Andreas Michaelides](https://sciprofiles.com/profile/1472414), [Ellen Siobhan Mitchell](https://sciprofiles.com/profile/865800), [Heather Behr](https://sciprofiles.com/profile/1472587), [Annabell Suh Ho](https://sciprofiles.com/profile/1401726), [Grant Hanada](https://sciprofiles.com/profile/author/NE15ckR0UkxM3R0NUZ4WFpyVXIIVk1R1crNjBYckJNNTVsNS81SG54MD0=), [Jihye Lee](https://sciprofiles.com/profile/author/UTHOc1ZNZkZSMlJjdJHbjVWUuo0c0sxWFpwdWdaUXcyMWozTIFqNm81RT0=) and [Sue McPartland](https://sciprofiles.com/profile/2383824)

*Int. J. Environ. Res. Public Health* 2022, 19(14), 8763; <https://doi.org/10.3390/ijerph19148763> - 19 Jul 2022

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**Abstract** Executive functioning is a key component involved in many of the processes necessary for effective weight management behavior change (e.g., setting goals). Cognitive behavioral therapy (CBT) and third-wave CBT (e.g., mindfulness) are considered first-line treatments for obesity, but it is unknown to what [...] **Read more.**

(This article belongs to the Special Issue **Obesity and Brain: Focus on Eating Behavior** ([/journal/ijerph/special\\_issues/OaBFoEB/](/journal/ijerph/special_issues/OaBFoEB/)))

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**Health Literacy and Its Associations with Understanding and Perception of Front-of-Package Nutrition Labels among Higher Education Students** ([1660-4601/19/14/8751/](/1660-4601/19/14/8751/))

by [Axelle Hoge](https://sciprofiles.com/profile/667190), [Mathilde Labeye](https://sciprofiles.com/profile/author/NzNmZHFCQ2VZWC9NbkFwUkV3VjVESjAxaTFpazVpUDFZVmRiZDI1VUZVdz0=), [Anne-Françoise Donneau](https://sciprofiles.com/profile/author/UnZaUzVkdzFSbXhweTl3d0FSVXRBRcdCV2o3N3VpR0JJTHZvS09MRExoQT0=), [Halehsadat Zahraei Nekoe](https://sciprofiles.com/profile/author/VVvZrytSNUFMwK1IT2VTZUzCT3hKWnFwaE1pV1drMk1SEhITTCaLJRYz0=), [Eddy Husson](https://sciprofiles.com/profile/author/ODEyRUpxNWRhNVVmcncyS1dBU1FGQmIxVHFSAjVLSC9yYGVSEkTjWkxZYz0=) and [Michèle Guillaume](https://sciprofiles.com/profile/author/a2FBSXyYK1gzVUI0VGx5T2w3Z0tStjMySIIHWMhWexlaMDE0WmMwVlpzVT0=)

*Int. J. Environ. Res. Public Health* 2022, 19(14), 8751; <https://doi.org/10.3390/ijerph19148751> - 19 Jul 2022

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**Abstract** (1) Background: Nutrition labels on the front of food packages have increasingly become the focus of research. However, too few studies have placed special emphasis on nutritionally at-risk subpopulations, such as young adults or those with low literacy/numeracy skills. The present study [...] **Read more.**

(This article belongs to the Section **Health Behavior, Chronic Disease and Health Promotion** ([/journal/ijerph/sections/health\\_promotion/](/journal/ijerph/sections/health_promotion/)))

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**Evaluation of a Community Intervention to Reduce Harmful Alcohol Consumption among Adult Population: A Study Protocol** ([1660-4601/19/14/8746/](/1660-4601/19/14/8746/))

by [Victoria Porthé](https://sciprofiles.com/profile/2274437), [Irene Garcia-Subirats](https://sciprofiles.com/profile/2326266), [Catrina Clotas](https://sciprofiles.com/profile/2328208) and [Elia Diez](https://sciprofiles.com/profile/2275036)

*Int. J. Environ. Res. Public Health* 2022, 19(14), 8746; <https://doi.org/10.3390/ijerph19148746> - 18 Jul 2022

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**Abstract** Harmful alcohol consumption is shaped by a complex range of structural, social, and individual determinants that interact with inequality axes, which can be addressed at the community level. Under the framework of *Barcelona Health in the Neighborhoods*, which is a community strategy [...] **Read more.**

(This article belongs to the Special Issue **Social and Psychological Interventions to Reduce Alcohol and Drug Use and Related Harm** ([/journal/ijerph/special\\_issues/alcohol\\_drug\\_use/](/journal/ijerph/special_issues/alcohol_drug_use/)))

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**Major Risk Factors for Mortality in Elderly and Non-Elderly Adult Patients Emergently Admitted for Blunt Chest Wall Trauma: Hospital Length of Stay as an Independent Predictor (./1660-4601/19/14/8729)**

by  [Guy Elgar \(./1660-4601/19/14/8729\)](https://sciprofiles.com/profile/2267614),  [Abbas Smiley \(./1660-4601/19/14/8729\)](https://sciprofiles.com/profile/1878722) and  [Rifat Latifi \(./1660-4601/19/14/8729\)](https://sciprofiles.com/profile/2499215)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8729; <https://doi.org/10.3390/ijerph19148729> (<https://doi.org/10.3390/ijerph19148729>) - 18 Jul 2022

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**Abstract Background:** Blunt thoracic trauma is responsible for 35% of trauma-related deaths in the United States and significantly contributes to morbidity and healthcare-related financial strain. The goal of this study was to evaluate factors influencing mortality in patients emergently admitted with the primary diagnosis [...]. [Read more.](#)

(This article belongs to the Special Issue [Hospital Length of Stay and Health Outcomes \(./journal/ijerph/special\\_issues/Hospital\\_Length\\_Stay\\_Health\\_Outcomes.\)](#))

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**Analysis of Survival of Patients Hospitalized with COVID-19 in Espírito Santo, Brazil (./1660-4601/19/14/8709)**

by  [Juliana Rodrigues Tovar Garbin \(./1660-4601/19/14/8709\)](https://sciprofiles.com/profile/2183033),  [Francièle Marabotti Costa Leite \(./1660-4601/19/14/8709\)](https://sciprofiles.com/profile/2285191),  [Luís Carlos Lopes-Júnior \(./1660-4601/19/14/8709\)](https://sciprofiles.com/profile/1736281),  [Cristiano Soares da Silva Dell'Antonio \(./1660-4601/19/14/8709\)](https://sciprofiles.com/profile/2461350),  [Larissa Soares Dell'Antonio \(./1660-4601/19/14/8709\)](https://sciprofiles.com/profile/2182906) and  [Ana Paula Brioschi dos Santos \(./1660-4601/19/14/8709\)](https://sciprofiles.com/profile/author/VFlzanpQbzDJSVdBT1JKYk9OOEVabUhYNStFaFR3U0cyUGVtaGQ3QzFOQT)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8709; <https://doi.org/10.3390/ijerph19148709> (<https://doi.org/10.3390/ijerph19148709>) - 17 Jul 2022

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**Abstract Objective:** To analyze the survival of patients hospitalized with COVID-19 and its associated factors. Methods: Retrospective study of survival analysis in individuals notified and hospitalized with COVID-19 in the state of Espírito Santo, Brazil. As data source, the reports of hospitalized patients in [...]. [Read more.](#)

(This article belongs to the Special Issue [Hospital Length of Stay and Health Outcomes \(./journal/ijerph/special\\_issues/Hospital\\_Length\\_Stay\\_Health\\_Outcomes.\)](#))


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**Rationale and Purpose: The FLUTE Study to Evaluate Fluorography Mass Screening for Tuberculosis and Other Diseases, as Conducted in Eastern Europe and Central Asia Countries (./1660-4601/19/14/8706)**

by  [Vitaly Smelov \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/1097956),  [Olga Trusova \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/2127760),  [Sylvaine Barbier \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/author/YWlyS0pCbUhaVnMyWUhtbTM4NDRFUkVsN09oUmM0UZlaN1ncDikWEZiYz0=),  [Richard Muwonge \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/87849),  [Viatcheslav Grankov \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/2156512),  [Valiantsin Rusovich \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/2167760),  [Armando Baena \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/2135948),  [Mary Lyn Gaffield \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/author/WDNFODixR2VqUFc5ZjNyVUI0OFVPeURrSEJqL2ZmVTI3d1d1b0UvT1dnZz0=),  [Marilyns Anne Corbex \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/author/K21lemw3MnFBRHc1SjRvYVNGelVaUT09) and  [Masoud Dara \(./1660-4601/19/14/8706\)](https://sciprofiles.com/profile/915402)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8706; <https://doi.org/10.3390/ijerph19148706> (<https://doi.org/10.3390/ijerph19148706>) - 17 Jul 2022

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**Abstract** In Belarus and several EECA countries, periodic population-based chest X-ray “fluorography programme” use as a mass screening tool for the diagnosis of tuberculosis (TB) has been used for decades. This mass screening has also often been justified for the early detection of lung [...]. [Read more.](#)

(This article belongs to the Special Issue [Lung Disease and Pulmonary Rehabilitation, Respiratory Health, Public Health \(./journal/ijerph/special\\_issues/Lung\\_Disease\\_Rehabilitation.\)](#))

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**Diabetes and Cardiovascular Diseases Risk Assessment in Community Pharmacies: An Implementation Study** (1660-4601/19/14/8699)


by  **Sarah Rondeaux** (https://sciprofiles.com/profile/2225501),

 **Tessa Braeckman** (https://sciprofiles.com/profile/author/U1gwbUs3ZkZqM0ZuS2s4b09SM24vNDUwZ1o4TW4RSt6ZjBjcTBTS21nTT0=),

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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8699; https://doi.org/10.3390/ijerph19148699 (https://doi.org/10.3390/ijerph19148699) - 17 Jul 2022

**Cited by 1** (1660-4601/19/14/8699#metrics) | Viewed by 880

**Abstract** The implementation of a new service is often challenging when translating research findings into routine clinical practices. This paper presents the results of the implementation study of a pilot project for a diabetes and cardiovascular diseases risk-assessment service in Belgian community pharmacies. To [...]  
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(This article belongs to the Special Issue **Assessment and Management of Lifestyle-Related Risk Factors for the Prevention and Management of Non-communicable Disease in Primary and Community Care** (/journal/ijerph/special\_issues/lifestyle-related\_risks.))



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**Participatory Approaches in Family Health Promotion as an Opportunity for Health Behavior Change—A Rapid Review** (1660-4601/19/14/8680)

by  **Maja Kuchler** (https://sciprofiles.com/profile/1205339),

 **Marie Rauscher** (https://sciprofiles.com/profile/author/RGUxQjlvMIerYwJLQ3ZvR2RoQjZaelUyUW0rbVdKS05sd1E3MnZndHRtQT0=),

 **Pia Rangnow** (https://sciprofiles.com/profile/2328737) and  **Eike Quilling** (https://sciprofiles.com/profile/1166594)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8680; https://doi.org/10.3390/ijerph19148680 (https://doi.org/10.3390/ijerph19148680) - 16 Jul 2022

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**Abstract** Background: With their influence on health behavior of children, families are important addressees in health promotion and prevention of chronic diseases. However, they are often difficult to reach, partly due to the open approach of health promotion services. Therefore, they should be addressed [...]

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(This article belongs to the Special Issue **Behavior Change in Health Promotion and Prevention of Chronic Diseases** (/journal/ijerph/special\_issues/Behav\_Chang\_Chron\_Disease\_Health\_Promot.))

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**Management of Type 2 Diabetes Mellitus in Elderly Patients with Frailty and/or Sarcopenia** (1660-4601/19/14/8677)

by  **Jaime Sanz-Cánovas** (https://sciprofiles.com/profile/author/TDJtVBiLyCU2tKamdrUkJLUktXZm9IOstSZUF4NkxFSi96RktLLnZpdz0=),

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 **Ricardo Gómez-Huelgas** (https://sciprofiles.com/profile/1104801) and  **Maria Rosa Bernal-López** (https://sciprofiles.com/profile/1094424)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8677; https://doi.org/10.3390/ijerph19148677 (https://doi.org/10.3390/ijerph19148677) - 16 Jul 2022

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**Abstract** The life expectancy of the population is increasing worldwide due to improvements in the prevention, diagnosis, and treatment of diseases. This favors a higher prevalence of type 2 diabetes mellitus (T2DM) in the elderly. Sarcopenia and frailty are also frequently present in aging [...]  
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**RANTES and CD40L under Conditions of Long-Term Physical Exercise: A Potential Link to Adaptive Immunity** ([/1660-4601/19/14/8658](#))

by [Max Lenz \(https://sciprofiles.com/profile/1364831\)](#),

[Robert Schönbauer \(https://sciprofiles.com/profile/author/czBNQVIYZGdmUmRHbFJEeVRxc3grV3dXemVZT3dVL3JyMzivRm52bW5GMHFvenYdII](#)

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[Michael Sponder \(https://sciprofiles.com/profile/1079318\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8658; <https://doi.org/10.3390/ijerph19148658> (<https://doi.org/10.3390/ijerph19148658>) - 16 Jul 2022

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**Abstract** Regular physical exercise was found to be associated with an improved immune response in previous studies. RANTES and CD40L play a pivotal role in host defense, and individuals lacking adequate expression are prone to virus and opportunistic infections. A total of 98 participants [...]

(This article belongs to the Special Issue **Effects of Sport on the Immune System** ([/journal/ijerph/special\\_issues/sport\\_immune\\_](#)))

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**Content Validity Assessment of the Revised Illness Perception Questionnaire in CKD Using Qualitative Methods** ([/1660-4601/19/14/8654](#))

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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8654; <https://doi.org/10.3390/ijerph19148654> (<https://doi.org/10.3390/ijerph19148654>) - 16 Jul 2022

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**Abstract** Background: The Revised Illness Perception Questionnaire (IPQ-R) measures individuals' unique perceptions of their illness. While psychometric properties of the IPQ-R have been demonstrated in many disease populations, its content validity has not been extensively studied in non-dialysis chronic kidney disease (CKD). Unique features [...]

(This article belongs to the Section **Health Behavior, Chronic Disease and Health Promotion** ([/journal/ijerph/sections/health\\_promotion](#)))

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**Effect of Low High-Density Lipoprotein Level on Endothelial Activation and Prothrombotic Processes in Coronary Artery Disease—A Pilot Study**

([/1660-4601/19/14/8637](#))

by [Magdalena Lampka \(https://sciprofiles.com/profile/author/M2NIzKpNNHhWUvR2hCU3Y0MXN6UWR5V29KWjVQZ2NCUksrUk5BTk0QQT0=\)](#),

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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8637; <https://doi.org/10.3390/ijerph19148637> (https://doi.org/10.3390/ijerph19148637) - 15 Jul 2022  
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**Abstract** High-density lipoproteins (HDL) play an important role in the prevention of atherosclerosis. The aim of the study was to assess the relationship between serum HDL-C concentration and proinflammatory/prothrombotic activation in coronary artery disease (CAD) patients. The study group included 27 acute myocardial infarction [...]. [Read more.](#)

(This article belongs to the Special Issue **Vascular Disease and Health** ([/journal/ijerph/special\\_issues/Vascular\\_Health](#)))

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**Passive Smoking Is Associated with Multiple Heavy Metal Concentrations among Housewives in Shanxi Province, China** (/1660-4601/19/14/8606)

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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8606; <https://doi.org/10.3390/ijerph19148606> (https://doi.org/10.3390/ijerph19148606) - 14 Jul 2022  
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**Abstract** Background: Passive smoking may increase the content of heavy metals in housewives. However, this association remains a subject of debate. Female passive smoking is widespread, particularly in Chinese rural areas. Objective: This study aimed to assess the association between heavy metal accumulation and [...]. [Read more.](#)

(This article belongs to the Special Issue **Tobacco Smoke Exposure and Tobacco Product Use** ([/journal/ijerph/special\\_issues/Tobacco\\_Product](#)))

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**Methylation in the Promoter Region of the Dopamine Transporter *DAT1* Gene in People Addicted to Nicotine** (/1660-4601/19/14/8602)

- by [Jolanta Chmielowiec](https://sciprofiles.com/profile/924143) (https://sciprofiles.com/profile/924143), [Krzysztof Chmielowiec](https://sciprofiles.com/profile/923942) (https://sciprofiles.com/profile/923942),  
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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8602; <https://doi.org/10.3390/ijerph19148602> (https://doi.org/10.3390/ijerph19148602) - 14 Jul 2022  
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**Abstract** The dopaminergic system is a crucial element of the addiction processes. The dopamine transporter modulates the dynamics and levels of released dopamine in the synaptic cleft. Therefore, regulation of dopamine transporter (*DAT1*) gene expression is critical for maintaining homeostasis in the [...]. [Read more.](#)

(This article belongs to the Special Issue **Tobacco Smoke Exposure and Tobacco Product Use** ([/journal/ijerph/special\\_issues/Tobacco\\_Product](#)))

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**Age Differences in Psychological Antecedents and Behavioral Consequences of Stigmatization Associated with COVID-19 among Koreans (1660-4601/19/14/8594)**

by [Seonwoo Kang \(https://sciprofiles.com/profile/2304887\)](https://sciprofiles.com/profile/2304887) and [Jungsuk Kang \(https://sciprofiles.com/profile/1821433\)](https://sciprofiles.com/profile/1821433)  
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**Abstract** The first goal of this study is to develop a conceptual model of the causal relationship between psychological antecedents (internal attribution, anger, dangerousness, fear) of stigmatization, stigmatization (public stigma, anticipated stigma), and the behavioral consequences (compliance with COVID-19 prevention guidelines, COVID-19 testing intention) [...] **Read more.**  
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**Relationship of 24-Hour Movement Behaviors with Weight Status and Body Composition in Chinese Primary School Children: A Cross-Sectional Study (1660-4601/19/14/8586)**

by [Lin Zhou \(https://sciprofiles.com/profile/2239378\)](https://sciprofiles.com/profile/2239378), [Wei Liang \(https://sciprofiles.com/profile/1424132\)](https://sciprofiles.com/profile/1424132),  
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**Abstract** 24 h movement behaviors, specifically physical activity (PA), sedentary behavior, and sleep, play a crucial role in the prevention and intervention of childhood obesity. This study aimed to examine the association of 24 h movement behaviors with weight status and body composition among [...] **Read more.**  
(This article belongs to the Special Issue [Psychosocial and Environmental Factors of Multiple Health Behavior Change \(/journal/ijerph/special\\_issues/Psychosocial\\_Environmental\\_Health\\_Behavior\)](/journal/ijerph/special_issues/Psychosocial_Environmental_Health_Behavior))

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**Moral Disengagement Mechanisms and Personality Dimensions Implicit to Homophobia (1660-4601/19/14/8583)**

by [José Antonio González-Fuentes \(https://sciprofiles.com/profile/2328262\)](https://sciprofiles.com/profile/2328262),  
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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8583; <https://doi.org/10.3390/ijerph19148583> (<https://doi.org/10.3390/ijerph19148583>) - 14 Jul 2022  
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**Abstract** Recent advances in sexual equality and diversity have not been able to mitigate the serious problem of discrimination suffered by sexual minorities. The most serious cases involve violence and physical or psychological aggression towards sexual orientations that differ from the heterosexual norm. This [...] **Read more.**  
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**The Epidemiology of COVID-19 by Race/Ethnicity in Oklahoma City–County, Oklahoma (12 March 2020–31 May 2021) (1660-4601/19/14/8571)**

by [Kapil Khadka \(https://sciprofiles.com/profile/2263427\)](https://sciprofiles.com/profile/2263427),  
 [Kunle Adesigbin \(https://sciprofiles.com/profile/author/ZE50WnJPUHAWumpGa0JBMmFHsK9IQk9Ka2c2UEIFN0hVzdJQnREWVpIQT0\)](https://sciprofiles.com/profile/author/ZE50WnJPUHAWumpGa0JBMmFHsK9IQk9Ka2c2UEIFN0hVzdJQnREWVpIQT0),  
 [Jessica Beetch \(https://sciprofiles.com/profile/2289614\)](https://sciprofiles.com/profile/2289614),  
 [Wenxin Kou \(https://sciprofiles.com/profile/author/4Zhd9MFVcrLRV0F4Njc0WE1PcW9CMU4veHBDbm9IY0x1U0FRb3d0cUp3bz0\)](https://sciprofiles.com/profile/author/4Zhd9MFVcrLRV0F4Njc0WE1PcW9CMU4veHBDbm9IY0x1U0FRb3d0cUp3bz0) and  
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*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8571; <https://doi.org/10.3390/ijerph19148571> (<https://doi.org/10.3390/ijerph19148571>) - 14 Jul 2022  
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**Abstract** The prevalence of epidemiological health-risk behaviors and mental well-being in the COVID-19 pandemic, stratified by sociodemographic factors in Association of South East Asian Nations (ASEAN) university students, were examined in the research. Data were collected in March–June 2021 via an online survey from [...] [Read more](#).

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### [The Reshaping of the E-Cigarette Retail Environment: Its Evolution and Public Health Concerns \(/1660-4601/19/14/8518\)](#)

by [Carla J. Berg \(https://sciprofiles.com/profile/143359\)](#),

[Albert Melena \(https://sciprofiles.com/profile/author/L1Z6OG1oR0tLbGVXS3RnNEoyZ0xXdTdgAnpxcDYvMlpBYVE0Z2ZpSjBGaz0=\)](#),

[Friedner D. Wittman \(https://sciprofiles.com/profile/author/SG1QRE1VQ1Z1c2FSd0VmdWY2YytCTGswc1NmaGhCRmorcWV5VXdrRGVDZz0=\)](#),

[Tomas Robles \(https://sciprofiles.com/profile/author/VDQ0dGNObitPVIZQRmpTbWovWVBXNWZKU3Z3VFpzRjArQ0FqRkJyWjI0Yz0=\)](#) and

[Lisa Henriksen \(https://sciprofiles.com/profile/author/OFByc2pzTmYrU0pZak9FZ2x4cXRqRHZDYmpWb050cIhPMzJWK1ArQWpJQT0=\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8518; <https://doi.org/10.3390/ijerph19148518> (<https://doi.org/10.3390/ijerph19148518>) - 12 Jul 2022

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**Abstract** E-cigarette use represents a public health controversy in the US and globally. Despite the potential of e-cigarettes to support cigarette cessation, their use increases health risks and risk for addiction, particularly in young people. Various federal, state, and local laws have impacted tobacco [...] [Read more](#).

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[./\(1660-4601/19/14/8484/pdf?version=1657606276\)](#)

### [COVID-19 Pandemic Consequences among Individuals with Eating Disorders on a Clinical Sample in Poland—A Cross-Sectional Study \(/1660-4601/19/14/8484\)](#)

by [Przemysław Seweryn Kasiak \(https://sciprofiles.com/profile/1753580\)](#),

[Natalia Adamczyk \(https://sciprofiles.com/profile/author/dHo2WGxZWW0yL0RLT1ZKRGhNWVdwSWN1OGtJeGx1QnRuTGFZZnRmeDVSUT0=\)](#),

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[Daniel Śliż \(https://sciprofiles.com/profile/2051018\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8484; <https://doi.org/10.3390/ijerph19148484> (<https://doi.org/10.3390/ijerph19148484>) - 11 Jul 2022

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**Abstract** The COVID-19 pandemic and imposed restrictions had negative consequences on overall health among many populations. This study aimed to investigate the influence of the pandemic on eating disorders (ED) and mental health (MH) of individuals with confirmed ED diagnoses. A survey consisting of [...] [Read more](#).

(This article belongs to the Special Issue [Eating Disorders: Challenges, Advances and Public Health Insight \(/journal/ijerph/special\\_issues/EDCAPHI\)](#))

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### [Environmental Influences on the Behavioural and Emotional Outcomes of Children: A Network Analysis \(/1660-4601/19/14/8479\)](#)

by [Shamshad Karatela \(https://sciprofiles.com/profile/456370\)](#),

[Neil I. Ward \(https://sciprofiles.com/profile/author/TG9zNHVKMmdnY0ZtZjFIMTIyOWdzWlJJOUszRklwbWV3eVJOZ3BRY1Q1VT0=\)](#),

[Janis Paterson \(https://sciprofiles.com/profile/author/RW53QU5nQ3ZxS0g3a0VvWZE8xOXBv2F6WHhBTG1yOU9JqYtEZEExpS202cz0=\)](#) and

[Irene Sulian Zeng \(https://sciprofiles.com/profile/author/d2NPY01UN0tYcFJKenVUQzRTY0d3Umo2a3M3dEg4bGV2UkRoNjZPUGc4dz0=\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8479; <https://doi.org/10.3390/ijerph19148479> (<https://doi.org/10.3390/ijerph19148479>) - 11 Jul 2022

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**Abstract** Background: Intellectual developmental disorders are a serious source of health morbidity with negative consequences for adults as well as children. However, there is limited evidence on the environmental, trace element, behavioural, and emotional outcomes in children. Here, we investigated whether there is any [...] [Read more](#).

(This article belongs to the Special Issue [Environmental and Social Influences on Cognitive Development and Function: Second Edition \(/journal/ijerph/special\\_issues/cognitive\\_development\\_II\)](#))

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**Prevention of Cardiovascular Diseases in Community Settings and Primary Health Care: A Pre-Implementation Contextual Analysis Using the Consolidated Framework for Implementation Research (1660-4601/19/14/8467)**

by [Naomi Aerts](https://sciprofiles.com/profile/2280816), [Stefanie Anthierens](https://sciprofiles.com/profile/author/SUo1ZnhScVVBdUowUE9MSzQxeHdEeDizRVIsYU9EeFIGS3A0WGNIUVRU0=), [Peter Van Bogaert](https://sciprofiles.com/profile/author/NXRaMkZxd0tDK05NLzlvK1hqMDUyTDIRZXFWEExTDd5eEFVdVp6cTheUT0=), [Lieve Peremans](https://sciprofiles.com/profile/author/OC92aUIDS3RRRk03ZHE4RDJhcGV4eHBicZUyS0p1SDVvU1huU2NkTU52Yz0=) and [Hilde Bastiaens](https://sciprofiles.com/profile/author/VW1NS1JUQ3RmeDdPc3hwcVFPdVN3a3kzVExvd3hLdkxCSGtwSlgvaEN6VT0=)  
*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8467; <https://doi.org/10.3390/ijerph19148467> - 11 Jul 2022  
Viewed by 1155

**Abstract** Cardiovascular diseases are the world's leading cause of mortality, with a high burden especially among vulnerable populations. Interventions for primary prevention need to be further implemented in community and primary health care settings. Context is critically important to understand potential implementation determinants. Therefore, [...] **Read more.**

(This article belongs to the Special Issue **Assessment and Management of Lifestyle-Related Risk Factors for the Prevention and Management of Non-communicable Disease in Primary and Community Care** ([/journal/ijerph/special\\_issues/lifestyle-related\\_risks](/journal/ijerph/special_issues/lifestyle-related_risks)))

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Open Access Study Protocol [./1660-4601/19/14/8447/pdf?version=1657525763](https://doi.org/10.3390/1660-4601/19/14/8447/pdf?version=1657525763)

**A Program for the Comprehensive Cognitive Training of Excess Weight (TRAINEP): The Study Protocol for A Randomized, Controlled Trial (1660-4601/19/14/8447)**

by [Lucia Solier-López](https://sciprofiles.com/profile/author/NVJRSkw0M3NFUHVlQnVObeEwwdJLZz09), [Raquel González-González](https://sciprofiles.com/profile/author/SFBDZHNBfdaYUZHRHNS0EYsStYbVbNcHFGBjZPVG9IOUhtWU5wMk91ST0=), [Alfonso Caracuel](https://sciprofiles.com/profile/1562174), [Naomi Kakoschke](https://sciprofiles.com/profile/1379227), [Natalia Lawrence](https://sciprofiles.com/profile/author/Z3IUZGVDTWI0N3hiRUM5bkFoeFB2Nit6TG9uZmNyUFp6VDlock1UMjNpWT0=) and [Raquel Vilar-López](https://sciprofiles.com/profile/author/ZjdPNWxQc0pCQm1STUo2RFNPWnZCdz09)  
*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8447; <https://doi.org/10.3390/ijerph19148447> - 11 Jul 2022  
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**Abstract** Background: The available treatments for people with excess weight have shown small effects. Cognitive training has shown promising results, but most of the research focused on normal-weight university students and reported immediate results after a single training session. This parallel group, randomized, controlled [...] **Read more.**

(This article belongs to the Section **Health Behavior, Chronic Disease and Health Promotion** ([/journal/ijerph/sections/health\\_promotion](/journal/ijerph/sections/health_promotion)))

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Open Access Editorial [./1660-4601/19/14/8436/pdf?version=1657613114](https://doi.org/10.3390/1660-4601/19/14/8436/pdf?version=1657613114)

**Recent Trends in Health Literacy Research, Health Status of the Population and Disease Prevention: An Editorial (1660-4601/19/14/8436)**

by [Agnieszka Barańska](https://sciprofiles.com/profile/1441053) and [Anna Kłak](https://sciprofiles.com/profile/1971840)  
*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8436; <https://doi.org/10.3390/ijerph19148436> - 10 Jul 2022  
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**Abstract** One challenge for the development of healthcare systems worldwide is to shape society's health literacy [...] **Full article** ([1660-4601/19/14/8436](https://doi.org/10.3390/1660-4601/19/14/8436))  
(This article belongs to the Special Issue **Recent Trends in Health Literacy Research, Health Status of the Population and Disease Prevention** ([/journal/ijerph/special\\_issues/health\\_literacy\\_research](/journal/ijerph/special_issues/health_literacy_research)))

Open Access Article [./1660-4601/19/14/8411/pdf?version=1657605192](https://doi.org/10.3390/1660-4601/19/14/8411/pdf?version=1657605192)

**Investigating the Difference in Factors Contributing to the Likelihood of Motorcyclist Fatalities in Single Motorcycle and Multiple Vehicle Crashes (1660-4601/19/14/8411)**

by [Ming-Heng Wang](https://sciprofiles.com/profile/1526754)  
*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8411; <https://doi.org/10.3390/ijerph19148411> - 09 Jul 2022  
**Cited by 3** ([1660-4601/19/14/8411#metrics](https://doi.org/10.3390/1660-4601/19/14/8411#metrics)) | Viewed by 769

**Abstract** In order to better understand the factors affecting the likelihood of motorcyclists' fatal injuries, motorcycle-involved crashes were investigated based on the involvement of the following vehicles: single motorcycle (SM), multiple motorcycles (MM) and motorcycle versus vehicle (MV) crashes. Method: Binary logit and mixed [...] **Read more.**

(This article belongs to the Special Issue **Recent Research on Traffic Injuries and Risk-Taking Behaviours among Motorcycle and Bicycle Riders** ([/journal/ijerph/special\\_issues/recent\\_research\\_on\\_traffic\\_injuries\\_and\\_risk-taking\\_behaviours\\_among\\_motorcycle\\_and\\_bicycle\\_riders](/journal/ijerph/special_issues/recent_research_on_traffic_injuries_and_risk-taking_behaviours_among_motorcycle_and_bicycle_riders)))

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**Relationship between Fatigue and Self-Perception of Constipation in Community-Dwelling Older Adults during the COVID-19 Pandemic (1660-4601/19/14/8406)**









(This article belongs to the Special Issue [Social-Emotional Development and Learning in Early Childhood across Cultures \( /journal/ijerph/special\\_issues/Learning\\_in\\_Childhood \)](#))

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**Early Pandemic Improvements in Diet Quality Are Associated with Increased Physical Activity and Weight Loss in US Adults ( /1660-4601/19/14/8289 )**

by [Corinne E. Gautreaux \(https://sciprofiles.com/profile/2296378\)](#), [Kristen S. Smith \(https://sciprofiles.com/profile/1919250\)](#),

[Luke Dolan \(https://sciprofiles.com/profile/2296382\)](#),

[Michael B. Marlin \(https://sciprofiles.com/profile/author/QURiNUxzVnlvcFBKNmo1TFQxYkdSdz09\)](#),

[Michael W. Greene \(https://sciprofiles.com/profile/1781061\)](#),

[Josh R. Novak \(https://sciprofiles.com/profile/author/Yy81eS8yR1AwRnlsOU1adDjYyWt0OU90YUVUZGVlaDgxVzVkv2dseXZmQT0=\)](#) and

[Andrew D. Frugé \(https://sciprofiles.com/profile/743381\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8289; <https://doi.org/10.3390/ijerph19148289> (<https://doi.org/10.3390/ijerph19148289>) - 07 Jul 2022

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**Abstract** In March 2020, the COVID-19 pandemic led to restricted vocational (Voc-PA) and recreational physical activity (Rec-PA) outside of the home. We conducted a nation-wide survey in the United States (US) during the mitigation peak of the pandemic (June 2020) to assess health-related changes [...][Read more.](#)

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**Patterns of Alcohol Consumption and Associated Factors in a Population-Based Sample of 70-Year-Olds: Data from the Gothenburg H70 Birth Cohort Study 2014–16 ( /1660-4601/19/14/8248 )**

by [Felicia Ahlner \(https://sciprofiles.com/profile/2253224\)](#), [Hanna Falk Erhag \(https://sciprofiles.com/profile/373005\)](#),

[Lena Johansson \(https://sciprofiles.com/profile/author/TXdGNmhHTWpNNEZLa0RMVUFJa0c5UURqb2tpUWtYdFFaYXpkZitoK3M4dz0=\)](#),

[Madeleine Mellqvist Fässberg \(https://sciprofiles.com/profile/author/MTE1MkhLSEnzUHvJsvI4bnR2RedOeU5Uc1NQWnpITDINY0ZSVnl1bVJCZz0=\)](#),

[Therese Rydberg Sterner \(https://sciprofiles.com/profile/author/ZzN0bINIMDQxeDNOTTIEdTZBUU9qd1JDVEZLY2xEYVIVU252Vm5IWEpHaz0=\)](#),

[Jessica Samuelsson \(https://sciprofiles.com/profile/author/V2lGTksxTXZ1WUFSWDZDUnRkm3dyWXAvdU5hehtaWXVZSSs3K3NBTjhBST0=\)](#),

[Anna Zettergren \(https://sciprofiles.com/profile/author/NUEyTnVmB EJCc1pGaWRvTGJoWEExVM1NsOCtrcDdSd2ViNm9Ybzcwbnk4OD0=\)](#),

[Margda Waern \(https://sciprofiles.com/profile/author/VnMrUktuVIFZTHpmOHc5S2YzZzMvNVVuWmpCMXVrRmticStOd3JkaWx5RT0=\)](#) and

[Ingmar Skoog \(https://sciprofiles.com/profile/author/eHdxOWZkVXRMaGVBTENameNsVIBtSjY4b0FYt1NvTWHGS0F5bWfVdVI5MD0=\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8248; <https://doi.org/10.3390/ijerph19148248> (<https://doi.org/10.3390/ijerph19148248>) - 06 Jul 2022

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**Abstract** Older adults of today consume more alcohol, yet knowledge about the factors associated with different consumption levels is limited in this age group. Based on the data from a population-based sample ( $n = 1156$ , 539 men and 617 women) in The Gothenburg [...][Read more.](#)

(This article belongs to the Special Issue [Social Determinants of Alcohol Use and Its Consequences \( /journal/ijerph/special\\_issues/social\\_alcohol\\_use\\_consequences \)](#))

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**Contribution Ratio of Metatarsal Osteotomy and First Tarsometatarsal Joint Reduction in Moderate to Severe Hallux Valgus Correction ( /1660-4601/19/14/8243 )**

by [Dong-Kyo Seo \(https://sciprofiles.com/profile/2245339\)](#), [Hasung Park \(https://sciprofiles.com/profile/2250719\)](#),

[Myeong Geun Song \(https://sciprofiles.com/profile/author/VVV1eEIVSjFQZIBZaktKNvc2NwdYODIycTZoUHAzeCtHb0NCbJvSnVrRT0=\)](#),

[Youngjoo Jung \(https://sciprofiles.com/profile/author/NUxIRkVUbHhid0ZiWWW3YUdDRGxQRUMzc3Q0OTdEU1JGSFJYY2crMUFwQT0=\)](#) and

[Young-Rak Choi \(https://sciprofiles.com/profile/2126961\)](#)

*Int. J. Environ. Res. Public Health* **2022**, *19*(14), 8243; <https://doi.org/10.3390/ijerph19148243> (<https://doi.org/10.3390/ijerph19148243>) - 06 Jul 2022

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**Abstract** Hallux valgus is a common foot and ankle disease, for which numerous surgical procedures were introduced. So, understanding the mechanism of deformity reduction is important to select the proper method. Intermetatarsal angle (IMA) determines the severity of hallux valgus, which is influenced by [...][Read more.](#)

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## Electronic Cigarettes in Thailand: Behaviour, Rationale, Satisfaction, and Sex Differences ([/1660-4601/19/14/8229](https://doi.org/10.3390/ijerph19148229))

by  [Tamonwan Chankaew](https://sciprofiles.com/profile/1658492) (<https://sciprofiles.com/profile/1658492>),

 [Peeraporn Baiya](https://sciprofiles.com/profile/author/Tk1aamRCUWtmVHZwWIhrdHZuYTMzNkpOYTNPQ2pKRnM3aE0rd3BmVGpDdz0=) (<https://sciprofiles.com/profile/author/Tk1aamRCUWtmVHZwWIhrdHZuYTMzNkpOYTNPQ2pKRnM3aE0rd3BmVGpDdz0=>),

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 [Voratima Yoodee](https://sciprofiles.com/profile/author/OWhyNFowTUNucjVFdU1Ca0hjR2doejAxZjc2dkVEL25ic1NxbFIBT2IxMD0=) (<https://sciprofiles.com/profile/author/OWhyNFowTUNucjVFdU1Ca0hjR2doejAxZjc2dkVEL25ic1NxbFIBT2IxMD0=>) and

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## First Report on the Co-Occurrence and Clustering Profiles of Cardiovascular Lifestyle Risk Factors among Adults in Burkina Faso ([/1660-4601/19/14/8225](https://doi.org/10.3390/ijerph19148225))

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Article

# Prevalence of Health-Risk Behaviors and Mental Well-Being of ASEAN University Students in COVID-19 Pandemic

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**Abstract:** The prevalence of epidemiological health-risk behaviors and mental well-being in the COVID-19 pandemic, stratified by sociodemographic factors in Association of South East Asian Nations (ASEAN) university students, were examined in the research. Data were collected in March–June 2021 via an online survey from 15,366 university students from 17 universities in seven ASEAN countries. Analyzed data comprised results on physical activity, health-related behaviors, mental well-being, and sociodemographic information. A large proportion of university students consumed

sugar-sweetened beverages (82.0%; 95%CI: 81.4, 82.6) and snacks/fast food daily (65.2%; 95%CI: 64.4, 66.0). About half (52.2%; 95%CI: 51.4, 53.0) consumed less than the recommended daily amounts of fruit/vegetable and had high salt intake (54%; 95%CI: 53.3, 54.8). Physical inactivity was estimated at 39.7% (95%CI: 38.9, 40.5). A minority (16.7%; 95%CI: 16.1, 17.3) had low mental well-being, smoked (8.9%; 95%CI: 8.4, 9.3), and drank alcohol (13.4%; 95%CI: 12.8, 13.9). Country and body mass index had a significant correlation with many health-risk behaviors and mental well-being. The research provided important baseline data for guidance and for the monitoring of health outcomes among ASEAN university students and concludes that healthy diet, physical activity, and mental well-being should be key priority health areas for promotion among university students.

**Keywords:** exercise; smoking; alcohol; diet; mental health; lifestyle habits; ASEAN

## 1. Introduction

In the pre-coronavirus-2019 (COVID-19) pandemic era, the evidence was clear that healthy behaviors were the cornerstone to the prevention of non-communicable diseases (NCDs). NCDs have imposed a major and increasing burden on health and healthcare costs among nations [1]. Seventy-one per cent or 41 million of all global deaths (57 million) were attributable to NCDs, and a majority (78%) of all NCD deaths and 85% of global premature deaths occurred within low- and middle-income countries, where quite a few are members of the Association of South East Asian Nations (ASEAN) [2,3]. Even though many NCDs are usually asymptomatic in young adults, it is important to promote healthy, active behaviors early to prevent or delay the development of NCDs. In ASEAN, there are approximately 100 million young people (aged 15–24 years) with 20 million enrolled in a university [4]. The health behaviors of university students provide a unique forecast into future non-communicable disease (NCD) levels in later adulthood.

The lifestyle behaviors of students at university are critical, as it is the transitional phase from adolescence to young adulthood, and students experience many changes in life that affect all dimensions of health—intellectual, emotional, and social—and these can influence lifestyle choices that in turn affect health [5]. Many health behaviors, including tobacco and alcohol consumption, poor sleep and diet, and physical inactivity, are positioned as major modifiable risk factors to NCDs [6]. Yet, although the above-mentioned behaviors are commonly reported among university students in many regions and in many countries [7–9], limited research reported specifically the prevalence of these health-risk behaviors among ASEAN university students. Some literature on the lifestyle behaviors of university students are instructive. For example, large-scale studies in North America, Europe, and a multi-site study in 23 low-to-middle-income countries (LMICs) showed that between 34% and 81% of university students did not meet global physical activity (PA) guidelines [8,10–13]. It appears that a lower proportion of university students smoked (12.7–19.3%), whereas 12.2% in LMICs and 50–60% in Western countries drank alcohol heavily [8,10,12,13]. More than 80% of university students consumed insufficient fruit and vegetable daily [8,12,13]. More than one-third (35%) of university students in five ASEAN countries consumed sugar-sweetened beverages (SSBs) once or more times daily [14]. Apart from these health-risk behaviors, mental well-being is also a neglected health issue among ASEAN university students. Although previous evidence showed that mental well-being among university students in LMICs was not prevalent (12.1%) [12], the issue of mental well-being has received greater attention from educators, especially during the COVID-19 pandemic.

Attempts to promote health among university students in ASEAN has been advocated through the ASEAN University Network—Health Promotion Network (AUN-HPN). AUN-HPN was established to promote the roles of universities in health promotion, including the prevention of NCDs across the ten ASEAN countries. The network comprises more than 36-member universities across the region plus China, Japan, and South Korea [15].



The AUN-HPN Healthy University Framework developed in 2016 provides guidelines for ASEAN-member universities to adopt a holistic and comprehensive health promotion policy and programs in their institutions. Key modifiable risk factors, e.g., tobacco and alcohol consumption, poor diet, and physical inactivity, are included in the framework, as these health-risk behaviors contribute to major NCDs in the region, for instance, coronary heart diseases, diabetes, and cancers [16]. In addition to these health-risk behaviors, mental health is also emphasized as part of the advocacy [15].

However, since the establishment of the AUN-HPN and launch of the Healthy University Framework in 2018, little is known about the prevalence of major health behaviors and the factors associated with these behaviors and mental well-being in ASEAN university students. The COVID-19 pandemic and its prevention measures could exacerbate health behaviors and mental well-being of the students. Research shows that ASEAN university students experienced unprecedented levels of burdens due to the sudden partial or complete national lockdowns to contain the viral infections [17] and challenges of transitioning from physical in-person to virtual or remote learning [18,19]. Therefore, there is a cogent need for some baseline research during the COVID-19 pandemic to inform future policy, programs, and practice in the post-pandemic era of the AUN countries. To support future policies of the AUN-HPN and the implementations of the Healthy University Framework among member universities, the present study investigated the prevalence of key health-risk behaviors, mental well-being, and the sociodemographic factors associated with the behaviors and mental well-being among university students in ASEAN.

## 2. Methods

### 2.1. Study Design and Setting

The study was a cross-sectional online self-administered student survey conducted in 17 AUN-HPN member universities across 7 ASEAN countries. Participating universities included: (1) Universitas Airlangga, (2) Universitas Indonesia, and (3) Universitas Gadjah Mada from Indonesia; (4) Universiti Brunei Darussalam from Brunei Darussalam; (5) University of Malaya and (6) Universiti Putra Malaysia from Malaysia; (7) Ateneo de Manila University from the Philippines; (8) Vietnam National University Ho Chi Minh City from Vietnam; (9) Nanyang Technological University from Singapore; and (10) Burapha University, (11) Chiang Mai University, (12) King Mongkut's University of Technology North Bangkok, (13) Naresuan University, (14) Mahasarakham University, (15) Mahidol University, (16) Thammasat University, and (17) Walailak University from Thailand. Data were collected from March to June 2021 where lockdown, movement, and social gathering restrictions were enforced in all universities due to the coronavirus outbreaks in different forms across the member countries of ASEAN.

### 2.2. Participants and Recruitment

Participating universities started the student recruitment process and distribution of the online survey at different times between March and June 2021. All undergraduate students enrolled in participating universities were invited to complete the online survey. Student recruitment and the online survey distribution were coordinated by representatives of each university and was tailored to the culture and practices of each university within each country. The recruitment methods used included public relations posters, university-wide email circulation, official university social media channels such as group LINE (Line Corporation, Tokyo, Japan), and Instagram, Facebook, and WhatsApp (WhatsApp LLC., Menlo Park, CA, USA). Students were incentivized by being eligible for a prize draw for fifty smart watches when they provided a completed survey. A link and QR code on every channel were provided for students to obtain access to the survey.

### 2.3. Measures/Instruments

#### 2.3.1. Online Survey

The AUN-HPN online survey comprised seven sections: (1) PA, (2) social support for PA, (3) university's environment, (4) health-related behaviors, (5) mental well-being, (6) opinion regarding university support, and (7) sociodemographic information. The survey was developed based on previously tested instruments. The survey (including all recruitment materials) originally developed in English was translated into the national language of each country. The languages included: Bahasa Indonesia (similar with Bahasa Malaysia and Bahasa Melayu), Malaysian, Thai, and Vietnamese. The translations were back translated into English according to the World Health Organization guidelines [20] to assess understandability of the questionnaire items and to rectify any inaccuracies in the translated versions. Prior to data collection, the online surveys were pilot tested with university students for comprehension of the survey and functionality of the online Qualtrics survey platform (Qualtrics International Inc., Seattle, WA, USA, 2021). Necessary changes were made, and student comments were taken into account before the rollout of the online survey.

#### 2.3.2. Demographics

Participants provided demographic information that included age, gender, country, height, weight, grade point average (GPA), year of study, and living arrangement. Height and weight were used to calculate body mass index (BMI) and classified into 4 groups—"underweight" ( $<18.5 \text{ kg/m}^2$ ), "normal" ( $18.5 \text{ to } 22.9 \text{ kg/m}^2$ ), "overweight" ( $23.0 \text{ to } 24.9 \text{ kg/m}^2$ ), and "obese" ( $\geq 25 \text{ kg/m}^2$ ) according to World Health Organization (WHO) Asia-Pacific cut-offs [21]. GPA was standardized into a scale of 1 to 5 ( $\leq 3.2 = \text{low}$ ,  $3.3\text{--}3.9 = \text{moderate}$ , and  $>3.9 = \text{high}$ ).

#### 2.3.3. Health-Risk Behaviors

PA was measured based on the validated Global Physical Activity Questionnaire (GPAQ) version 2.0 [22]. The 16-item GPAQ was developed and tested by WHO with acceptable concurrent validity ( $r = 0.54$ ) and a high level of repeatability ( $0.67\text{--}0.81$ ) [23]. PA data were expressed as weekly Metabolic Equivalent of Task unit (MET-minutes/week), which is a measure of energy expenditure, where 1 MET equals 1 kcal/kg/h [24]. Total PA levels were classified into "sufficient" ( $\geq 600 \text{ MET-min/week}$ ) and "insufficient" ( $<600 \text{ MET-min/week}$ ) based on the WHO PA guidelines [22].

Other health-risk behaviors—consumption of tobacco, alcohol, fruits/vegetables, salt, and SSBs—were estimated using items from the existing instruments [25]. For tobacco consumption, students who smoked daily were categorized into "current smokers", and other responses (smoke occasionally/do not smoke now but used to/tried smoking a few times but never smoked regularly/have never smoked) were collapsed into "not current smokers". For alcohol consumption, students were asked how many days in a week they usually drank alcohol. Response options ranged from 0–7 days and "do not ever drink". Students' drinking was classified as "daily" if they drank 7 days/week and "not daily" for responses of  $<7$  days/week. We decided to classify students' responses into "daily" and "not daily" drinking because generally Asians have higher alcohol-abstention rates compared with other regional groups and cultures [26]. In addition, regular alcohol drinking increased risk for all-cause and cancer mortality [27], and a zero-tolerance approach has been promoted among AUN-HPN member universities [15]. Thus, daily drinking reflected that daily consumption of alcohol could be risky.

For fruit/vegetable consumption, students were asked how many servings of fruits/vegetables they usually ate each day (one to eight servings). The consumption was classified into "sufficient" ( $\geq 5$  servings/day) and "insufficient" ( $<5$  servings/day), according to WHO recommendations [28]. Consumption of snacks/fast food was assessed by asking how many days students ate fast food, with response options ranging from none to 7 days. Students who ate fast food every day were categorized into "daily", and the remaining

responses were collapsed into “not daily”. Students were also asked how many days they drank SSBs. Responses were handled similarly to the consumption of fast food. Frequent snacking and consumption of fast food (especially unhealthy food) are associated with higher energy intake, which could lead to higher risks of obesity [29]. Similar to snacking/fast food, frequent drinking of SSBs is associated with an increased risk of having metabolic syndromes and other NCDs, e.g., type 2 diabetes, kidney, and heart disease [30]. Thus, students’ health could be at risk with daily consumption of fast food and SSBs. Salt intake was assessed by asking how many teaspoons of salt/salty sauces were added to food before eating. Based on WHO guidelines [31], responses were categorized into “not excessive” (adding <1 tea spoon or 5 gm/per day) and “excessive” sodium intake (adding  $\geq 1$  tea spoon or 5 gm/per day).

#### 2.3.4. Mental Well-Being

Mental well-being was measured using the shortened Warwick–Edinburgh Mental Well-being Scale (WEMWBS), a reliable and valid tool for university students [32]. The scale is scored by summing responses to each item answered on a 1 to 5 Likert scale (1 = none of the time, 5 = all of the time). The minimum score is 7, and the maximum is 35. Those scored between 7.0 and 17.99 was considered as having low mental well-being, 18.0 to 24.99 was moderate, and 25.0 to 35.0 was considered as high mental well-being.

#### 2.4. Data Analysis

Data analyzed were drawn from three sections: PA, health-related behaviors, and sociodemographic information. To minimize errors in statistical analysis, a cleaning procedure was employed, such as removal of ineligible cases, duplicate responses, responses with more than 50% missing values (listwise deletion), and invalid questionnaire responses. Missing data in valid cases were handled using multiple imputation techniques set at 10 multiple imputations to replace missing with predicted values [33] using R package mice. Weighted probability was added as survey calibration to adjust and compensate for non-response bias prior to computing descriptive statistics, estimation, and inferential analyses.

Sociodemographic characteristics, PA, mental well-being, and other health-related behaviors were described with frequency and percentage as well as binomial approximation method using 95% confidence interval. Chi-square test for independence was applied to investigate the association of sociodemographic factors and each of the study outcome variables. One-way ANOVA was used to investigate the association of sociodemographic factors with the number of health-risk behaviors (sum of all study outcomes). Logistic regressions were computed (stepwise) to examine the association between explanatory and outcome variables. All analyses were computed on R v4.1.1 and RStudio v1.4.1717 for Mac (RStudio, Boston, MA, USA). Two-sided *p*-values less than 0.05 was considered statistically significant.

### 3. Results

Table 1 presents the sample characteristics of 15,366 university students enrolled in the online survey. The majority of respondents were from Vietnam (33.3%), followed by Indonesia (28.8%) and Thailand (25.6%). Approximately, half of the respondents were female (52.6%), were 19–21 years old (66.3%), and had normal BMI (61.5%). Over half of the respondents achieved a moderate GPA of 3.3–3.9 out of 5 (69.2%) and lived off-campus (65.2%). The highest prevalence of the health-risk behaviors was daily consumption of SSBs (82.0%; 95%CI: 81.4, 82.6), followed by snacks/fast food (65.2%; 95%CI: 64.4, 66.0), low consumption of fruit and vegetable (47.8%), and having an excessive salt intake (54.0%). Insufficient PA levels (<600 MET-min/week) were observed in 39.7% (95%CI: 38.9, 40.5) of respondents. A negative level of mental well-being was observed in 16.7% of the respondents (95%CI: 16.1, 17.3), whereas 13.4% drank alcohol (13.4%; 95%CI: 12.8, 13.9) and 8.9% smoked (8.9%; 95%CI: 8.4, 9.3) (Table 2).

**Table 1.** Sociodemographic characteristics of university students ( $n = 15,366$ ).

	Weighted		95%CI	
	<i>n</i>	%	Lower	Upper
<b>Age in years, mean (SD)</b>	20.0	1.9	19.5	20.4
18	2496	18.4	17.7	19.8
19 to 21	9016	66.3	65.9	67.5
>22	2085	15.3	14.0	16.1
<b>Gender</b>				
Female	8077	52.6	51.78	53.4
Male	7289	47.4	46.6	48.2
<b>BMI</b>				
Underweight (<18.5)	2917	21.3	19.5	23.0
Normal (18.5–22.9)	8441	61.5	58.0	65.0
Overweight (23.0–24.9)	1739	12.7	10.3	15.0
Obese ( $\geq 25$ )	624	4.5	2.6	7.0
<b>Country</b>				
Vietnam	5106	33.3	32.5	34.0
Indonesia	4430	28.8	28.1	3.0
Thailand	3940	25.6	25.0	26.0
Brunei Darussalam	1020	6.6	6.3	7.0
Philippines	322	2.1	1.9	2.0
Malaysia	289	1.9	1.7	2.0
Singapore	259	1.7	1.5	2.0
<b>Academic year</b>				
1st	9940	64.7	63.9	65.0
2nd	2895	18.8	18.2	19.0
3rd	1800	11.7	11.2	12.0
4th or more	731	4.8	4.4	5.1
<b>GPA (1 to 5)</b>				
$\leq 3.2$	2443	20.1	19.5	21.0
3.2 to 3.9	8406	69.2	68.1	70.5
>3.9	1302	10.7	10.2	11.3
<b>Living arrangement</b>				
Off-campus	10,021	65.2	64.5	66.0
On-campus	5345	34.8	34.0	36.0

95%CI, 95% confidence interval (maximum likelihood); SD, standard deviation; *n*, frequency; BMI, body mass index; GPA, grade point average.

**Table 2.** Prevalence of health-related behaviors among ASEAN university students ( $n = 15,366$ ).

	Weighted		95%CI	
	<i>n</i>	%	Lower	Upper
<b>Physical activity</b>				
Sufficient ( $\geq 600$ MET-min/week)	9269	60.3	59.5	61.1
Insufficient (<600 MET-min/week)	6097	39.7	38.9	40.5
<b>Mental well-being</b>				
Low (7–17.99)	2559	16.7	16.1	17.3
Moderate (18–24.99)	9991	65.0	64.3	65.8
High (25.0–35.0)	2816	18.3	17.7	18.9
Overall score (7.0–35.0), mean (SD)	21.5	3.8	21.5	21.6

Table 2. Cont.

	Weighted		95%CI	
	<i>n</i>	%	Lower	Upper
<b>Smoking</b>				
Current smokers	1365	8.9	8.4	9.3
Not current smokers	14,001	91.1	90.7	91.6
<b>Alcohol drinking</b>				
Daily	2052	13.4	12.8	13.9
Not daily	13,314	86.4	86.1	97.2
<b>Fruits and vegetables</b>				
Sufficient ( $\geq 5$ servings/day)	7339	47.8	47.0	48.6
Insufficient ( $< 5$ servings/day)	8027	52.2	51.5	53.0
<b>Snacks/fast food</b>				
Daily	10,019	65.2	64.4	66.0
Not daily	5347	34.8	34.0	35.6
<b>Salt intake</b>				
Not excessive ( $\leq 5$ g/day)	7061	46.0	45.2	46.7
Excessive ( $> 5$ g/day)	8305	54.0	53.3	54.8
<b>Sugar-sweetened beverages</b>				
Daily	12,598	82.0	81.4	82.6
Not daily	2768	18.0	17.4	18.6

95%CI, 95% confidence interval (maximum likelihood); SD, standard deviation; *n*, frequency.

Tables 3 and 4 show the proportion and significant sociodemographic factors that are supported by the final multivariable model depicted in Table 5. After adjusting for confounders, the strongest predictors of health-risk behaviors were country and BMI. University students in Indonesia and Singapore were 35% and 15%, respectively, more likely to be physically inactive compared with those in Brunei. Students in Indonesia (OR = 0.40, 95%CI: 0.34, 0.47), Malaysia (OR = 0.36, 95%CI: 0.24, 0.54), Thailand (OR = 0.36, 95%CI: 0.30, 0.42), Singapore (OR = 0.59, 95%CI: 0.42, 0.81), and Vietnam (OR = 0.48, 95%CI: 0.41, 0.56) were significantly less likely to experience low mental well-being compared with those in Brunei. Meanwhile, underweight and obese participants were 25% more likely to be physically inactive compared with those with normal BMI.

Students who lived off-campus were 28% more likely to be physically inactive and 26% more likely to have high salt intakes. Those with higher GPA were significantly less likely to consume alcohol. Female students were significantly less likely to have a poor diet (based upon fruit and vegetable intake) but were more likely to consume sugar-sweetened beverages. Higher-aged students were significantly less likely to have snack/fast food. Students in year 2 and year 4 or above were 17% and 30% more likely to have poor diet, respectively.

**Table 3.** Sociodemographic factors associated with health-risk behaviors using chi-square test ( $n = 15,366$ ) (Frequency (percentage)).

	<600 MET	Negative MW	Smoker	Alcohol Drinker	Poor Diet	Snacking/ Fast Food	High Salt	SSB	HRB <sup>a</sup>
<b>Gender</b>									
Male	<b>3057 (41.9)</b>	1190 (16.3)	<b>716 (9.8)</b>	<b>881 (12.1)</b>	<b>3979 (54.6)</b>	4724 (64.8)	3998 (54.9)	<b>5836 (80.1)</b>	3.3 (1.3)
Female	<b>3040 (37.6)</b>	1369 (17.0)	<b>649 (8.0)</b>	<b>1171 (14.5)</b>	<b>4048 (50.1)</b>	5295 (65.6)	4307 (53.3)	<b>6762 (83.7)</b>	3.3 (1.3)
<b>Age in years</b>									
18	<b>1124 (45.0)</b>	404 (16.2)	<b>193 (7.7)</b>	<b>162 (6.5)</b>	1394 (55.9)	<b>1644 (65.9)</b>	1352 (54.2)	<b>1989 (79.7)</b>	3.3 (1.3)
19 to 21	<b>3602 (40.0)</b>	1462 (16.2)	<b>796 (8.8)</b>	<b>1196 (13.3)</b>	4644 (51.5)	<b>5516 (61.2)</b>	4835 (53.6)	<b>7457 (82.7)</b>	3.3 (1.3)
>22	<b>754 (36.2)</b>	357 (17.1)	<b>211 (10.1)</b>	<b>361 (17.3)</b>	1103 (52.9)	<b>1300 (62.4)</b>	1138 (54.6)	<b>1755 (84.2)</b>	3.3 (1.4)
<b>Country</b>									
Vietnam	<b>1747 (34.2)</b>	<b>860 (16.9)</b>	<b>294 (5.8)</b>	<b>724 (14.2)</b>	<b>2348 (46.0)</b>	<b>1891 (37.0)</b>	<b>2902 (56.8)</b>	<b>4278 (83.8)</b>	<b>2.9 (1.3)</b>
Indonesia	<b>2437 (55.0)</b>	<b>654 (14.8)</b>	<b>440 (9.9)</b>	<b>166 (3.8)</b>	<b>2728 (61.6)</b>	<b>3473 (78.4)</b>	<b>2281 (51.5)</b>	<b>3486 (78.7)</b>	<b>3.5 (1.2)</b>
Thailand	<b>1115 (28.3)</b>	<b>562 (14.3)</b>	<b>406 (10.3)</b>	<b>996 (25.3)</b>	<b>1701 (43.2)</b>	<b>3069 (77.9)</b>	<b>2061 (52.3)</b>	<b>3378 (85.7)</b>	<b>3.4 (1.3)</b>
Brunei Darussalam	<b>437 (42.8)</b>	<b>306 (30.0)</b>	<b>136 (13.3)</b>	<b>35 (3.4)</b>	<b>682 (66.9)</b>	<b>257 (79.8)</b>	<b>549 (53.8)</b>	<b>833 (81.7)</b>	<b>3.8 (1.2)</b>
Philippines	<b>118 (36.7)</b>	<b>83 (25.5)</b>	<b>50 (15.5)</b>	<b>71 (22.1)</b>	<b>225 (69.9)</b>	<b>257 (79.8)</b>	<b>168 (52.2)</b>	<b>216 (67.1)</b>	<b>3.7 (1.5)</b>
Malaysia	<b>115 (40.0)</b>	<b>43 (14.9)</b>	<b>14 (4.8)</b>	<b>9 (3.1)</b>	<b>174 (60.2)</b>	<b>195 (79.8)</b>	<b>172 (59.5)</b>	<b>602 (69.9)</b>	<b>3.2 (1.3)</b>
Singapore	<b>128 (49.4)</b>	<b>52 (20.1)</b>	<b>25 (9.7)</b>	<b>51 (19.7)</b>	<b>169 (65.3)</b>	<b>219 (84.6)</b>	<b>172 (66.4)</b>	<b>205 (79.2)</b>	<b>3.9 (1.3)</b>
<b>Academic year</b>									
1st	<b>4081 (41.1)</b>	1609 (16.2)	861 (8.7)	<b>1154 (11.6)</b>	<b>5170 (52.0)</b>	<b>6523 (65.6)</b>	5402 (54.4)	8106 (81.6)	<b>3.3 (1.3)</b>
2nd	<b>1115 (38.5)</b>	527 (18.2)	285 (9.8)	<b>497 (17.2)</b>	<b>1511 (52.2)</b>	<b>1869 (64.6)</b>	1559 (53.9)	2416 (83.5)	<b>3.4 (1.3)</b>
3rd	<b>624 (34.7)</b>	296 (16.4)	156 (8.7)	<b>304 (16.9)</b>	<b>914 (50.8)</b>	<b>1089 (60.5)</b>	959 (53.3)	1492 (82.9)	<b>3.2 (1.3)</b>
4th or more	<b>277 (37.9)</b>	127 (17.4)	63 (8.6)	<b>97 (13.3)</b>	<b>432 (59.1)</b>	<b>538 (73.6)</b>	385 (52.7)	584 (79.9)	<b>3.4 (1.4)</b>
<b>GPA</b>									
≤3.2	<b>902 (36.9)</b>	<b>405 (16.6)</b>	240 (9.8)	<b>472 (19.3)</b>	<b>1198 (49.0)</b>	<b>1478 (60.5)</b>	1349 (55.2)	2048 (83.8)	3.3 (1.4)
3.2 to 3.9	<b>3569 (42.5)</b>	<b>1302 (15.5)</b>	738 (8.8)	<b>918 (10.9)</b>	<b>4522 (53.8)</b>	<b>5555 (66.1)</b>	4504 (53.6)	6877 (81.8)	3.3 (1.3)
>3.9	<b>445 (34.2)</b>	<b>214 (16.4)</b>	92 (7.1)	<b>196 (15.1)</b>	<b>646 (49.6)</b>	<b>654 (50.2)</b>	727 (55.8)	1070 (82.2)	3.1 (1.4)
<b>BMI</b>									
Normal	<b>3313 (39.3)</b>	<b>1300 (15.4)</b>	<b>720 (8.5)</b>	<b>1097 (13.0)</b>	<b>4426 (52.4)</b>	<b>5166 (61.2)</b>	<b>4506 (53.4)</b>	<b>6888 (81.6)</b>	<b>3.2 (1.3)</b>
Underweight	<b>1286 (44.0)</b>	<b>498 (17.1)</b>	<b>169 (5.8)</b>	<b>307 (10.5)</b>	<b>1570 (53.8)</b>	<b>1749 (60.0)</b>	<b>1526 (52.3)</b>	<b>2468 (84.6)</b>	<b>3.3 (1.3)</b>
Overweight	<b>640 (36.4)</b>	<b>(308 (17.7))</b>	<b>230 (13.2)</b>	<b>249 (14.3)</b>	<b>846 (48.7)</b>	<b>1190 (68.4)</b>	<b>1025 (58.9)</b>	<b>1419 (81.6)</b>	<b>3.4 (1.3)</b>
Obese	<b>277 (44.6)</b>	<b>133 (21.3)</b>	<b>93 (14.9)</b>	<b>82 (13.1)</b>	<b>347 (55.6)</b>	<b>438 (70.2)</b>	<b>351 (56.3)</b>	<b>541 (85.7)</b>	<b>3.6 (1.3)</b>
<b>Living arrangement</b>									
On-campus	<b>1647 (30.8)</b>	<b>795 (14.9)</b>	503 (9.4)	<b>1120 (21.0)</b>	<b>2641 (46.0)</b>	<b>3667 (68.6)</b>	<b>2806 (52.5)</b>	<b>4521 (84.6)</b>	3.3 (1.3)
Off-campus	<b>4450 (44.4)</b>	<b>1764 (17.6)</b>	862 (8.6)	<b>932 (9.3)</b>	<b>5566 (55.5)</b>	<b>6352 (63.4)</b>	<b>5499 (54.9)</b>	<b>8077 (80.6)</b>	3.3 (1.3)

<sup>a</sup> one-way ANOVA (equal variance not assumed) (Mean (Standard deviation)); Bold values = significance at  $< 0.05$ ; MET, metabolic equivalent; MW, mental well-being; SSB, sugar-sweetened beverages consumption; HRB, number of health-risk behaviors (scored 0 to 8), results in Mean (Standard Deviation).

**Table 4.** Factors associated with health-risk behaviors using bivariate logistic regression ( $n = 15,366$ ) (Crude Odds Ratio (95%CI)).

	Physical Inactivity (<600 MET)	Negative Mental Well-Being	Smoker	Alcohol Drinker	Poor Diet	Snacking/Fast Food	High Salt	SSB
<b>Age in years</b>								
≤18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
19 to 21	<b>0.81 (0.74, 0.89)</b>	1.07 (0.92, 1.25)	1.16 (0.98, 1.36)	<b>2.20 (1.86, 2.62)</b>	<b>0.84 (0.77, 0.92)</b>	<b>0.82 (0.74, 0.90)</b>	0.97 (0.89, 1.06)	<b>1.21 (1.08, 1.36)</b>
>22	<b>0.69 (0.61, 0.78)</b>	<b>1.21 (1.03, 1.42)</b>	<b>1.34 (1.10, 1.65)</b>	<b>3.02 (2.74, 4.08)</b>	<b>0.89 (0.79, 1.00)</b>	<b>0.85 (0.76, 0.97)</b>	1.01 (0.90, 1.14)	<b>1.35 (1.16, 1.58)</b>
<b>Gender</b>								
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	<b>0.84 (0.78, 0.89)</b>	1.05 (0.96, 1.14)	<b>0.80 (0.72, 0.90)</b>	<b>1.23 (1.12, 1.35)</b>	<b>0.84 (0.78, 0.89)</b>	1.03 (0.97, 1.10)	0.94 (0.88, 1.00)	<b>1.28 (1.17, 1.39)</b>
<b>BMI</b>								
Normal	<b>1.00</b>	1.00	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	1.00	1.00	<b>1.00</b>
Underweight	<b>1.22 (1.12, 1.33)</b>	1.13 (1.01, 1.27)	<b>0.66 (0.55, 0.78)</b>	<b>0.78 (0.69, 0.90)</b>	<b>1.06 (0.97, 1.15)</b>	0.95 (0.87, 1.03)	0.95 (0.88, 1.04)	<b>1.23 (1.10, 1.39)</b>
Overweight	<b>0.90 (0.81, 1.00)</b>	1.18 (1.03, 1.35)	<b>1.63 (1.39, 1.91)</b>	<b>1.12 (0.96, 1.29)</b>	<b>0.86 (0.78, 0.95)</b>	1.37 (1.23, 1.53)	1.25 (1.12, 1.39)	<b>0.99 (0.87, 1.14)</b>
Obese	<b>1.24 (1.05, 1.46)</b>	1.49 (1.21, 1.81)	<b>1.88 (1.48, 2.36)</b>	<b>1.01 (0.79, 1.28)</b>	<b>1.14 (0.96, 1.34)</b>	1.49 (1.25, 1.79)	1.12 (0.95, 1.32)	<b>1.46 (1.16, 1.87)</b>
<b>Country</b>								
Brunei Darussalam	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Indonesia	<b>1.63 (1.42, 1.87)</b>	<b>0.40 (0.35, 0.47)</b>	<b>0.72 (0.59, 0.88)</b>	1.10 (0.77, 1.61)	<b>0.79 (0.69, 0.92)</b>	<b>0.42 (0.33, 0.51)</b>	0.91 (0.79, 1.04)	<b>0.82 (0.69, 0.98)</b>
Malaysia	<b>0.88 (0.67, 1.15)</b>	<b>0.41 (0.28, 0.57)</b>	<b>0.33 (0.18, 0.56)</b>	0.90 (0.40, 1.82)	<b>0.75 (0.57, 0.98)</b>	<b>0.24 (0.17, 0.32)</b>	1.26 (0.96, 1.64)	<b>0.52 (0.38, 0.70)</b>
Philippines	0.77 (0.59, 1.00)	0.80 (0.60, 1.06)	1.19 (0.83, 1.69)	<b>7.96 (5.23, 12.33)</b>	1.15 (0.88, 1.51)	<b>0.45 (0.32, 0.64)</b>	0.93 (0.72, 1.20)	<b>0.45 (0.34, 0.60)</b>
Singapore	1.30 (1.00, 1.71)	<b>0.59 (0.42, 0.81)</b>	0.69 (0.43, 1.69)	<b>6.90 (4.39, 11.00)</b>	0.93 (0.70, 1.24)	<b>0.62 (0.43, 0.94)</b>	<b>1.69 (1.28, 2.26)</b>	0.85 (0.61, 1.20)
Thailand	<b>0.52 (0.46, 0.61)</b>	<b>0.39 (0.33, 0.46)</b>	<b>0.75 (0.61, 0.92)</b>	<b>9.52 (6.85, 13.69)</b>	<b>0.38 (0.33, 0.43)</b>	<b>0.40 (0.32, 0.50)</b>	0.94 (0.81, 1.08)	<b>1.34 (1.12, 1.61)</b>
Vietnam	<b>0.69 (0.61, 0.79)</b>	<b>0.47 (0.41, 0.55)</b>	<b>0.40 (0.32, 0.49)</b>	<b>4.65 (3.34, 6.69)</b>	<b>0.42 (0.37, 0.49)</b>	<b>0.07 (0.05, 0.08)</b>	1.12 (0.98, 1.29)	1.15 (0.97, 1.37)
<b>Academic year</b>								
1st	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2nd	<b>0.90 (0.83, 0.98)</b>	<b>1.15 (1.03, 1.28)</b>	1.15 (1.00, 1.32)	<b>1.58 (1.41, 1.77)</b>	1.01 (0.93, 1.09)	0.95 (0.88, 1.04)	0.98 (0.90, 1.06)	<b>1.14 (1.02, 1.27)</b>
3rd	<b>0.76 (0.69, 0.85)</b>	1.02 (0.89, 1.17)	1.00 (0.83, 1.19)	<b>1.55 (1.34, 1.77)</b>	0.95 (0.86, 1.05)	<b>0.80 (0.72, 0.89)</b>	0.95 (0.86, 1.06)	1.09 (0.96, 1.25)
4th or more	0.88 (0.75, 1.02)	1.09 (0.89, 1.32)	0.99 (0.75, 1.29)	1.16 (0.93, 1.45)	<b>1.33 (1.15, 1.56)</b>	<b>1.46 (1.12, 1.73)</b>	0.93 (0.80, 1.08)	0.89 (0.74, 1.08)
<b>GPA</b>								
≤3.2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3.2 to 3.9	<b>1.26 (1.15, 1.38)</b>	0.92 (0.82, 1.04)	0.88 (0.76, 1.03)	<b>0.51 (0.45, 0.58)</b>	<b>1.21 (1.11, 1.32)</b>	<b>1.27 (1.16, 1.40)</b>	0.93 (0.85, 1.02)	<b>0.86 (0.76, 0.97)</b>
>3.9	0.89 (0.77, 1.02)	0.99 (0.82, 1.29)	0.70 (0.54, 0.89)	<b>0.74 (0.62, 0.89)</b>	1.02 (0.89, 1.17)	<b>0.65 (0.58, 0.75)</b>	1.02 (0.89, 1.17)	0.88 (0.74, 1.06)
<b>Living arrangement</b>								
On-campus	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Off-campus	<b>1.79 (1.67, 1.92)</b>	<b>1.22 (1.12, 1.34)</b>	0.91 (0.81, 1.02)	<b>0.38 (0.35, 0.43)</b>	<b>1.46 (1.37, 1.56)</b>	<b>0.79 (0.74, 0.85)</b>	<b>1.10 (1.02, 1.17)</b>	<b>0.75 (0.69, 0.82)</b>

Bold values = significance at &lt; 0.05; MET, metabolic equivalent; SSB, sugar-sweetened beverages consumption.

**Table 5.** Factors associated with health-risk behaviors using stepwise multiple logistic regression ( $n = 15,366$ ) (Adjusted Odds Ratio (95%CI)).

	Physical Inactivity (<600 MET)	Negative Mental Well-Being	Smoker	Alcohol Drinker	Poor Diet	Snacking/Fast Food	High Salt	SSB
<b>Age in years</b>								
<18	-	-	-	1.00	-	1.00	-	-
19 to 21	-	-	-	<b>1.39 (1.16, 1.68)</b>	-	<b>0.88 (0.79, 0.99)</b>	-	-
>22	-	-	-	<b>1.60 (1.29, 2.00)</b>	-	<b>0.83 (0.72, 0.97)</b>	-	-
<b>Gender</b>								
Male	-	-	-	-	1.00	-	-	1.00
Female	-	-	-	-	<b>0.92 (0.86, 0.99)</b>	-	-	<b>1.16 (1.06, 1.27)</b>
<b>BMI</b>								
Normal	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00
Underweight	<b>1.25 (1.14, 1.36)</b>	<b>1.14 (1.02, 1.28)</b>	<b>0.66 (0.56, 0.78)</b>	<b>0.80 (0.70, 0.92)</b>	1.08 (0.99, 1.18)	-	0.96 (0.88, 1.04)	1.22 (1.09, 1.37)
Overweight	<b>0.86 (0.77, 0.96)</b>	1.13 (0.98, 1.30)	1.52 (1.29, 1.78)	1.14 (0.97, 1.33)	<b>0.79 (0.71, 0.88)</b>	-	<b>1.27 (1.14, 1.41)</b>	1.01 (0.89, 1.16)
Obese	<b>1.25 (1.03, 1.45)</b>	<b>1.37 (1.12, 1.68)</b>	1.58 (1.23, 1.99)	1.00 (0.77, 1.29)	1.01 (0.86, 1.20)	-	1.16 (0.98, 1.37)	<b>1.49 (1.17, 1.91)</b>
<b>Country</b>								
Brunei Darussalam	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Indonesia	<b>1.65 (1.43, 1.92)</b>	<b>0.40 (0.34, 0.47)</b>	0.80 (0.64, 1.00)	1.00 (0.69, 1.49)	<b>0.82 (0.70, 0.96)</b>	<b>0.41 (0.33, 0.51)</b>	0.89 (0.77, 1.03)	<b>0.82 (0.68, 0.98)</b>
Malaysia	0.99 (0.73, 1.34)	<b>0.36 (0.24, 0.54)</b>	<b>0.36 (0.19, 0.63)</b>	1.14 (0.48, 2.41)	<b>0.68 (0.50, 0.92)</b>	<b>0.22 (0.15, 0.31)</b>	<b>1.70 (1.25, 2.31)</b>	<b>0.51 (0.37, 0.69)</b>
Philippines	0.75 (0.57, 0.99)	0.87 (0.64, 1.17)	1.30 (0.88, 1.89)	<b>7.37 (4.73, 11.65)</b>	1.10 (0.83, 1.47)	<b>0.50 (0.35, 0.72)</b>	1.04 (0.80, 1.36)	<b>0.43 (0.32, 0.59)</b>
Singapore	<b>1.85 (1.34, 2.55)</b>	0.73 (0.50, 1.06)	0.68 (0.38, 1.15)	<b>8.15 (5.03, 13.31)</b>	0.94 (0.68, 1.32)	<b>0.50 (0.34, 0.77)</b>	<b>1.98 (1.42, 2.78)</b>	0.88 (0.60, 1.33)
Thailand	<b>0.68 (0.56, 0.82)</b>	<b>0.36 (0.30, 0.42)</b>	0.87 (0.69, 1.09)	<b>8.84 (6.30, 12.81)</b>	<b>0.38 (0.32, 0.44)</b>	<b>0.40 (0.31, 0.52)</b>	1.19 (0.99, 1.43)	<b>1.40 (1.14, 1.70)</b>
Vietnam	<b>0.73 (0.63, 0.84)</b>	<b>0.48 (0.41, 0.56)</b>	<b>0.41 (0.33, 0.52)</b>	<b>4.43 (3.16, 6.42)</b>	<b>0.41 (0.35, 0.47)</b>	<b>0.05 (0.04, 0.07)</b>	<b>1.19 (1.03, 1.38)</b>	1.18 (0.97, 1.42)
<b>Academic year</b>								
1st	-	-	-	-	1.00	-	1.00	-
2nd	-	-	-	-	<b>1.17 (1.06, 1.28)</b>	-	0.93 (0.85, 1.02)	-
3rd	-	-	-	-	1.08 (0.96, 1.21)	-	<b>0.87 (0.77, 0.97)</b>	-
4th or more	-	-	-	-	<b>1.30 (1.07, 1.58)</b>	-	<b>0.81 (0.67, 0.98)</b>	-
<b>GPA</b>								
<3.2	-	-	-	1.00	-	-	-	-
3.2 to 3.9	-	-	-	<b>0.75 (0.66, 0.86)</b>	-	-	-	-
>3.9	-	-	-	<b>0.69 (0.56, 0.84)</b>	-	-	-	-
<b>Living arrangement</b>								
On-campus	1.00	-	-	-	-	-	1.00	-
Off-campus	<b>1.28 (1.13, 1.46)</b>	-	-	-	-	-	<b>1.26 (1.11, 1.42)</b>	-
<b>H-L Goodness-of-fit test</b>								
$\chi^2$ (df)	8.66 (8)	0.862 (8)	2.14 (8)	7.08 (8)	2.34 (8)	6.14 (8)	8.51 (8)	11.00 (8)
<i>p</i> -value	0.371	0.999	0.976	0.528	0.968	0.632	0.386	0.202

Bold values = significance at <0.05; MET, metabolic equivalent; H-L, Hosmer–Lemeshow; SSB, sugar-sweetened beverages consumption.



#### 4. Discussion

The present study provided the baseline data of key health-risk behaviors and mental well-being among ASEAN university students in the COVID-19 pandemic. Several salient health-risk behaviors in university students, in particular *unhealthy diet* and *physical inactivity*, were identified behaviors, and these are instructive and helpful to the AUN-HPN stakeholders. We found that a very high proportion of ASEAN university students (82%) consumed *SSBs* daily, which were much higher than that reported in another study in university students in LMICs (35%) [12]. The frequent consumption of *SSBs* is worrisome, as research showed that it contributed to negative dietary patterns, including frequent fast food, high salt, and low fruit and vegetable intake [14]. Our findings also suggested that from the first year of university life onwards, students, particularly those living off campus, demonstrated increasingly poorer dietary choices. That could partially be due to a lack of self-discipline to eat a healthy diet and the fact that students had to be responsible for feeding themselves [34,35]. Additionally, the prevalence of *sufficient fruit and vegetable intake* among ASEAN university students (47.8%) was much lower compared to that reported by a multisite study in LMICs (82%) and in Australian (90%) and Canadian students (63.8%) [12,13,36]. One reason could be due to the limited access to fruits and vegetables from country-wide lockdowns and movement restrictions to prevent the spread of the COVID-19 in the seven ASEAN countries. Many traditional markets that sell affordable fruits and vegetables were closed during the pandemic. However, we recommend further research into the monitoring of the consumption of *SSBs*, fruit and vegetable, salt, and snack/fast food as the COVID-19 pandemic morphs into a COVID-19 endemic in seven ASEAN countries.

In the present study, *physical inactivity* among ASEAN students (39.7%) was much higher than the estimated mean for East and South-East Asia (17.3%) [37]. The prevalence of physical inactivity was, however, consistent with the 41.4% reported in a multisite study conducted in the Caribbean and South America, Sub-Saharan Africa, and East, Central, South, and South East Asia [12,37]. The results were also similar to those reported among university students in Malaysia (41.4%) [11] and Thailand (50.5%) [38]. When compared to the prevalence estimates reported in American (>70%) [39] and Canadian university students (61.2%) [36], the prevalence estimates of physical inactivity among ASEAN students were lower. Some evidence showed that the COVID-19 pandemic affected on the PA of young adults as the prevalence of meeting the PA guidelines among them decreased markedly in the COVID-19 pandemic compared to before the COVID-19 pandemic [40,41]. Nonetheless, the baseline prevalence of PA levels among ASEAN university students prior to the COVID-19 pandemic was unknown. Thus, the prevalence estimates from the present study provided useful baseline data for the monitoring of PA among university students in the event that COVID-19 pandemic morphs into an endemic disease. These results also provided the AUN-HPN with additional impetus to support its health promotion initiatives for comprehensive PA opportunities for students returning to campuses when COVID-19 restrictions are relaxed.

Several identified health-risk behaviors that were less prevalent are nonetheless still important for continuous monitoring. This included the *mental well-being* of ASEAN university students, where 16.7% of them reported low mental well-being. However, the prevalence identified in our study is markedly lower than that reported in Western countries such as Australia (33.8%) and the United States (45%) [42,43]. We propose two reasons for this lower relative prevalence of poor mental well-being in ASEAN university students. First, the prevalence could be under-reported owing to the stigma that is often associated with mental disorders in Asian cultures [44]. Second, social capital (e.g., positive family and community relationships, family support, and social interaction and support networks via social media) could have a buffering and protective function, while physical social isolation measures were operational [45].

Similarly, we suspect that the prevalence of *tobacco and alcohol consumption* might be underreported. The proportion of students who were current smokers (8.9%) in this current

study was about half of the South East Asian regional estimate (19.3% among students aged  $\geq 15$  years) reported by others [46]. Moreover, the proportion of ASEAN university students who drank daily (13.4%) was much lower than that reported among people aged 15–19 years in South East Asia (21%) and in the Western Pacific regions (38%) [46]. These observed differences could partially be explained by the higher legal age requirements for alcohol and tobacco consumption in some of the ASEAN countries. (e.g., 20 years old in Thailand [47]). Additionally, some ASEAN countries, e.g., Brunei, Indonesia, and Malaysia, have populations where Muslims constitute a majority of the population and where alcohol drinking could be prohibited by the national religion. Tobacco and alcohol consumption are also prohibited in most educational institutions in the ASEAN region and might therefore contribute to the lower relative levels of consumption compared to non-ASEAN countries, where the habits of tobacco and alcohol consumption are less restrictive.

*BMI and country of residence* appeared to have a significant correlation with the lifestyle behaviors of university students. For instance, obese university students seemed to have many health-risk behaviors. They had higher odds of having insufficient PA, low mental well-being, and a higher consumption of SSBs. Similarly, students who were underweight had higher odds of not meeting the PA guidelines and having a low mental well-being. Although there was no significant relationship between BMI and snacking/fast food consumption, our results suggested that having a healthy body weight was important for university students' well-being. Our results showed that health-risk behaviors in university students varied by the country of residence. For instance, compared to university students from Brunei, those from Indonesia and Singapore were more likely to be insufficiently active, and university students from the Philippines, Singapore, Thailand, and Vietnam had a higher chance of being daily alcohol drinkers. Similarly, university students from Malaysia, Singapore, and Vietnam had greater odds of having a high salt intake. These findings suggested that universities and public health advocates planning ameliorative health programs in different countries might need to take into account the different cultures, environments, and different priorities of the countries for effective implementation. For example, Singapore stakeholders need to pay attention to physical inactivity and alcohol and salt consumption in university students, while those in Thailand need to focus on alcohol and SSB consumption. Nevertheless, limited data in the present survey precluded a more expansive discussion. We recommend that country-level factors, e.g., urbanization, gross domestic product per capita, human development index, dietary culture, COVID-19 prevention measures, and health promotion policies and advocacy, be included in follow-up research to gain deeper insights on how these factors might play a role in the lifestyle behaviors in university students in the seven ASEAN countries.

It is noteworthy that students with a higher GPA had lower odds of being alcohol drinkers. The odds were even lower when the GPA was greater than 3.9. The results of our study contrasted with a study in Finland that showed that academic performance had no significant correlation with any alcohol consumption behavior (e.g., high frequency, and problematic drinking) [48]. There is, however, evidence to the contrary, where frequent drinking of alcohol is negatively associated high school and college completion [49]. As limited research on the relationship between academic performance and alcohol consumption is available, and it is unknown if the academic performance–alcohol consumption nexus relationship is bidirectional, further investigation is recommended.

Several strengths and limitations of the present research are instructive. Although this is a large-scale, multinational study that used well-defined measures and received good response from students in the midst of COVID-19 pandemic, self-reporting could underestimate certain health-risk behaviors such as tobacco, alcohol, and mental state because of social desirability bias (SDB). Nonetheless, as the online survey was anonymous, perhaps SDB was minimized. As data were collected in the COVID-19 pandemic, and responses were compounded by the COVID-19 prevention measures, statistical inference on causal and interactional events are limited with the cross-sectional nature of the research, and cause-and-effect deductions in the results cannot be ascertained. The research in the seven

ASEAN countries in the COVID-19 pandemic presented opportunities for learning and fostered collaboration. Future research could use more robust prospective research designs so as to minimize biases and examine direct and indirect effects of health-risk behaviors singly or in combination (i.e., tobacco, alcohol, and other risk behaviors), environmental factors, and university policies on university students' health behaviors.

## 5. Conclusions

Our study provided important baseline data on health-risk behaviors and mental well-being of ASEAN university students in the COVID-19 pandemic. It is conceivable that, given time, many ASEAN countries could transition to a COVID-19 endemic situation (i.e., unbridled living with COVID-19), where movement restrictions ease, and more activities would be allowed. As the students fully re-enter the academic institutions after the pandemic, healthy diet and PA should be considered as priority areas for health promotion among the AUN-HPN member universities. Additionally, conditions of poor mental well-being in university students, which are under-discussed and still stigmatized, should be carefully monitored. Existing university health promotion programs should continually be reviewed and renewed so that they can continue to stay relevant and effective for the benefit of university students across the seven ASEAN countries.

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**Informed Consent Statement:** All student participants in the study were not minors and gave their informed online consent by clicking "I agree to participate" before completing the survey.

**Data Availability Statement:** The datasets generated and/or analyzed during the current study are not publicly available due to restrictions on intellectual property regulations of the funding organization. Data are, however, available provided that an application is submitted at [info@thaihealth.or.th](mailto:info@thaihealth.or.th) or [areekulk@gmail.com](mailto:areekulk@gmail.com) and approved by the data custodians. No administrative process is required to access the datasets.

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