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Approaches to Cultivating Healthy Behaviours in Tertiary Students: Systemic Review

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Abstract: The purpose of the study was to identify the interventions used as approaches to cultivate healthy behaviours in undergraduate students and assess the effectiveness of those approaches. This was qualitative research. The design of the study was organised into three stages such as the search and selection stage, validation and assessment stage, and the interpretation stage. The originally designed Critical Appraisal Checklist was used by the research team members. The Triangular Assessment Method was used by the involved experts in pedagogics in the field of health education, psychology in the field of healthcare and health promotion, and experts in public health policy and healthy lifestyle management. The review provided a list of feasible approaches that can be combined to make the models that might increase the effectiveness of the process of cultivating healthy behaviours in tertiary students. These approaches were found to be the cross-domain solution seen as flexible. The specified approaches are easily combined with other ones. The use of these approaches in combination with the other approaches creates the models that can increase the effectiveness of the process of cultivating healthy behaviours in the students. The findings imply that healthy behaviour is a complex phenomenon that requires a consistent, multi-facet, and prolonged influence.

Keywords: *Higher education; healthy behaviours; pedagogics; psychology; public health policy, and healthy lifestyle management.*

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Introduction

Cultivating healthy behaviours in university students is a feasible and relevant scientific problem in the view of the increased proneness of a recent generation to a more sedentary lifestyle, stress, addictions, bad habits, and unhealthy nutrition. These issues lead to a lower birth and child mortality rates, unhealthy newborns, higher criminality, and homicide rates among the youth (Bobrytska, 2017; McSharry & Timmins, 2017; World Health Organisation [WHO], 2020).

Higher educational institutions bring in the life of youth a number of challenges and risks such as having more autonomy in their behaviour and social life (which is a benefit for some and a risk for the others), uncontrolled access to alcohol and cigarettes, adapting to a new social environment (GarfieldGates, 2020; Shaikh & Deschamps, 2006). These often foster health-destructive habits in the students and the latter are often accompanied by inactivity, stress, and poor dietary which leads to developing diseases (Bobrytska, 2017).

Universities and the government have always been responsible for raising young individuals with a healthy body and a healthy mind (Lane, 2019; Mitchell & Ortega, 2019; Department for Education, 2015). Both are constantly shaping their curricular, policies, and legislation. They run health information and education campaigns, stimulate healthy habits and lifestyles through social initiatives, and best practice sharing (Othman, 2019; Seymour, 2018). However, these approaches to cultivating healthy behaviours in tertiary students need revision and updating. This created the gap for this review-based study.

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Literature review

The literature review found plentiful theoretical studies that highlight the approaches to developing the healthy lifestyle behaviours in the students (Bakouei et al., 2019; Caliskan et al., 2018; Celebi et al., 2017; Kabakci, 2019). Pedagogical literature mostly focuses on pedagogical strategies targeting the physical activity or social skills of the students and schoolchildren aimed at establishing the environment that favours their successful learning and life enjoyment (Dudley, 2011; Lander et al., 2019; Ningthoujam et al., 2017; Syarifuddin et al., 2020; Zhang, 2016). Medical sources reveal the practice of health literacy promotion through running information campaigns and individual counselling (Almutairi, et al., 2018; Hadden, 2015; Juvinya-Canal, et al., 2020). The psychologies and instructors specialising in the promotion of a healthy lifestyle are attempting to prove that the outcomes of their efforts are reliant a great deal on the community influence and culture on the youth (Syarifuddin et al., 2020). For instance, Ibrahim et al. (2016) found that their community-based healthy lifestyle intervention program significantly positively improved health-related quality of life (HRQoL) for not only a physical component (PCS) of it (by 6.51 points (5.21 to 7.80, $p<0.001$)) but for a mental component (MCS) as well (by 7.79 points (6.44 to 9.14, $p<0.001$)). The above implies that the effectiveness of any intervention promoting a healthy lifestyle for young people depends on the mutual acceptance of it by older members of the community. This also implies that the environment of the higher educational institution seems to be a favourable ground for developing healthy habits and behavior patterns in young people as the institution is a community. Despite the existence of numerous studies, these mostly disjointedly examine the practices of fostering healthy lifestyle behaviours in the university students' form either a medical or educational, or psychological perspectives. There were found some cross-domain studies revealing experimental models of the healthy lifestyle-dedicated intervention combining such domains as pedagogics, psychology, public health policy, and healthy lifestyle management (Kourgiantakis, et al., 2019; Fifolt & McCormick, 2020; Zografos et al., 2020). However, there are few studies qualitatively addressing the approaches to cultivating healthy behaviours or revealing their effectiveness comprehensively, from the perspectives of pedagogics, psychology, public health policy, and healthy lifestyle management.

Therefore, the *purpose* of the study was to identify the interventions used as approaches to cultivate healthy behaviours in undergraduate students and assess the effectiveness of those approaches.

Methodology

This was qualitative research that relied on the search for relevant qualitative, quantitative, and mixed-methods studies. The design of the study was organised into three stages such as the search and selection stage that was aimed to identify the relevant approaches (initiatives or interventions) to cultivating healthy behaviours in university students or young adults. The second stage was intended to validate and assess the relative importance of every approach (initiative or intervention). The third stage was dedicated to interpreting the findings and producing recommendations. At the first stage, the originally designed Critical Appraisal Checklist (CAC) was used by the research team members. In the second stage, the Triangular Assessment Method (TAM) was used by the involved experts in Pedagogics in the field of health education, Psychology in the field of healthcare and health promotion, and experts in public health policy and healthy lifestyle management (Perez-Rodriguez & Rojo-Alboreca, 2017). The extracted data were analysed using a summary and thematic analysis along with the experts' assessment. The study was initiated by the Department of Social Philosophy, Philosophy of Education, and Educational Policy (SPPEEP) for the National Pedagogical Dragomanov University. The study lasted from September 2019 to the end of April 2020. The study was intended to update the practice of cultivating healthy behaviours in pre-service teachers at the university and to design a cross-disciplinary model of (self)-promoting healthy lifestyle, healthy thinking habits, and physical and mental wellness. That model was supposed to integrate pedagogical, psychological, public health policy, and healthy lifestyle management domains. The research methodology was approved by the Education Policy Section of the Department of SPPEEP for the university.

The outline of the search strategy

This was a systemic review of the intervention type (Pollock & Berge, 2018). The review was conducted by two research team members independently so that the selection bias and related human errors were minimised. The procedure of the review relied on the keywords search strategy (see Table 1) to retrieve relevant sources as recommended by Kugley et al. (2017). The PICO framework was used to develop a literature search strategy, which is recommended for systematic reviews in the field of healthcare, healthy lifestyle management, public health, and public policy (Pollock & Berge, 2018). The strategy involved the selection of the main concepts in English, Ukrainian and Russian languages (as different words are used for the concept of 'healthy behaviour') or keywords within the research topic, identification of the alternative ways to express the concepts, the combination of the keywords (Boolean searching), selection of the databases to conduct the extensive Internet search, and the search of the sources based on combining the tracking for the relevance estimation of the source. The key terms were grouped to cover three domains of the research such as pedagogical, psychological, and educational policy-related ones and health management successively and consecutively. Truncation and wildcards were used to make the search more time-efficient.

Table 1: The three domain-based search strategy

Domain	Keywords & combinations
Pedagogics	esp healthy 3adj behaviour OR (mental health) in students / esp pedagog* method OR approach OR programme OR intervention AND develop* healthy (living) 3adj style OR (health* literacy) in students / (methods OR approaches OR develop* AND health* (zdoroviazberezhennya [health-saving] in Ukrainian and zdoroviesberezheniye [health-saving] in Russian) AND student).tw / methods OR approaches OR experience OR best practice AND health* AND student.tw.
Psychology	esp healthy 3adj behaviour in students / esp wholesome way OR mental health OR wellbeing OR health-mindedness/esp psycholog* 3adj treatment programme OR intervention to develop healthy living style OR (health* literacy) in students / (methods OR approaches OR develop* AND health* (zdoroviazberezhennya [health-saving] in Ukrainian and zdoroviesberezheniye [health-saving] in Russian) AND student).tw / methods OR approaches AND health* AND student.tw.
Public health policy & Healthy lifestyle management	esp govern* OR public policy AND health* 3adj behaviour OR wellbeing OR health-mindedness at college OR university / treatment programme OR intervention to develop healthy living style OR (health* literacy) in students / treatment programme OR intervention OR campaign AND (health* literacy) in students / esp govern* OR state OR institution OR organisation AND policy AND health* AND student.tw. / esp fatigue prevent* AND/OR manag* educat* workload / programme OR intervention to develop healthy living 3adj style OR (health* literacy) in students

The search lasted from October 2019 to the end of January 2020 and it was based on the repeated Google Search-based access to the short-listed databases such as Crossref Metadata Search (CRMDS), Scopus, Web of Science, CINAHL, Google Scholar, PsycINFO, and APA PsycNet. It was performed by two research team members in English, Ukrainian, and Russian. PRISMA guidelines were used to standardise this systematic review procedure (Moher et al., 2015). The search was organised as a flow of four stages (see Fig. 1) such as identifying, screening, examining eligibility, and including (Moher et al., 2015). At the identification stage, the 4-point relevance scale was used (1 = 'poor relevance'; 2 = 'average relevance'; 3 = 'good relevance'; 4 = 'excellent relevance') for the preliminary assessment of the sources. The inclusion and exclusion criteria were applied to narrow the search. The sources shortlisted for the final review were supposed to comply with the criteria that were as follows: 1) the year of the article publication should not be earlier than 10 years; 2) it should reveal the intervention with the described methodology of cultivating healthy behaviours in tertiary students or it should experimentally resolve the problem of either fostering skills of healthy living or changing students' behavior related to addictions or unhealthy habits; 3) it should provide analytics (supported by some evidence or facts) illustrating the effect of the intervention; 4) the source should be from one of the domains under investigation: Pedagogics, Psychology, public health policy, and healthy lifestyle management; 5) the sample should be drawn from or applicable to the student population; 6) the data should be provided explicitly. A Critical Appraisal Checklist (CAC) was designed to assess the articles in the first three stages of the selection process. It was supposed to enable critical and quantitative evaluation of the relevance of literature sources. The CAC was based on the 'Quality checklist for qualitative studies' and 'Quality checklist for action research designs' that were borrowed from Critical Appraisal Checklists (Greenhalgh et al., 2005). It relied on the four-grade scale with "Yes" meaning 4, "No" meaning 3, "Unclear" meaning 2, and "Not Applicable" (N/A) meaning 0. The reviewers used the coding sheets to assess each article. The final assessment was based on the 5-point scale. It was performed by 9 experts. Those were the 3 experts with a Doctorate degree in Pedagogics, 3 experts with a Doctorate degree in Psychology, and 3 experts with Ph.D. and Doctorate degree in public health policy and healthy lifestyle management. They assessed each source using values that could include decimals like 0.01, 0.02 up to 4.98, 4.99, and 5.00. The reason for using the scale with decimals was based on the belief of the research team members that decimals provide a higher level of accuracy making the assessments results more insightful and transparent. The articles that scored more than 3.00 were included in the final review. The consensus meeting was held to overcome any disagreements. The meeting was also a discussion platform for the experts to assess the effectiveness of the approaches included in the feasible literature list. The experts were supposed to vocalise the score based on the five-point scale and justify it. To apply the Triangular Assessment Method (TAM) the experts were supposed to give three scores, each for one of the three domains such as 1) pedagogics, 2) psychology, and 3) public health policy and healthy lifestyle management. Their scores could include decimals, for instance, 3.11 or 4.98. The meeting was recorded and the audio-recordings of the experts' comments were transcribed verbatim. To ensure the accuracy and quality of the transcript, the researches transcribed it themselves.

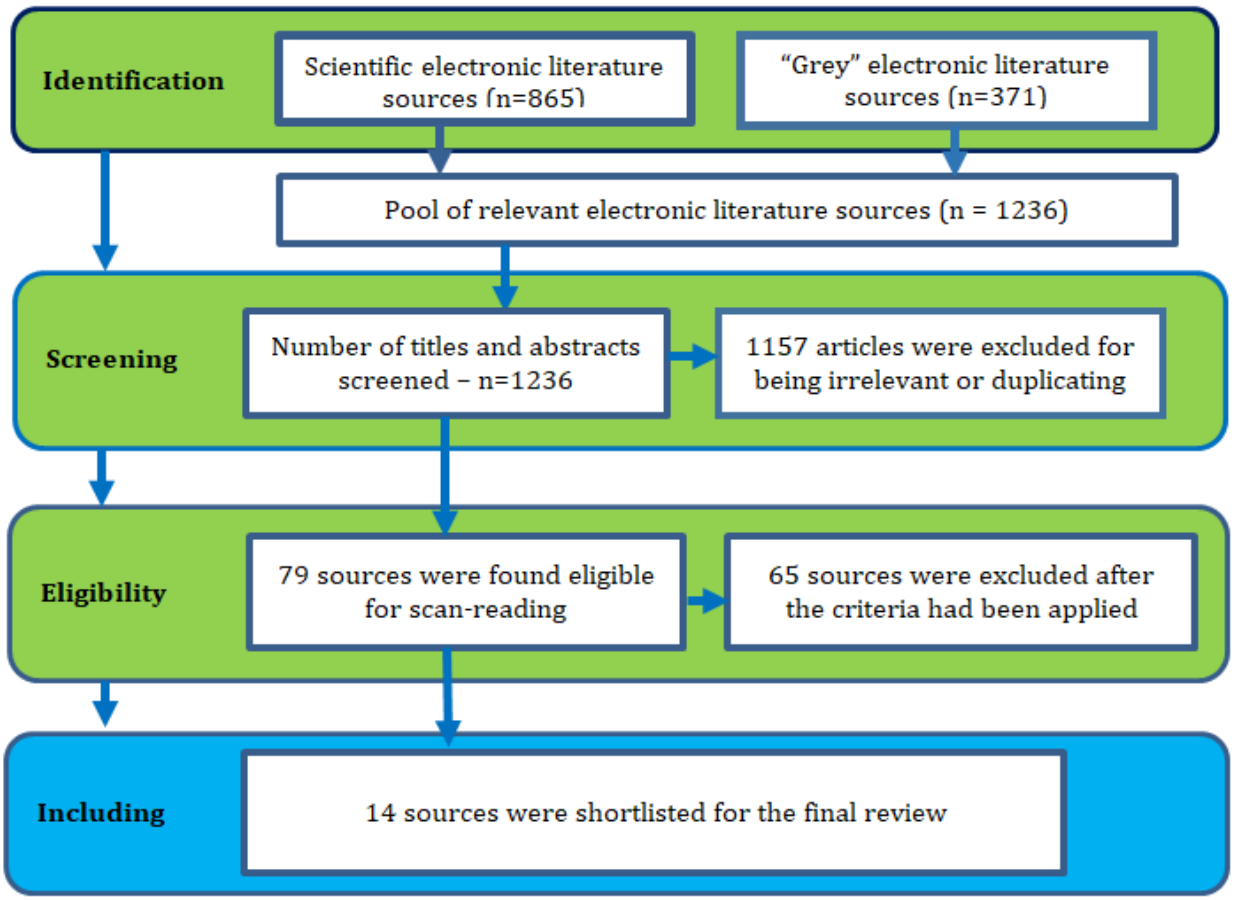

Figure 1: The search strategy

Instruments

The Critical Appraisal Checklist (CAC) was used to draw qualitative data from the literature sources. The Triangular Assessment Method (TAM) was utilised to assess those data. The first draft of the Critical Appraisal Checklist (CAC) was evaluated by the 9 experts (3 experts with a Doctorate degree in Pedagogics, 3 experts with a Doctorate degree in Psychology, and 3 experts with Ph.D. and Doctorate degree in public health policy and healthy lifestyle management). It was revised based on expert feedbacks and tested by the research team members. The obtained values for the Item-level content validity index (IL-CVI) were greater than 0.85 and the Kappa coefficient was greater than 0.83. Those values meant a 'good validity' of the CAC. The scale-level content validity index (SL-CVI) was 92% that meant high content validity. The TAM was validated by Perez-Rodriguez & Rojo-Alboreca (2017).

Results

The study found the 14 relevant interventions (initiatives or interventions) used as approaches to influence undergraduate students' behaviours related to health (see Table 2). Those interventions were as follows: 1) a wellness-based group (WBG), 2) a place-based learning project (PBLP), 3) an undergraduate research intervention (URI), 4) peer support (mutually supportive) interventions (PSI), 5) message framing (loss-gain framing) (MF), 6) multiplayer digital games (MDG), 7) exploring the health literacy profiles of the students (EHLPS), 8) a health literacy policy (HLP), 9) the pedagogical strategies targeting physical activity (PSTPA), 10) the training programme in mental health, addictions, and suicide (TPMHAS), 11) digital health interventions (DHI), 12) the chronic disease self-management programme (CDSMP), 13) environmental intervention (EI), 14) the mindfulness intervention (MI), and 15) the dietary supplements use intervention (DSUI). While some of them seemed to single domain-based (e.g. the peer support (mutually supportive) interventions, message framing – the domain of psychology), the majority of those were inter-disciplinary (e.g. the training programme in mental health, addictions, and suicide – the domains of pedagogics, psychology, public health policy, and healthy lifestyle management).

The consolidated results of the experts' assessment of the effectiveness of the above approaches using the Triangular Assessment Method (TAM) are presented in Fig. 2. The TAM is based on the principle that states that the closer to zero the expert rates their judgement, the more certain they are in their judgement. The results are based on the experts'

perceptions of each approach's effectiveness in every domain such as pedagogics, psychology, and public health policy and healthy lifestyle management.

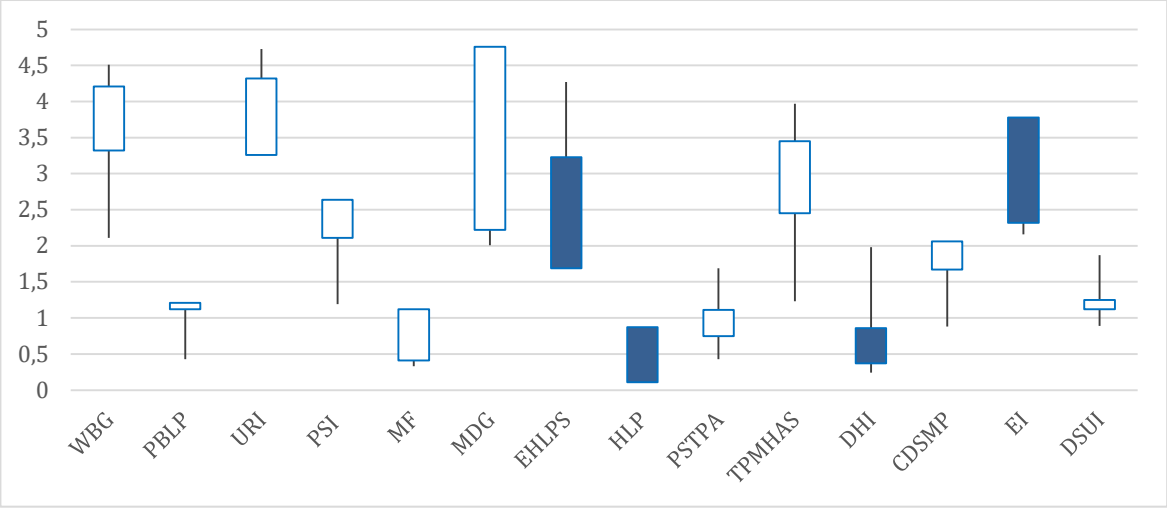

Figure 2: The results of the experts' assessment of the effectiveness of the above approaches using the TAM

According to Figure 2, the experts were unanimous in their decisions on the effectiveness of the place-based learning project, message framing, health literacy policy, the pedagogical strategies targeting physical activity, and the use of the dietary supplements. They were also quite in favour of the use of the peer support (mutually supportive) interventions, and the chronic disease self-management programme. They made their judgements tentatively on the use of the wellness-based group, undergraduate research interventions, the training programme in mental health, addictions and suicide, and the environmental interventions. The experts' judgements about the effectiveness of the multiplayer digital games and exploring the health literacy profiles of the students were dispersed and unfavourable.

Commenting on the effectiveness of the place-based learning project, message framing, health literacy policy, the pedagogical strategies targeting physical activity, and the use of the dietary supplements, the experts claimed that these approaches are the cross-domain solution which is flexible and easily combined with other approaches. Different combinations of those approaches make different tools for the instructors, psychologists, and health managers.

Some of the experts' quotes were as follows:

> [*…the use of place-based learning projects together with pedagogical strategies targeting physical activity can get the instructors to reconsider their teaching repertoire*…]
>
> [… *message framing seems to be a good compliment to all other approaches as it fits the way people mostly communicate through*…]
>
> [… *health literacy policy can focus on fostering transferrable skills in the students… their health habits and thoughts*…]

The effectiveness of peer support (mutually supportive) interventions and the chronic disease self-management programme was discussed by the experts from the prospect of their applicability to certain groups of individuals. These approaches were identified as lacking acceptability and appropriateness by every and for a person, respectively.

Some of the experts' quotes were as follows:

> [… *the approaches like peer support (mutually supportive) interventions and the chronic disease self-management programme are of personality and personal health nature…]*
>
> […*the approaches are just psychological…*]

The experts' judgements about the effectiveness of the wellness-based group, undergraduate research interventions, the training programme in mental health, addictions and suicide, and the environmental interventions, the multiplayer digital games, and exploring the health literacy profiles of the students were based on the reasoning that they are rather supplementary than a 'self-sufficient approach'.

Table 2: Results of the systematic review of finally selected literature sources

#	Author & year	Intervention description and purpose	Effect	Domain	Sample	Explicit data	Reviewers' mean scores (5-point scale)
1	Rusmana & Rahman, 2018	*Wellness-Based Group* is intended to improve students' psychological well-being through engaging them in the community-like environment in which they appraise their strengths and weaknesses (self-acceptance), motivate each other to grow as a personality, positively influence their peers' ambitions, helping each other in establishing a good relationship with others, helping each other in managing stress and supporting each other in creating the environment to live in.	Significant, post-test results (Asymp. Sig 0.0175 <0.05) proved the effectiveness of the treatment	healthy lifestyle management	7 sampled university students	+/?	3.24
2	Fifolt & McCormick, 2020	*The Place-Based Learning* project was designed as a 2-week travel course. The students were supposed to visit historically significant sites. They discuss public health issues with the representatives and practitioners from local, state, tribal, and federal public health agencies. Those meetings were followed by guided discussions/debriefing session on the bus.	A slight increase in students' level of interest in working with medically underserved populations (MUPs) (0.3) and greater comfort in working on behalf of MUPs (0.6).	Pedagogics & public health policy	15 students majoring in public health	+	3.79
3	Zografos et al., 2020	*Undergraduate research* intervention was supposed to be a students' experience which was related to investigating local public health issues through conducting structured social observations. They were expected to assess the assets and liabilities of the local environment.	Knowledge improved by 1.3 points, motivation to resolve health issues increased by 0.2 points. The confident students' perception of the research declined by 0.3 points, while the non-confident students' perception increased by 0.1 points.	Pedagogics & public health policy	131 university students majoring in public health	+/?	3.55
4	Galloway, 2016	The *peer support* (mutually supportive) interventions in mental health are based on the help of individuals who experience a similar problem (like depression or addiction). This can be a valuable complement to interventions delivered by practitioners or healthcare managers/professionals.	Positive change in making friends, social engagement, healthy routine, dealing with stress, emotional self-regulation.	Psychology	12 volunteers	+/?	3.03
5	Williams, et al., 2019	*Message framing* (loss-gain framing) in physical activity education has been proved to influence making decisions on healthy choices and motivate change in behaviour.	Significant intrinsic and extrinsic effects. High level of exercise intention due to gain-framed messages.	Psychology	n.d.	+	4.37

Table 2: Continued

#	Author & year	Intervention description and purpose	Effect	Domain	Sample	Explicit data	Reviewers' mean scores (5-point scale)
6	Janssen, 2018	*Multi-player digital games* in health education pursue the dual goal such as *first,* education and training that is intended for health professionals and *second,* education for people who are at risk of developing conditions in their health, or who seek the opportunity of improving their healthy lifestyle.	Increased student engagement in the delivery of health education, improvement in the skills of deductive reasoning, relieving stress.	Pedagogics & healthy lifestyle management	Healthcare students	+	4.26
7	Juvinya-Canal, 2020	Exploring the *health literacy* profiles of the students majoring in Nursing, Social Work, Primary, and Special Education. It was a feasibility intervention aimed at making improvements in training programs in health care, disease prevention, and health promotion.	The health literacy index score was average but insufficient for all the participants (Nursing students = 13.2 (± 4); Social Work students + 10.5 (± 2.9); Primary Education students for = 10.1 (± 2.8), and Special Education students = 10.1 (± 2.7).	Pedagogics & healthy lifestyle management	219 students	+	4.04
8	Wismar, 2016	*Health literacy policy* is an attempt to implement effective actions outside the health sector, to encourage financing and administering health literacy activity. This policy addresses this issue by focusing on promoting health literacy.	Increased long-term preventive effect. Enhanced academic performance, better nation-wide socio-economic gains, and conditions. Reduced addictions, mental and physical disorders. Reduced costs on medical treatment.	Pedagogics & healthy lifestyle management	Secondary school and tertiary students	+	4.37
9	Lander et al., 2019	*Pedagogical strategies* targeting physical activity relied on evidence-based active pedagogy that was embedded through the "*Transform-Ed!"* project. The project attempted to provide the environmental and behavioural influences on physical activity of the students, specifically targeting the academic educators' delivery methodology and pedagogy of the unit content	A significantly increased total scores related to willingness to integrate active teaching and positive perceptions of the project increased active teaching confidence and competence.	Pedagogics	218 students	+	4.73
10	Kourgiantakis, et al., 2019	*Training programmes in mental health, addictions, and suicide* suppose that social workers specialised in education, criminal justice, health, child welfare, and private practice provide counselling services to individuals with mental health and addiction concerns.	Boosted students' knowledge, skills, and confidence in dealing with mental health concerns leading to suicide. Increased mental health literacy.	Pedagogics, psychology, public health policy, and healthy lifestyle management	n.d.	+/?	3.89

Table 2: Continued

#	Author & year	Intervention description and purpose	Effect	Domain	Sample	Explicit data	Reviewers' mean scores (5-point scale)
11	McVay et al., 2019	*Digital health interventions* relied on determining what intervention dose will produce the most substantial health behaviour change. It is called the dose-response relationship meaning maximising influence via minimising burden.	Tailored influence, combining doses across modality, changed health-related behaviours.	Psychology	n.d	+/?	3.82
12	Wilson, et al., 2019	1) *Chronic Disease Self-Management Programme* was aimed to increase patients' confidence and mastery in their ability to manage their conditions. 2) *Environmental interventions* for promoting walking and physical activity in community-based contexts was the cost-effective example of the intervention run in the nonclinical settings.	Health-oriented behaviour, healthy habits.	Psychology	n.d.	+/?	3.24
13	Chin et al., 2019	The *mindfulness interventions* are intended to train people in self-regulation via the attitude of acceptance and equanimity.	Self-regulation skills, enhanced skills of coping with stress.	Psychology	n.d	+/?	3.33
14	Viscecchia et al., 2016	The *dietary supplements use* was the exploratory intervention aimed to identify the consumed supplement that people used to improve their health.	Good body shape, cardiovascular system working sufficiently, health-oriented habits.	healthy lifestyle management	Adults	+/?	3.69

The experts suggested some combinations of the approaches to make the models that might increase the effectiveness of the process of cultivating healthy behaviours in tertiary students. Those were as follows: a) MF (5%) + WBG (15%) + PSTPA (35%) + DHI (45%); b) MF (5%) + HLP (30%) + PBLP (15%) + EI (20%) + TPMHAS (30%); c) PBLP (30%) + DSUI (15%) + PSTPA (25%) + DHI (15%) + PSTPA (25%); d) MDG (15%) + DHI (15%) + PSI (15%) + CDSMP (15%) + DSUI (20%) + PSTPA (20%).

Discussion

The study attempted to identify the interventions used as approaches to cultivate healthy behaviours in undergraduate students and assess the effectiveness of those approaches. Fourteen sources were reviewed. As far as we are aware, this is the first systematic review addressing the problem of identifying approaches to cultivating healthy behaviours in tertiary students from the perspective of pedagogics, psychology, public health policy, and healthy lifestyle management and assessing their effectiveness by the experts. The key finding of the review is a list of feasible approaches that can be combined to make the models that might increase the effectiveness of the process of cultivating healthy behaviours in tertiary students.

It was found that the described approaches such as the place-based learning project, message framing, health literacy policy, the pedagogical strategies targeting physical activity, and the use of the dietary supplements are highly effective and feasible in cultivating healthy behaviours in tertiary students. The use of peer support (mutually supportive) interventions and the programme of chronic disease self-management are both of moderate effectiveness. The wellness-based group, undergraduate research interventions, the training programme in mental health, addictions and suicide, and the environmental interventions can be situational solutions. The multiplayer digital games and exploring the health literacy profiles of the students can only be used as supplements to other approaches. It was also found that the problem of cultivating healthy behaviours in tertiary students is a cross-domain issue involving pedagogics, psychology, public health policy, and healthy lifestyle management that can be combined into different models perusing different goals.

The findings of this review agree with the previous reviews. It is consistent with the review-based findings of John et al. (2018) who found that the use of peer support programmes is quite common health intervention at universities. This study supported the finding that the wellness-based group intervention can be used situationally as its effectiveness seems arguable. The study goes in line with Janssen (2018) stating that games can change the thinking imperatives but behaviour and may not always have the desired effect. Furthermore, this study supported the findings of Latimer et al. (2010) who studied the effects of three approaches to message framing and concluded that the messages structured in a certain way can change the individuals' health-related behaviour.

Conclusion

The review provided a list of feasible approaches that can be combined to make the models that might increase the effectiveness of the process of cultivating healthy behaviours in tertiary students. The approaches based on place-based learning, message framing, health literacy policy, the pedagogical strategies targeting physical activity, and the use of the dietary supplements seem effective pedagogic and psychologic tools in cultivating healthy behaviours in undergraduate students. These approaches are the cross-domain solution which is flexible and the approaches are easily combined with other ones. The use of these approaches is suggested by the experts in combination with the other approaches to make the models. This can increase the effectiveness of the process of cultivating healthy behaviours in the students. The problem of cultivating healthy behaviours in tertiary students is a cross-domain issue involving pedagogics, psychology, public health policy, and healthy lifestyle management that can be combined into different models perusing different goals. The findings imply that healthy behaviour is a complex phenomenon that requires a consistent, multi-facet, and prolonged influence. It is also a prerequisite that that influence raised interest and encouraged action. A *place-based learning* project being a 2-week travel course can be a good example. It is important that the students do not feel as if they are 'lab rats' in this process. Further research is needed in assessing the effectiveness of different models combining the specified approaches.

Limitations

The key limitation of this review was the language of the sources that are published in English. Few relevant experiment-based sources were found in Ukrainian and Russian sources.

Recommendations

It seems desirable to combine the approaches to fostering healthy behaviours in tertiary students. Though omitted in the studies, it looks reasonable that additional stimuli were considered for both teachers and students at universities for participation in the health literacy promoting interventions, healthy lifestyle campaigns, peer assistance interventions. It is a prerequisite that adults (teachers) were more tolerant (not overcritical) and emphatic in communication and providing feedback to students' completed assignments and tasks. The reason for this is that imposing too much pressure on some young individuals and critics often make them look for stress reducers like drugs

or alcohol. Additionally, it should be considered that any healthy lifestyle-purpose intervention should pursue the task of creating a community because in a healthy lifestyle there is a lot of a herd instinct.

The future research can address the effects of the combinations of the specified approaches (such as a wellness-based group, a place-based learning project, an undergraduate research intervention, peer support (mutually supportive) interventions, message framing (loss-gain framing), multiplayer digital games, exploring the health literacy profiles of the students, a health literacy policy, the pedagogical strategies targeting physical activity, the training programme in mental health, addictions, and suicide, digital health interventions, the chronic disease self-management programme, environmental intervention, the mindfulness intervention, and the dietary supplements use intervention) on the tertiary students' healthy behaviours.

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Appendix

Critical Appraisal Checklist (adapted from Greenhalgh et al., 2005).

Reviewer _____ **Date** _____

Author(s) _____

Year _____ **Record number** _____

#		Yes	No	Unclear	N/A
1	Did the article address the relevant research question(s)?				
2	Was the research question addressed via the innovative project or initiative or programme which is related to approaches to cultivating healthy behaviours in undergraduate students?				
3	Was the research outcome relevant to educators or psychologists or healthcare providers? Would it influence the policy and educators or psychologists or healthcare providers' practice, in general?				
4	Was the project or initiative or programme clearly described?				
5	Was the project managed appropriately?				
6	Did the study provide a feasible project implementation plan that was congruous with the health-saving skills and available resources?				
7	Was sampling clearly described and justified?				
8	Was the relationship between participation in the project and the results/effect size explained clearly?				
9	Did the study discuss the actions taken (the change or the intervention or initiative) and the methods used to evaluate them clearly? Were the sampled people involved in the reflection?				
10	Was the study design duplicable or transferrable?				
11	Did the study comply with recent theoretical and ideological insights in the field of healthy living?				

Exclude □ Include for scan-reading □ Include for final review □

Reviewer's comment _____