fortune Journals

Research Article

ARCHIVES OF CLINICAL AND MEDICAL CASE REPORTS

ISSN: 2575-9655

Promoting Health Students' Well-Being: The Study Protocol of a Quasi-Experimental Intervention Study

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Abstract

Introduction: Several studies identified high prevalence of anxiety, stress, and depression for health students, including paramedic students. For this reason, the health students' well-being represents a public health issue. To improve this situation, we need to develop interventions at the beginning of health studies. The implementation of occasional and/or regular well-being promotion interventions meets a real need for many of health students.

Objectives of this study: We aim to assess a well-being promotion intervention among paramedic students in Le Havre (France).

Methods and analysis: This is a protocol of monocentric quasi-experimental study designed to assess the impact of the intervention on well-being, resilience, self-esteem, and stress among paramedic students throw validated scales distributed before the intervention and 8 months after. Students' satisfaction will be assessed through a questionnaire. A first analysis will describe the study population. The comparison of average scores will be performed. The results of satisfaction questionnaire will allow evolving the intervention to best meet the needs of students next year.

Discussion: The scientific publications on this theme will enrich the literature and contribute to the integration of this approach of well-being promotion nationally and internationally. The expected benefits from this study are the adoption of a healthy lifestyle, the improvement of students' well-being and their awareness of the importance of health promotion in patients' care.

Ethics and dissemination: The project received ethical approval from the Research Ethics Board of Le Havre Hospital. The results will be disseminated via scientific publications and conference presentations.

Keywords: Education and Training; Public Health; Preventive Medicine; Mental Health

Introduction

Background

The quality of life (QoL) and well-being among health students are at the center of the preoccupations. Those students show several signs of unwellness such as depression [1, 2] anxiety [3-5], burnout [6, 7], and stress [8, 9]. For example, the prevalence among medical students was estimated at about 1/3 for depression [1-3], anxiety [3, 4] and burnout [10], and at 11% for suicidal ideation. Among pharmacy students, studies estimated the prevalence of anxiety and depression around 20-30% [11].

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Citation: El Ouazzani, Houria, Bourdaire Christiane, Picard Angélique, Gazaix Lena. Promoting Health Students' Well-Being: The Study Protocol of a Quasi-Experimental Intervention Study. Archives of Clinical and Medical Case Reports. 7 (2023): 350-360.

Received: May 02, 2023
Accepted: June 19, 2023
Published: August 24, 2023

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DOI:10.26502/acmcr.96550629

Meta-analysis estimated at respectively 23%, 34% and 42% the prevalence of burnout [12], depression [13] and anxiety [14] among nursing students. Also, literature reviews objectified moderate or high levels of stress with moderate level of resilience [8, 9] even though the resilience seems to be necessary to improve academic performance [15] and well-being, as confirmed during the COVID-19 pandemic [16, 17].

Comparable results were found in France [18, 19]. A study carried out showed that health students (nurses, pediatric nurses, anesthetist nurse, nursing aides, …) were more stressed than psychology students and sports science students, and they had a negative perception of their own health [20]. This study found that health students consumed more alcohol and tobacco (35% vs 15% psychology studies and 18% sports science). This state of unwellness among health students was confirmed by the Marra's Report on health students' QoL published in 2018 [21] which allowed defining recommendations for well-being promotion interventions from the beginning of health studies [22].

These signs of unwellness could have a severe impact both individually and collectively. Studies showed that burnout and depressive symptoms can predict suicidal ideation [23, 24] which is prevalent among health students [2, 25, 26]. Stress can also affect the academic achievement [27, 28] and significative association was found between sedentary behaviors [29]. At the professional level, it also could be related to more medical errors [30].

For a better QoL, it is necessary to multiply supportive interventions to accompany health students for a better stress management, to reinforce social connections and to foster teamwork and cohesion spirit [31-33]. These aims can be achieved by mobilizing several potential levers such as physical activity [34-36], coping strategies [37, 38], and relaxation methods as yoga [39, 40], Qi Gong [41, 42] or Mindfulness [43-45]. Furthermore, students' well-being may be improved by interventions to promote a healthy lifestyle through healthy diet [46, 47] or smoking prevention [48]. Indeed, healthy lifestyle choices contribute to improve health and well-being [49, 50] and to reduce mental health difficulties [51].

The literature indicates that interventions can have a positive impact, but further research is needed to confirm the results [52, 53]. For instance, a health promotion seminar is annually organized in France at the beginning of the academic year since 2018 for students in medicine, pharmacy, midwifery, and speech therapy [54]. This intervention used, inter alia, meditation, sophrology, Yoga and Qi Gong for stress management, workshops on fitness, diet, and environmental health.

A comparison between students who attended this three-day seminar and those who didn't showed that the former group had better well-being and self-esteem scores with fewer signs of burnout on its subscales: emotional exhaustion, cynicism, and academic efficacy [55].

In Normandy Region where a study found these signs of unwellness [20], and specifically in le Havre city, the students at the Paramedic Training Institute (or "IFP" for "Institut de Formation Paramédicale") Mary Thieullent expressed during an exchange with pedagogical leadership, the need of an intervention to promote healthy lifestyle. In response to this request, one-day intervention was programmed at the beginning of the academic year 2022-23. Our hypothesis was that this intervention would allow participants to acquire the necessary tools to make positive choices of healthy behaviors conducive to a healthy lifestyle.

Study aims

This protocol study aims to assess the effect of a well-being promotion intervention among paramedic students on their well-being, resilience, self-esteem, and stress. The intervention will also be assessed through a satisfaction questionnaire, thereby allowing making evolve next editions.

Methods and Analysis

Study design and sample

This study is an open-label monocentric, quasi-experimental study, carried out among health students enrolled at IFP Mary Thieullent in Le Havre (Normandy - France) who will participate in the first edition. These are nursing students, especially the first year, nursing assistant students and childcare assistant students.

This study falls within the framework of a specific kind of quasi-experimental interventions called "before-after studies". A before-after study, also called pre-post study, allow assessing outcomes in a group before introducing an intervention or product, and then again afterwards [56].

Intervention

We will organize a one-day intervention at the beginning of the academic year. Through a combination conferences and workshops, four themes will be treated during the day (Table 1):

- **Stress management:** participants will experience yoga, an effective approach to reduce stress and to improve psychological health [57, 58], as well as micro-nap workshops for better cognitive performance [59]
- Smoking prevention: participants will attend a conference on tobacco. The purpose of this conference is to raise awareness among students as to the dangers of smoking. This will also enable them to better advise their future patients.

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DOI:10.26502/acmcr.96550629

- **Balanced diet:** We chose a workshop to address the theme of healthy and balanced diet. Through this workshop, the exchange with students will allow to identify a healthy variety of nutritious foods and to define week healthy and balanced meal plan ideas, and above all not expensive.
- **Optimal organization:** To end the day, 3rd students and IFP trainers will present an interactive conference to discuss the organization necessary to ensure academic success and to maintain a daily healthy lifestyle

The students were involved in the choice of the themes. The workshops and conferences on "stress management" and "optimal organization" respond to their demands. We chose the themes of "Smoking prevention" and "Balanced diet" to contribute to promote a healthy lifestyle. The number of students enrolled in first year is estimated at about 150-200 students each year. These students will be allocated to three groups, which allow organizing parallel implementation of conferences and workshops (Table 1).

For reasons of equity and fairness, the intervention will be open to all students enrolled in the first year. Consequently, we did not calculate the number of subjects required. A first analysis will describe the include sample.

Outcome measures

The participants will receive a questionnaire at M1 (one week before the intervention) and at M8 (eight months after the intervention). The first part will be concerned with socio-demographic data to describe the sample of participants with variables such as age, gender, and field of study. The questionnaire will be administered in French; we translated some items for illustrative purposes only.

Health-promoting behaviors will be assessed through questions on a Likert scale of 3 or 5 and open-ended questions such as:

- How often do you practice physical activity?
  - o Never
  - o ≤ once a month
  - o 2 to 4 times a month
  - o 2 to 4 times a week
  - o ≥ 4 times a week
- How often do you smoke?
  - o Never
  - o Less frequently
  - o Every day
- Number of cigarettes per day on average: …
  - Specify:
  - o Cigarettes
  - o Electronic cigarettes
  - o Other: …

To meet the study objectives, the second part of the questionnaire will include validated scales. Well-being will be assessed using the ten-item scale Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) validated in general population [60, 61]. Resilience will be assessed using the CD-RISC 10 scale (Connor-Davidson Resilience Scale of ten items) [62, 63], already used among health students [64, 65]. Self-esteem will be assessed using the then items Rosenberg scale [66] used recurrently among health students [67, 68]. Average scores will be compared between M1 and M8. Lastly, the students will be involved in the assessment of the intervention to adapt and adjust it by means of a questionnaire administered the end of the day. This satisfaction questionnaire mainly consists of open questions and contain items on what students appreciated, what they did not appreciate, and what they suggest.

Table 1: Theme and objectives of the first edition of the well-being promotion intervention among paramedic students of Le Havre IFPDays (Normandy - France).

Themes	Workshops/Conferences	Objectives	Interveners
Stress management	Yoga workshop Micro-nap workshop	To manage stress To manage fatigue	External interveners trained in Yoga and hypnotherapy
Smoking prevention	Tobacco Prevention Conference	To become aware of the dangers of smoking To take care of their own health as well as those of others.	Interveners from IFP Mary Thieullent and from Le Havre hospital
Balanced diet	"Week-type menus" workshop	To learn how to adopt a healthy diet with small budgets	Dietitian from Le Havre hospital
Optimal organization for daily healthy living	Conference on life planning	To learn how to organize themselves optimally	IFP trainers & 3rd year students

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DOI:10.26502/acmcr.96550629

Data storage and analysis

The written form completed questionnaires will be collected in a box during the courses of the IFP to ensure the follow up. They will be given to the clinical studies technician (TEC) of the Clinical Research Unit (CRU) of Le Havre Hospital for simple entry into an Excel table. The database will be saved in a folder with restricted access and a session with a password. No personal data will be collected. An ID code will be assigned to each questionnaire. Paper documents will be protected in a locked cabinet in an office with restricted access to the team of the CRU. They will be destroyed after an analysis made of the results achieved. The database will be used for a first descriptive analysis. For this descriptive part, the quantitative variables will be presented in the form of mean/standard deviation and the qualitative variables in the form of number/percentage. The comparison will be carried out using Student test for average scores and chi-2 test for percentages.

The comments left by the students in satisfaction questionnaire will be analyzed using qualitative methodology. Therefore, principles of thematic analysis will be used to code textual data, categorize in themes, and synthesize results. This qualitative analysis will allow us to identify strengths and potential improvements in terms of organization, format, and themes of the intervention to meet the needs of students.

Ethics and dissemination

This observational, monocentric study, with an assessment of health promotion intervention by questionnaires in the context of human sciences and social, falls within the framework of studies outside the Jardé law (French law concerning research studies in humans).

We received a favorable opinion from the institution's ethics committee. We also declared this protocol to the Data Protection Officer of Le Havre Hospital; data processing and implementation of the study will comply with the General Data Protection Regulation (GDPR). Results from the assessment study will be disseminated by publication of peer-reviewed manuscripts and/or presentations at scientific conferences.

Patient and public involvement

The target public (paramedic students) was involved in the choice of the themes of the intervention: the workshops and conferences on “stress management” and “optimal organization” respond to their demands. Also, the target public will be involved in the assessment of the intervention to adapt and adjust it by means of the satisfaction questionnaire which contains items on what students appreciated, what they did not appreciate, and what they suggest.

Discussion

Unwellness among health students was sufficiently objectified and demonstrated [4, 12, 19, 23]. Increasingly, the training institutions and schools of healthcare professionals are starting to put programs in place to improve students’ QoV and well-being. These interventions play an important role among health students as demonstrated by many studies [2, 69, 70]. Improving health students’ well-being and QoV is a priority, and not only for students as it serves, inter alia, to improve management and care of patients [71, 72]. Thus, implementing several interventions meets a real need and represents a true public health issue [21, 73-75]. However, we found a general lack of published protocols and results articles, while these scientific publications will contribute to the sharing of experiences and the dissemination of the interventions [76, 77]. Consequently, the encouragement of this practice will enrich the literature and contribute to the integration of these interventions into the curriculum.

We chose to assess the intervention impact via a quasi-experimental study even though it is not the study design with the strongest level of evidence, and it is not as powerful as randomized controlled trials [78]. Nevertheless, this design is interesting in implementation science when the randomization is not practicable for ethical and/or practical reasons because it allows identifying a change after the intervention from the analysis of repeated data collections [79, 80]. It is still essential to remain prudent in results interpretation and to integrate other events that have happened between the pretest and the posttest, and which could potentially explain a difference, if any [81].

Another element is expected by this intervention: this is strengthening of the social links between students. Indeed, this intervention is addressed to paramedic students; this will provide an opportunity to further exchanges and links between them. This result will not directly be sought by specific item, but it will be expected in qualitative results. Strengthening of the social links will also improve healthcare collaboration which in turn improves job satisfaction and quality of patient care [82].

Acknowledgments

The authors wish to thank the students who will accept to participate in this study. They wish to thank all the people who contributed to this study. Special thanks to Mrs Catherine Marillonnet, IFP Mary Thieullent director, for her support and to Mrs Soukaina El Fellah for her help.

Authors' Contribution

EOH conceived of the study protocol. EOH and BC conceived the intervention. PA and GL oversaw regulatory processes. All authors contributed to refinement of the study protocol and approved the final manuscript.

Funding Statement

This assessment study received no specific grant from any funding agency in the public, commercial or not-for-profit sectors. The intervention implementation will receive funding from the Centre Régional des Œuvres Universitaires et Scolaires or CROUS (French body in charge of coordinating university student social services): 2022-07-337.

Competing Interests

None declared.

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