

## Effects of an online school-based intervention on postural education knowledge in primary school teachers: The PEPE Study.

Josep Vidal Conti

### *Resumen*

#### 1. INTRODUCTION

Low back pain (LBP) is one of the major health problems worldwide (Steffens et al., 2016) affecting population of all ages and is the leading cause of disability in the world (Hoy et al., 2014). Back pain usually appears during childhood, and from the age of 13, with the onset of adolescence, the values are like those of adults, with a range of lifetime prevalence from 27.3% to 74% (Santos et al., 2021). Given the frequency of LBP and its long-term consequences, preventive efforts should be prioritised.

The World Health Organization (WHO) considers schools as a privileged environment for developing efficient education programs in terms of health. The WHO and UNESCO recently launched global standards to support their initiative "Making Every School a Health Promoting School" (WHO, 2020). A key aspect of this initiative is the promotion of multi component interventions (i.e., comprehensive school-based physical activity programs) (Sutherland et al., 2016) that appear to be more successful than single component interventions. Intervention studies that included an assessment of general knowledge about back care agree that education and back care across the curriculum is an effective strategy to improve the cognitive aspect of back care in school (Cardon et al., 2002; Foltran et al., 2012).

The spread of COVID-19 has made it necessary to develop and implement online interventions. However, the spread of COVID-19 is not the only factor contributing to the introduction of online education in school's settings. In particular, the online learning is considered an effective pedagogical method for global health education due to its perceived interactivity and multimedia

approach (Gruner et al., 2015).

As teachers are more likely to teach content areas that they are familiar with (Barwood et al., 2017), health may be an undertaught area of the curriculum. Research indicates that many teachers do not feel competent or have the adequate professional knowledge required to teach health (Petrie et al., 2014). A cross-sectional study evaluated 85 primary school teachers and the results demonstrated that teachers' knowledge related to postural education and back pain prevention is insufficient to carry out an efficient and useful health promotion program among schoolchildren to prevent LBP (Vidal-Conti et al., 2021).

According to all above mentioned, the main objective of the present study is to determine the effects of an online postural education program on back care knowledge in primary school teachers.

## 2. METHODOLOGY AND METHODS

### 2.1 Study Design

The current investigation, which is nested in the PEPE randomized controlled trial. The intervention program was implemented during 4.5 months. Participants were evaluated two times (baseline and post-test).

### 2.2 Participants

The study was carried out in Majorca (Spain), with 85 primary school teachers. The sample was selected from 10 different clusters (schools) using convenience sampling and randomly distributed into experimental group or control group.

### 2.3 Intervention

The intervention program was based on the following components: (1) Training in postural education for teachers through recorded videos uploaded in Internet. (2) Delivery of a protocol for the implementation of active breaks for classroom teachers. (3) Delivery of a postural education teaching unit for physical education. (4) Delivery of resources (e.g., posters, documents) to implement an awareness campaign implemented in the school.

### 2.4 Instruments

The study was based on two different structured and self-administered

questionnaires to investigate the specific knowledge about LBP: Low Back Pain Knowledge Questionnaire (LKQ) (Maciel et al., 2009) and COSACUES-AEF Questionnaire (Monfort-Pañego M, 2015).

Also, participants were asked to fill in their sex, kind of teacher (physical education or classroom teacher), prevalence of LBP (lifetime, 1-week and point prevalence). Each participant's level of physical activity was measured using the International Physical Activity Questionnaire (IPAQ) (Craig et al., 2003).

### 3. RESULTS

The sample was 62 participants, 14 men (23%) and 47 women (77%). According to their role in the school, 9 (14.8%) were physical education teachers and 52 (85.2%) were classroom teachers. Lifetime LBP prevalence rate was 95.1% in the study sample. Last 7-days LBP prevalence was 41% and LBP point prevalence was 29.5%. In a range score from 0 to 24, the average of specific knowledge about LBP was 16.93. In relation to the knowledge about health and back care related to the practice of activity and physical exercise, the score was 4.12 in a range score from 1 to 10. Participants in both study groups had similar baseline characteristics ( $p < 0.001$ ).

After the intervention, postural education knowledge assessed with LKQ questionnaire in the intervention group was significantly higher than at baseline in the topics "general aspects" ( $p = 0.007$ ), "concepts" ( $p = 0.009$ ), and "total score" ( $p = 0.004$ ), but no in the topic "treatment" ( $p = 0.100$ ). In the control group, there was not significant differences after the intervention in any topic of the LKQ ( $p > 0.05$ ).

In relation to the knowledge assessed with the COSACUES questionnaire, no significant differences were found either in the experimental group ( $p = 0.316$ ) or in the control group ( $p = 0.270$ ).

### CONCLUSIONS

- Integrating back health related education on school curriculums through training of teachers is as an effective and sustainable way to increase knowledge.
- Teachers have an influential position and are often taken as role models by

children.

- With proper training teachers can make valuable contributions to health promotion in the school community. Therefore, health authorities need to identify ways to develop the professional skills of teachers and encourage them to use their skills and knowledge to benefit children's health.

## References

- Barwood, D., Penney, D., & Cunningham, C. (2017). A paradox or a culture of acceptance? The idiosyncratic workforce delivering health education in lower secondary government schools in Western Australia. *Asia-Pacific Journal of Health, Sport and Physical Education*, 8(3), 193–209. <https://doi.org/10.1080/18377122.2017.1362955>
- Cardon, G., De Bourdeaudhuij, I., & De Clercq, D. (2002). Knowledge and perceptions about back education among elementary school students, teachers, and parents in Belgium. *The Journal of School Health*, 72(3), 100–106.
- Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J. F., & Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, 35(8), 1381–1395. <https://doi.org/10.1249/01.MSS.0000078924.61453.FB>
- Foltran, F. A., Moreira, R. F., Komatsu, M. O., Falconi, M. F., & Sato, T. O. (2012). Effects of an educational back care program on Brazilian schoolchildren's knowledge regarding back pain prevention. *Revista Brasileira de Fisioterapia*, 16(2), 128–133. <https://doi.org/10.1590/S1413-35552012005000023>
- Gruner, D., Pottie, K., Archibald, D., Allison, J., Sabourin, V., Belcaid, I., McCarthy, A., Brindamour, M., Augustincic Polec, L., & Duke, P. (2015). Introducing global health into the undergraduate medical school curriculum using an e-learning program: A mixed method pilot study Approaches to teaching and learning. *BMC Medical Education*, 15(1), 1–8. <https://doi.org/10.1186/S12909-015-0421-3/TABLES/5>

- Hoy, D., March, L., Brooks, P., Blyth, F., Woolf, A., Bain, C., Williams, G., Smith, E., Vos, T., Barendregt, J., Murray, C., Burstein, R., & Buchbinder, R. (2014). The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. *Annals of the Rheumatic Diseases*, 73(6), 968–974. <https://doi.org/10.1136/ANNRHEUMDIS-2013-204428>
- Maciel, S. C., Jennings, F., Jones, A., & Natour, J. (2009). The development and validation of a low back pain knowledge questionnaire - LKQ. *Clinics*, 64(12), 1167–1175. <https://doi.org/10.1590/S1807-59322009001200006>
- Monfort-Pañego M, M.-S. V. (2015). Design and Validation of a Health Questionnaire about Knowledge for Health and Back Care Related to the Practice of Physical Activity and Exercise for Adolescents: COSACUES-AEF. *Journal of Spine*, 04(05). <https://doi.org/10.4172/2165-7939.1000260>
- Petrie, K., Penney, D., & Fellows, S. (2014). Health and physical education in Aotearoa New Zealand: an open market and open doors? *Asia-Pacific Journal of Health, Sport and Physical Education*, 5(1), 19–38. <https://doi.org/10.1080/18377122.2014.867791>
- Santos, E. D. S., Bernardes, J. M., Noll, M., Gómez-Salgado, J., Ruiz-Frutos, C., & Dias, A. (2021). Prevalence of Low Back Pain and Associated Risks in School-Age Children. *Pain Management Nursing: Official Journal of the American Society of Pain Management Nurses*, 22(4), 459–464. <https://doi.org/10.1016/J.PMN.2021.01.017>
- Steffens, D., Maher, C. G., Pereira, L. S. M., Stevens, M. L., Oliveira, V. C., Chapple, M., Teixeira-Salmela, L. F., & Hancock, M. J. (2016). Prevention of Low Back Pain: A Systematic Review and Meta-analysis. *JAMA Internal Medicine*, 176(2), 199–208. <https://doi.org/10.1001/jamainternmed.2015.7431>
- Sutherland, R. L., Campbell, E. M., Lubans, D. R., Morgan, P. J., Nathan, N. K., Wolfenden, L., Okely, A. D., Gillham, K. E., Hollis, J. L., Oldmeadow, C. J., Williams, A. J., Davies, L. J., Wiese, J. S., Bisquera, A., & Wiggers, J. H. (2016). The Physical Activity 4 Everyone Cluster Randomized Trial: 2-Year Outcomes of a School Physical Activity Intervention Among Adolescents. *American Journal of Preventive Medicine*, 51(2), 195–205.

<https://doi.org/10.1016/J.AMEPRE.2016.02.020>

Vidal-Conti, J., Carbonell, G., Cantalops, J., & Borràs, P. A. (2021). Knowledge of low back pain among primary school teachers. *International Journal of Environmental Research and Public Health*, 18(21). <https://doi.org/10.3390/ijerph182111306>

WHO. (2020). Report of the first Virtual Meeting of the External Advisory Group (EAG) for the development of Global standards for Health Promoting Schools and their implementation guidance. World Health Organization and the United Nations Educational, Scientific and Cultural Organization. Licence: CC BY-NC-SA 3.0 IGO.

***Palabras clave***

Postural education

Teachers

Online intervention