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ORIGINAL

EFFECTS OF PHYSICAL ACTIVITY ON THE PERCEIVED GENERAL HEALTH OF TEACHERS

EFFECTOS DE LA ACTIVIDAD FÍSICA EN LA SALUD GENERAL PERCIBIDA DE DOCENTES

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ABSTRACT

Teaching can lead to both physical and emotional exhaustion and this can have serious repercussions on a person's health. This study examines the impacts of being physically active on a teacher's perception of health state and burnout syndrome. After stratifying the teachers enrolled (n=65) by physical activity level (high, moderate or low) based on the International *Physical Activity Questionnaire* (IPAQ), they completed the *General Health Questionnaire* (GHQ-28) and the *Maslach Burnout Inventory* (MBI). Results indicate that moderate and high levels of physical activity have beneficial effects on the dimensions that define the perception of health and burnout. However, in the dimension social dysfunction, significant impacts emerged only when the intensity of physical activity was moderate.

KEY WORDS: Physical Activity, Health, Teachers, Burnout

RESUMEN

La función docente conlleva un desgaste físico y emocional que repercute en el estado de salud de las personas. Este estudio pretende evaluar el efecto ser físicamente activo sobre la percepción del estado de salud y el síndrome de burnout en el profesorado. Para ello, una muestra de 65 docentes que fueron distribuidos en tres grupos según su nivel de actividad física (alta, moderada y baja) correspondiente al *Cuestionario Internacional de Actividad Física* (IPAQ), cumplieron el *General Health Questionnaire* (GHQ-28) y el *Maslach Burnout Inventory* (MBI). Los resultados confirman que moderados y altos niveles de actividad física tienen efectos positivos en las dimensiones que definen la percepción de la salud y el burnout. Sin embargo, en la dimensión disfunción social, únicamente tiene un efecto significativo cuando la actividad física se realiza a una intensidad moderada.

PALABRAS CLAVE: Actividad Física, Salud, Docentes, Burnout

INTRODUCTION

Teaching involves a process of interaction with the students and their families in a school setting, where conditions of pay, materials and human resources are regulated by organization and management models implemented in a work context. The demands of teaching and workload have an impact on the health and wellbeing of the teaching staff, and this can have physical consequences such as increased blood pressure, gastrointestinal problems or musculoskeletal disorders (Bermúdez, Martínez, Rius & Esteve, 2004; Erick & Smith, 2011). Further, at the psychological level, these problems include stress, anxiety and general fatigue (Moyano & Riaño-Hernández, 2013; Sándström, Rhodin, Lundberg, Olsson & Nyberg, 2005; Sangganjanavanich & Balkin, 2013). Several studies have been able to identify the health problems most associated with teaching (Aluja, 1997; Cropley, Steptoe & Joeekes, 1999; Chan, Lai, Ko & Boey, 2000; Jamal, 1999; Kinnunen & Salo, 1994; Leung, Siu & Spector, 2000). A school's teaching staff is a population group with a high risk of suffering burnout (Schamer & Jackson, 1996; Serrano, Moya-Albiol & Salvador, 2008). Burnout has serious repercussions on the quality of life of teachers (Schwab, Jackson & Schuller, 1986; Yang et al., 2009) and leads to a gradual decline in their work performance, representing personal and professional dysfunction in a context of the caregiver type. The consequences of burnout are transferred to occupational development. For example, there are more days of sick leave, lack of commitment in teaching activities, lack of punctuality or even abandoning of employment (Bardo, 1979; Moriana & Herruzco, 2004). In one of the first studies designed to examine the underlying causes of teachers' absenteeism, Chakravorty (1989) concluded that 77% of long duration work leaves were due to psychological conditions such as depression, anxiety and stress.

The multidimensional model of burnout (Maslach & Leiter, 1999) includes the experience of stress, and the assessment of others and of oneself. These factors comprise a process that starts with emotional fatigue, whereby the teacher is incapable of preserving the necessary emotional resources to face work demands. This then gives way to depersonalization, where negative feelings arise of detachment from students, and the process ends with a lack of personal realization with feelings of occupational dissatisfaction (Dorman, 2003).

For health assessment, numerous tools are available according to the objective or subjective perspective considered, and also of the internal and external indicators used as reference. Among these, we should mention the degree of functionality, which influences a person's physical capacity to carry out daily activities and social functions, and tackle professional challenges. In a person's life time, this process may be interrupted in a more or less transient manner, by some circumstance that could affect the individual's perception of health. Perceived health questionnaires consider indicators of wellbeing and symptoms and provide an overall assessment of general health state (Robine, Jagger & Egidi, 2000).

The physical condition of a person has effects on flexibility, strength, coordination and balance. These factors determine a greater postural stability reducing the risk of falls and, consequently, of fractures. In addition, physical activity improves self esteem, delays cognitive decline, relieves symptoms of depression and enables social integration (Nelson et al., 2007), attenuating the impacts of ageing and increasing productive lifespan.

The objective of this study was to examine the effects of being physically active on the perceived health of teachers and on components defining burnout syndrome in this occupation.

METHODS

Participants

For this study, 65 teachers whose participation was voluntary were enrolled. Of these, 52.31% (N = 34) were men, and 47.69% (N = 31) were women. Participant age was 25 to 62 years (mean 44.80 \pm 9.23). As an inclusion criterion, the teachers were actively working in infant, primary or secondary education. Participants were selected by causal non-probabilistic sampling according to the ease of access to participants. The sample was divided into three groups according to the weekly volume of physical activity they undertook (high, moderate, low), as assessed using the International Physical Activity Questionnaire (IPAQ).

Instruments

The IPAQ used in this study was elaborated by the International Consensus Group, and translated into Spanish by Román, Ribas, Ngo, and Serra (2013). This instrument measures physical activity patterns via questions regarding all areas of daily life, and provides a result expressed as a median in MET (metabolic equivalent task)-minutes as three categories of physical activity intensity (Craig et al., 2003): high (vigorous exercise at least 3 days per week amounting to at least 1500 MET-minutes/week, or any combination of physical activity of at least 3000 MET-minutes/week), moderate (vigorous exercise at least 3 days per week for 20 minutes per day, or 5 or more days of moderate physical exercise at least 30 min per day, or any physical activity combination totalling at least 600 MET-min/week) and low (no physical activity or scarce physical activity).

To assess perception of health state in the teachers, we used the 28-item version of the *General Health Questionnaire* (GHQ-28) by Goldberg and Hillier (1979). This questionnaire has 4 scales each comprising 7 items with Likert type replies to assess the dimensions of somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. In the internal consistency analysis of this tool and its factors, Cronbach's alpha coefficients were 0.94 and in the range 0.77 to 0.93, respectively.

To examine burnout, the version of the *Maslach Burnout Inventory* (MBI) of Maslach and Jackson (1986) translated into Spanish by Seisdedos (1997) was

used. This instrument consists of 22 items designed to assess the attitudes, emotions and feelings a teacher has towards work and the students by analyzing three dimensions: exhaustion, depersonalization and personal achievement. Replies are provided on a Likert scale from 0 to 6, where 0 means that the issue asked about never occurs and 6 means it is experienced every day. Cronbach's alpha coefficients of internal consistency for this tool ranged from 0.79 to 0.86.

Experimental procedure

The method used for this study was cross-sectional. Teachers were invited to participate after the nature and objectives of the study had been explained to them at a meeting. They were then individually requested to complete the questionnaires in an office at their school where they would not be interrupted. Informed consent was obtained from each participant. All data provided were confidential as all questionnaires were anonymous.

Statistical analysis

The Shapiro-Wilk test was used to confirm the normality of the different variables. A one-factor ANOVA was then conducted when there was homoscedasticity as reflected by the Levene statistic. A post-hoc Scheffe test was applied to variables varying significantly between groups. All statistical tests were performed using the package SPSS for Windows (version 17.0). Significance was set at $p < 0.05$.

RESULTS

According to the results of the IPAQ, 23 teachers were assigned to the high physical activity group, 17 to the moderate physical activity group and 25 to the low physical activity group (Table 1).

Table 1. Distribution of participants by physical activity level

High		Moderate		Low		Total	
N	%	n	%	n	%	n	%
23	35.38%	17	26.16%	25	38.46%	65	100%

The effects of the different physical activity levels on the dimensions of the GHQ-28 and MBI are provided in Table 2. These results indicate differences in all dimensions according to physical activity level ($p < 0.05$).

Table 2. Scores (mean ±SD) recorded in GHQ-28 and MBI according to physical activity level

Variable		High	Moderate	Low	F	p
GHQ-28	SS	3.35 ± 2.12	5.29 ± 3.53	5.56 ± 3.64	3.440	0.042*
	Anxiety	3.52 ± 2.43 ^a	3.76 ± 2.54	6.44 ± 5.46	4.001	0.023*
	SD	6.39 ± 1.30	6.18 ± 1.18 ^b	8.16 ± 3.60	4.481	0.150*
	Depression	0.74 ± 1.89	0.29 ± 0.98	3.16 ± 4.10 ^c	6.653	0.002*
	GHQ T	14.00 ± 5.18 ^a	15.53 ± 6.48	23.32 ± 14.28	5.939	0.004*
MBI	Exh.	15.35 ± 7.98 ^a	17.94 ± 8.79	25.36 ± 11.92	6.597	0.003*
	DP	2.78 ± 3.50	2.53 ± 4.51	8.24 ± 6.45 ^c	9.274	0.000*
	PA	40.83 ± 4.26	41.41 ± 5.32	34.84 ± 9.80 ^c	5.825	0.005*

GHQ-28: Health Questionnaire; MBI: Maslach Burnout Inventory; SS: somatic symptoms; SD: social dysfunction; Exh: exhaustion; DP: depersonalization; PA: personal achievement
 * Differences significant for the factor group ($p < 0.05$); ^a Difference significant (post-hoc Scheffe test) for high vs. low; ^b Difference significant (post-hoc Scheffe test) for moderate vs. low physical activity; ^c Difference significant (post-hoc Scheffe test) for high vs. low physical activity

For the GHQ-28, the post-hoc Scheffe test revealed that a high level of physical activity gave rise to a significantly better (lower) total GHQ score (14.00 ±5.18 vs. 23.32 ±14.28, $p=0.008$) (Figure 1), and scores awarded to the dimension anxiety-insomnia (3.52 ±2.43 vs. 6.44 ±5.46, $p=0.042$). Further, both high and moderate physical activity levels were effective at reducing depression (0.74 ±1.89 vs. 3.16 ±4.10, $p=0.017$ and 0.29 ±0.98 vs. 3.16 ±4.10, $p=0.008$, respectively). For the dimension social dysfunction, an effect was detected only for moderate with respect to low physical activity (6.18 ±1.18 vs. 8.16 ±3.60, $p=0.043$).

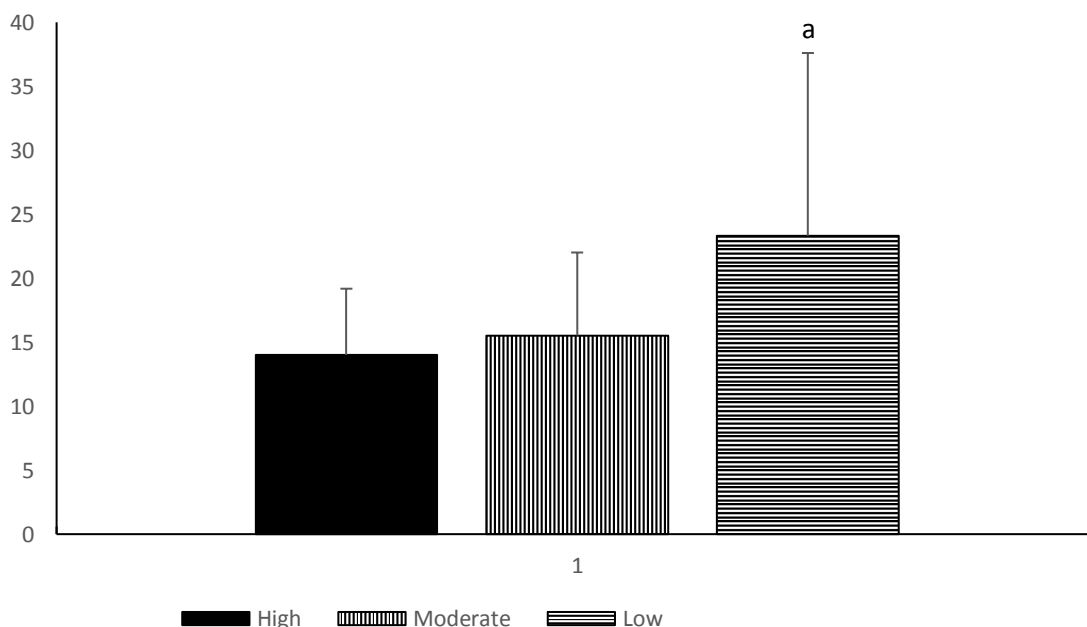


Figure 1. Total scores (mean ±SD) recorded in the GHQ
^a Difference significant for high vs. low physical activity ($p < 0.05$)

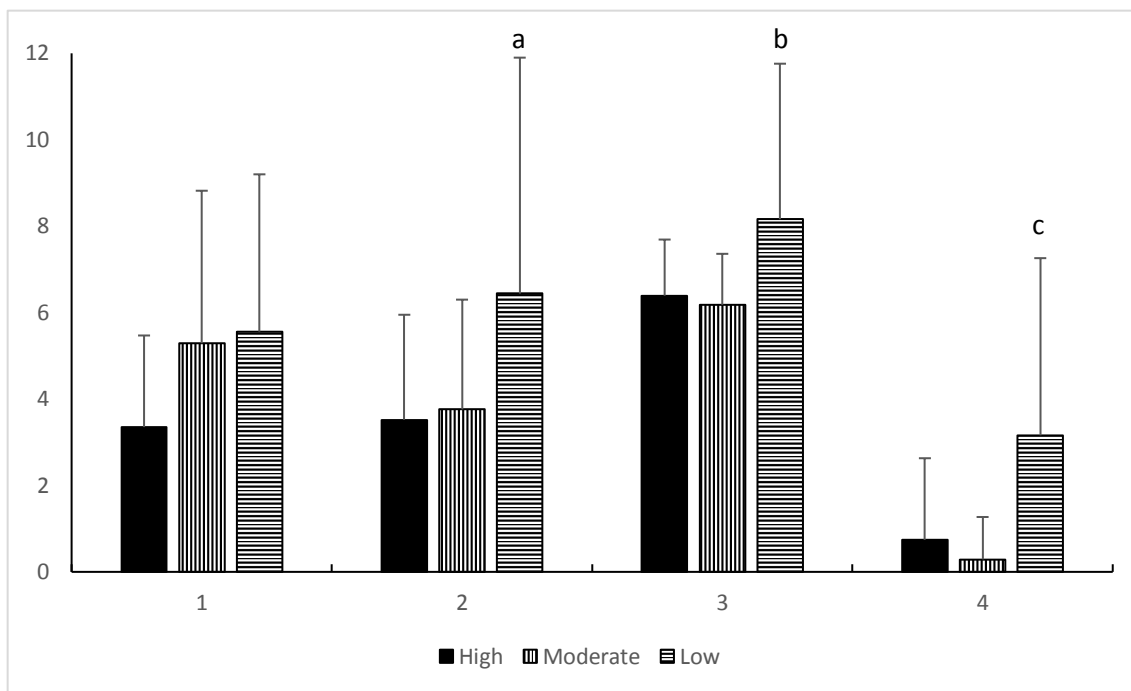


Figure 2. Scores (mean \pm SD) recorded in the different dimensions of GHQ

- ^a Difference significant for high vs. low physical activity ($p < 0.05$)
- ^b Difference significant for moderate vs. low physical activity ($p < 0.05$)
- ^c Difference significant for high vs. moderate physical activity ($p < 0.05$)

For the MBI questionnaire, the post-hoc Scheffe test revealed that a high level of physical activity gave rise to a significantly lower score for the dimension exhaustion (15.35 ± 7.98 vs 25.36 ± 11.92 , $p = 0.004$), while both a high and moderate physical activity level were effective at improving depersonalization (2.78 ± 3.50 vs. 8.24 ± 6.45 , $p = 0.002$ and 2.53 ± 4.51 vs. 8.24 ± 6.45 , respectively, $p = 0.003$) and personal achievement (40.83 ± 4.26 vs. 34.84 ± 9.80 , $p = 0.020$ and 0.29 ± 0.98 vs. 34.84 ± 9.80 , respectively, $p = 0.019$).

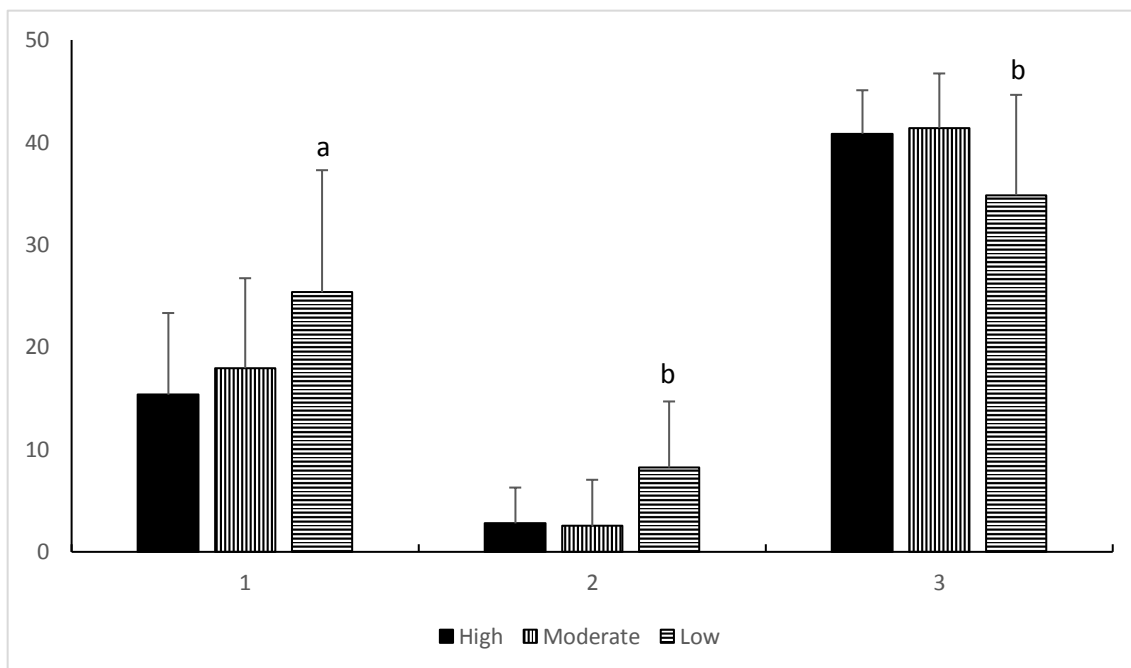


Figure 3. Scores (mean ±SD) recorded in the different dimensions of MBI

^a Difference significant for high vs. low physical activity ($p < 0.05$)

^b Differences significant for high or moderate vs. low physical activity ($p < 0.05$)

DISCUSSION

The findings of this study indicate that teachers who are physically active have a better perception of their health state than those whose life style is much more inactive. In the dimensions defining subjective health, significant differences were detected between the groups of teachers undertaking regular high or moderate physical activity and the teachers undertaking a low level of physical activity or who were physically inactive. These dimensions were awarded scores indicating a better health state when practising physical activity. It therefore emerges, as reported by others (De Miguel, Schweiger, Mozas & Hernández, 2011; Pérez & Devís, 2003; Rodríguez, Márquez & De Abajo, 2006; Toker & Biron, 2012), that regular physical activity has both physical and psychological benefits in persons dedicated to teaching, such that perception levels were diminished of factors indicating dysfunctions or an illness related to subjective health state. These findings suggest protection mechanisms against conditions such as anxiety, whose difference is significant between physically active and inactive teachers (McAuley, Márquez, Jerome, Blissmer & Katula, 2002). Examples are depression, which varied significantly between teachers in the high or moderate physical activity groups, in whom depression levels were low, compared to the group of physically inactive teachers (Anderson et al., 2009); or social dysfunction, which was improved in teachers classed as moderately physically active over that reported by their sedentary peers, translating to an improved state of wellbeing and quality of life (Infante, Goñi & Villarroel, 2011; Netz, Wu, Becker & Tenenbaum, 2005; Pino & Pria-Bankoff, 2007).

In terms of the effects of physical activity on the factors defining teacher burnout, as indicated by other authors (Kotova, Rozanov, Alexandrov, & Ivanova, 2017; Papastylianou, Kaila & Polychronopoulos, 2009; Sane, Devin, Jafari & Zohoorian, 2012), we found an inverse relationship between undertaking regular physical activity and levels of exhaustion and depersonalization, and a direct relationship with scores assigned to personal achievement. Accordingly, we observed that the more physically active teachers perceived a lower level of emotional fatigue or exhaustion, and those classed as moderately physically active reported more beneficial effects on the feeling of depersonalization and self-realization. This means that by remaining physically active, burnout can be attenuated in teachers and this is accompanied by improved perceived physical and mental health (García, Carbonell & Delgado, 2010; Oña, 2002). Emotional fatigue compromises a teacher's working capacity in that there is less commitment and a feeling of exhaustion. Further, a high level of depersonalization suggests distancing of teachers from their students determining reduced sensitivity to any problem or difficulty that could arise. Work occupies a large part of a person's daily life. This determines that avoiding sedentary behaviour during routine work activities, transportation, daily living activities, and also through exercise, is a challenge for the physical and psychological wellbeing of workers (Rosales et al., 2017; Tu, Stump & Clar, 2004). In teaching practice, both external intervention strategies, involving the school's organization and management, and personal strategies, involving measures of protection against physical exhaustion and emotional strain, are needed. Accordingly, every teacher should bear in mind the importance of keeping physically active as a life style measure related to health and the need to establish an intensity of physical activity adequate for their daily routine activities both in the workplace and at the personal, family and social level.

REFERENCES

- Aluja, A. (1997). Burnout profesional en maestros y su relación con indicadores de salud mental. *Boletín de Psicología*, 55, 47-61.
- Anderson, L.M., Quinn, T.A., Glanz, K., Ramírez, G., Kahwati, L.C., Johnson, D.B., Buchanan, L.R., Archer, W., Chattopadhyay, S., Kalra, G.P., y Katz, D.L. (2009). The effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity. *American Journal of Preventive Medicine*, 37(4), 340-357. Doi:10.1016/j.amepre.2009.07.003.
- Bardo, P. (1979). The Pain of Teacher Burnout: A case History. *Phi Delta Kappan*, 61(4), 252-254.
- Bermúdez, R., Martínez, G., Rius, F., y Esteve, J.M. (2004). Relaciones entre el uso de la voz y el burnout en los docentes de Educación Infantil y Primaria de Málaga. *Revista Española de Pedagogía*, 227, 85-102.
- Chakravorty, B. (1989). Mental health among school teachers. En M. Cole y S. Walker (Eds.), *Teaching and Stress* (pp. 69-82). Philadelphia: Open University Press.
- Chan, K.B., Lai, G., Ko, Y.C., y Boey, K.W. (2000). Work stress among six professional groups: The Singapore experience. *Social Science & Medicine*, 50(10), 1415-1432. Doi:10.1016/S0277-9536(99)00397-4.
- 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., y Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, 35(8), 1381-1395. Doi:10.1249/01.MSS.0000078924.61453.FB.
- Cropley, M., Steptoe, A., and Joeke, K. (1999). Job strain and psychiatric morbidity. *Psychological Medicine*, 29(6), 1411-1416. <https://doi.org/10.1017/S003329179900121X>.
- De Miguel, J.M., Schweiger, I., Mozas, O.d.I., y Hernández, J.M. (2011). Efecto del ejercicio físico en la productividad laboral y el bienestar. *Revista de Psicología del Deporte*, 20(2), 589-604.
- Dorman, J.P. (2003). Relationship between school and classroom environment and teacher burnout: A LISREL analysis. *Social Psychology of Education*, 6(2), 107-127. <https://doi.org/10.1023/A:1023296126723>.
- Erick, P., and Smith, D.R. (2011). A systematic review of musculoskeletal disorders among school teachers. *BCM Musculoskeletal Disorders*, 12, 260-271. Doi:10.1186/1471-2474-12-260.
- García, A., Carbonell, A., y Delgado, M. (2010). Beneficios de la actividad física en personas mayores. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte*, 10(40), 556-576.
- Goldberg, D.P., and Hillier, V.F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine*, 9(1), 139-145.
- Infante, G., Goñi, A., and Villarreal, J. (2011). Actividad física y autoconcepto, físico y general, a lo largo de la edad adulta. *Revista de Psicología del Deporte*, 20(2), 429-444.
- Jamal, M. (1999). Job stress and employee well-being: a cross-cultural empirical study. *Stress Medicine*, 15(3), 153-158.

- Kinnunen, U., and Salo, K. (1994). Teacher stress: an eight-year follow-up study on teachers' work, stress, and health. *Anxiety, Stress, and Coping*, 7, 319-337.
- Kotova, M.B., Rozanov, V.B., Alexandrov, A.A., and Ivanova, E.I. (2017). Professional burnout and quality of life in teachers. *Voprosy Psikhologii*, 2, 67-79.
- Leung, T., Siu, O., and Spector, P.E. (2000). Faculty stressors, job satisfaction, and psychological distress among university teachers in Hong Kong: the role of locus of control. *International Journal of Stress Management*, 7(2), 121-138. <https://doi.org/10.1023/A:1009584202196>.
- Maslach, C., and Jackson, S.E. (1986). *Maslach Burnout Inventory* (2^a ed, 1981 1^a ed.). Palo Alto, California: Consulting Psychologists Press.
- Maslach, C., y Leiter, M.P. (1999). Teacher burnout: A research agenda. En R. Vandenberghe y A.M. Huberman (Eds.), *Understanding and preventing teacher burnout* (pp. 295-303). New York: Cambridge University Press.
- McAuley, E., Márquez, D.X., Jerome, G.J., Blissmer, B., and Katula, J. (2002). Physical activity and physique anxiety in older adults: fitness and efficacy influences. *Aging and Mental Health*, 6(3), 220-230. Doi:10.1080/13607860220142459.
- Moriana, J.A., and Herruzco, J. (2004). Estrés y burnout en profesores. *International Journal of Clinical and Health Psychology*, 4(3), 597-621.
- Moyano, N., and Riaño-Hernández, D. (2013). Burnout escolar en adolescentes españoles: Adaptación y validación del School Burnout Inventory. *Ansiedad y Estrés*, 2013, 19(1), 95-113.
- Nelson, M.E., Rejeski, W.J., Blair, S.N., Duncan, P.W., Judge, J.O., King, A.C., Macera, C.A., and Castaneda, C. (2007). Physical activity and public health in older adults: Recommendation from the American College of Sports Medicine and the American Heart Association. *Medicine and Science in Sports and Exercise*, 39(8), 1435-1445. Doi:10.1249/mss.0b013e3180616aa2.
- Netz, Y., Wu, M.J., Becker, B.J., and Tenenbaum, G. (2005). Physical activity and psychological well-being in advanced age: A meta-analysis of intervention studies. *Psychology and Aging*, 20(2), 272-284. Doi:10.1037/0882-7974.20.2.272.
- Oña, A. (2002). La ciencia en la actividad física: Viejos y nuevos problemas. *Revista Motricidad*, 9, 9-42.
- Papastylianou, A., Kaila, M., and Polychronopoulos, M. (2009). Teachers' burnout, depression, role ambiguity and conflict. *Social Psychology of Education*, 12(3), 295-314. <https://doi.org/10.1007/s11218-008-9086-7>.
- Pérez, V., and Devís, J. (2003). La promoción de la actividad física relacionada con la salud. La perspectiva de proceso y de resultado. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 3(10), 69-74.
- Pino, C., and Pria-Bankoff, A.D. (2007). Estudio comparativo de nivel de capacidad física, estrés laboral y molestia musculo esqueléticas en trabajadores. *Efdeportes*, 115. Recuperado en <http://www.efdeportes.com>.

- Robine, J.M., Jagger, C., and Egidi, V. (2000). *Selection of a coherent set of health indicators. Final draft. A first step towards a user's guide to health experiences for the European Union*. Euro-REVES (France).
- Rodríguez, J., Márquez, S., and De Abajo, S. (2006). Sedentarismo y salud: Efectos beneficiosos de la actividad física. *Apunts: Educación Física y Deportes*, 83, 12-24.
- Román, B., Ribas, L., Ngo, J., and Serra, L. (2013). Validación en población catalana del cuestionario internacional de actividad física. *Gaceta Sanitaria*, 27(3), 254-257. Doi:10.1016/j.gaceta.2012.05.013.
- Rosales, Y., Orozco, D., Yaulema, L., Parreño, A., Caiza, V., Barragán, V., Ríos, A., y Peralta, L. (2017). Actividad física y salud en docentes. Una revisión. *Apunts*, 52(196), 159-166.
- Sándström, A., Rhodin, I.N., Lundberg, M., Olsson, T., y Nyberg, L. (2005). Impaired cognitive performance in patients with chronic burnout syndrome. *Biological Psychology*, 69(3), 271-279. Doi:10.1016/j.biopsycho.2004.08.003.
- Sane, M.A., Devin, H.F., Jafari, R., and Zohoorian, Z. (2012). Relationship between physical activity and it's components with burnout in academic members of Daregaz Universities. *Procedia - Social and Behavioral Sciences*, 46, 4291-4294. Doi:10.1016/j.sbspro.2012.06.242.
- Sangganjanavanich, V.F., and Balkin, R.S. (2013). Burnout and job satisfaction among counselor educators. *Journal of Humanistic Counseling*, 52(1), 67-79. <https://doi.org/10.1002/j.2161-1939.2013.00033.x>.
- Schamer, L.A., and Jackson, M. (1996). Coping with stress: Common sense about teacher burnout. *Education Canada*, 36(2), 28-31.
- Schwab, R.L., Jackson, S.E., and Schuler, R.S. (1986). Educator burnout sources and consequences. *Educator Research Quarterly*, 10(3), 15-30.
- Seisdedos, N. (1997). *Manual MBI, Inventario "Burnout" de Maslach*. Madrid: TEA Ediciones.
- Serrano, M.A., Moya-Albiol, L., and Salvador, A. (2008). The role of gender in teachers perceived stress and heart rate. *Journal of Psychophysiology*, 22(1), 58-64. <https://doi.org/10.1027/0269-8803.22.1.58>.
- Toker, S., and Biron, M. (2012). Job burnout and depression: Unraveling their temporal relationship and considering the role of physical activity. *Journal of Applied Psychology*, 97(3), 699-710. Doi:10.1037/a0026914.
- Tu, W., Stump, T., and Clar, D. (2004). The effects of health and environment on exercise-class participation in older, urban women. *Journal of Aging and Physical Activity*, 12(4), 480-496. Doi:10.1123/japa.12.4.480.
- Yang, X., Ge, C., Hu, B., Chi, T., and Wang, L. (2009). Relationship between quality of life and occupational stress among teachers. *Public Health*, 123(11), 750-755. Doi:10.1016/j.puhe.2009.09.018.

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