Original Article =

ProMenteSã: a teacher training intervention program for mental health promotion at schools

ProMenteSã: Formação de professores para promoção da saúde mental na escola ProMenteSã: formación de profesores para promover la salud mental en la escuela

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Descriptores

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Abstract

Objective: To promote mental health at schoolsthrough a training intervention program for teachers of the 2nd (5th and 6th years) and 3rd (7th, 8th and 9th years) Cycles of Basic Education.

Method: Non-experimental analytical study conducted as part of the MAISaúdeMental (More Mental Health) Project (ref. number: 01-0145-FEDER-023293). After identifying needs in teachers' mental health training, the ProMenteSã training intervention program was designed to train teachers of the 2nd and 3rd Cycles of Basic Education to promote mental health in children and adolescents within the school setting. The full program was applied to 13 teachers who were mainly women (11, 84.6%) with a mean age of 51.00 \pm 6,58 years, married, and living in urban settings. Efficacy and acquisition of mental health knowledge and literacy were assessed with a guestionnaire applied before and after the training intervention program.

Results: When comparing the two samples (before and after the training intervention program), no significant differences in efficacy were found. However, when assessing the acquisition of mental health knowledge, after the application of the *ProMenteSã* Program teachers showed a significant increase in knowledge areas "Abuse and dependence — New behaviors of addiction" (p=0.03) and "Significance of sleep in promoting mental health" (p=0.04).

Conclusion: The training intervention program increased teachers' mental health knowledge for promotion of health.

Resumo

Objetivo: Promover a saúde mental nas escolas através da (in)formação e capacitação de professores do 2º e 3º ciclo do ensino básico.

Métodos: Realizado um estudo não-experimental, analítico, inserido no Projeto MaiSaúdeMental (Referência: Centro - 01-0145-FEDER-023293). Após identificarmos necessidades de formação na área da saúde mental em professores, foi construído um programa de formação designado "ProMenteSã" com vista à capacitação dos professores do 2º e 3º ciclo do ensino básico na área da promoção da saúde mental em crianças e adolescentes em meio escolar. O programa completo foi aplicado a 13 professores, maioritariamente do género feminino 11(84,6%), com uma média de idade 51,00±6,58 anos, casados e a residir em meio urbano. A eficácia do programa e a aquisição de conhecimentos em áreas da saúde mental e literacia em saúde mental foi avaliada com recurso a um questionário aplicado 'antes' e 'após' a intervenção.

Resultados: Ao compararmos as duas amostras ('antes' e 'após') não foram encontradas diferenças significativas quanto à eficácia do programa de formação. Contudo, avaliada a aquisição de conhecimentos no domínio da saúde mental, verificou-se que após a aplicação do Programa ProMenteSã os professores apresentaram um aumento significativo de conhecimentos nas temáticas 'consumos e dependências—novos comportamentos aditivos' (p=0,03) e 'importância do sono na promoção da saúde mental' (p=0,04).

Conclusão: O programa de formação teve impacto no aumento dos conhecimentos dos professores na área da saúde mental, na vertente da promoção da saúde.

Resumen

Objetivo: Promover la salud mental en las escuelas a través de la (in)formación y capacitación de profesores de 5° a 9° año de primaria.

Métodos: Estudio no experimental, analítico, dentro del Proyecto "MaiSaúdeMental" (Más Salud Mental) (Referencia: Centro — 01-0145-FEDER-023293). Luego de identificar las necesidades de formación de profesores en el área de la salud mental, se elaboró un programa de formación denominado "*ProMenteSã*" (Programa Mente Sana), con el fin de capacitar a profesores de 5° a 9° año de primaria en el área de promoción de la salud mental en niños y adolescentes en medio escolar. El programa completo fue aplicado con 13 profesores, mayormente de género femenino 11 (84,6 %), con un promedio de edad de 51,00±6,58 años, casados y residentes en medio urbano. La eficacia del programa y la adquisición de conocimientos en áreas de salud mental e instrucción en salud mental fue evaluada mediante un cuestionario aplicado antes y después de la intervención.

Resultados: Al comparar las dos muestras (antes y después), no se encontraron diferencias significativas respecto a la eficacia del programa de formación. No obstante, al analizar la adquisición de conocimientos en el dominio de la salud mental después de aplicar el programa *ProMenteSã*, se verificó que los profesores demostraron un aumento significativo de conocimientos en las temáticas "consumos y dependencias: nuevos comportamientos adictivos" (p=0,0) e "importancia del sueño en la promoción de la salud mental" (p=0,04).

Conclusión: El programa de formación tuvo impacto en el aumento de los conocimientos de los profesores en el área de la salud mental, en la vertiente de la promoción de la salud.

Introduction =

Over the last years, the prevalence of mental health issues in children and adolescents has increased. Despite child growth and development being overall a healthy and positive process, the number of children and adolescents experiencing difficulties in responding to development and social challenges and suffering the negative effects of psychoemotional and conduct disturbances evidencing several levels of maladjustment and violence has increased. Thus, it is paramount to invest in preventing emotional and behavioral disorders and in early detection, follow-up, and effective referral of situations that may negatively affect child health. In addition to those with diagnosed mental conditions, there are children presenting with behavior issues that may lead to difficulties in school performance, disturbances in interpersonal relationships, and greater likelihood of getting involved in delinquent behavior. (1)

Mental health conditions show high prevalence, and these conditions impose a significant burden on individuals, their families, overall society, and even the economy. The American Academy of Child and Adolescent Psychiatry (AACAP) states that one in every five children shows evidence of mental health issues, a rate that tends to increase. A national epidemiological study in mental health conducted in Portugal (Estudo Epidemiológico

Nacional de Saúde Mental) shows that over a fifth of the Portuguese population presents psychiatric disorders; in 2013, prevalence for mental health disorders was 22.9%. (3,4) In 2015, according to data from the Portugal Saúde Mental em Números (Mental Health Figures in Portugal) report, mental health and behavior disorders accounted for 20.55% of the total of years of live lost due to incapacity, which makes it the main cause for incapacity and one of the main causes for morbidity and premature death, mainly in Western and industrialized countries. (5,6) In addition to a high and increasing prevalence of mental health issues in childhood and adolescence, the persistence of these issues is also a cause for concern. Children and adolescents constitute priority groups for intervention in the current European political setting. (2) Mental health issues in children and adolescents are prevalent, may affect their development and autonomy in adulthood, and show chronic progression and repercussions for the family, education, and social settings. (7) Schools may have a positive and protective role and constitute the ideal setting for preventing and promoting mental health/socio-emotional skills. Schools involve the whole school community, including children and adolescents throughout various stages of education and behavioral, emotional, and cognitive development.

In the face of this epidemiological scenery, promoting mental health throughout the individual's life cycle is considered a public health priority, especially concerning children and adolescents. The

European Framework for Action on Mental Health and Well-being establishes as goals to warrant effective implementation of policies contributing to promoting mental health and to promote mental health by integrating mental health in all policies as goals. (6) The WHO's "Mental health action plan 2013-2020" establishes implementation of strategies in mental health for promotion and prevention as one of its main goals. (8) Thus, promoting mental health in children and adolescents requires training of the whole community surrounding this target audience, namely the family, the school community, health care providers, and caretakers, thus effectively preventing mental health issues and improving early identification, and referral. Portugal's 2007-2016 mental health plan establishes the training of all education agents for the early identification of mental health issues in children and adolescents as a priority. The plan allows for the implementation of training/local intervention projects for educating teachers and could positively impact referral to specialized services and promotion of well-being and healthy life styles in schools. (9) Schools would be required to adopt a mental health promotion policy covering all school years, which would lead to a healthier school environment and an empowered and trained school community, as per the country's national program for health in schools' guidelines and tagline: health + education = health literacy and responsible decisions. (10) For health promotion in schools, the essential role played by teachers should be valued. Teachers should be trained so that mental health determinants are approached in the curriculum, and student communication becomes pedagogically adequate to their level of development and evidence based. Above all, a shift in paradigm is required to reconfigure focus on actions and outcomes. (10) Educational actions for promoting mental health, socio-emotional skills, and an education of affection at schools should be integrated into an overall concept of health promotion, namely a healthy diet, sleep hygiene, physical exercise, and prevention against smoking, alcohol, and illicit drugs.(11)

Considering all of the above, this training intervention program's goal was to train teachers of the

2nd and 3rd Cycles for promoting mental health in children and adolescents in the school setting. This study's goals were to assess the *ProMenteSā* program's efficacy and teachers' level of knowledge before and after the application of the training intervention program.

Methods

A non-experimental study was conducted under a cross-sectional analytical and before/after intervention methodology, where an intervention program for promoting mental health was applied.

This study was conducted as part of the MAISaúdeMental Program (More Mental Health), developed under an investigative and practical project for monitoring and assessing mental health indicators in children and adolescents, ongoing at the Higher School of Health of Viseu, Portugal (ref. number: 01-0145-FEDER-023293).

The study began in 2018. The first stage was identifying mental health training needs in teachers of the 2nd and 3rd Cycles of Basic Education, whose students were children and adolescents from the Viseu School Cluster, Portugal. The second stage was to build a program aimed at training and informing teachers in the priority areas identified. This training intervention program was named ProMenteSā (Pro-Mind Health) and sought to outline a set of pedagogical activities to train its target population (teachers) for promoting mental health in the school setting and for the early identification of issues associated with mental health in children and adolescents, thus allowing for referral, increasing mental health literacy levels, and highlighting the importance of well-being and healthy life styles in schools.

In the first stage, a questionnaire was applied to a non-probability sample of 85 teachers from the Viseu School Cluster to investigate training needs in mental health. Most teachers were women (65.9%) with ages between 38 and 62 years (50.68 ±5.81 years), 75.3% were married/living under domestic partnership, lived in urban settings (81.2%), had the education level of a teach-

ing degree (81.2%), showed between 21 and 30 years of work experience (60.0%), and had professional stability (97.1%). The following training needs/priority areas were identified: "Abuse and dependence — New behaviors of addiction", "Eating disorders", "Significance of sleep in promoting mental health", "Neurodevelopmental disorders: Internalizing and externalizing behaviors", and "Healthy sexuality and violence in dating". After identifying these priority areas, a training intervention program was drafted and submitted to Portugal's Scientific and Pedagogical Council for Continuous Training (approved under ref. number CCPFC/DC-1647/18). Training sessions were planned with dynamic and interactive methodologies (including but not limited to case studies, viewing and analysis of short videos, relaxation sessions). Between April and May 2018, eight sessions were conducted amounting to a total of 26 hours of training. The "Training intervention design" table showing themes, number of hours, goals, and content can be found in Appendix 1.

After the ProMenteSã Program was developed and approved, it was applied to a group of 14 teachers of the 2nd and 3rd Cycles. A questionnaire was applied before and after the intervention (two months later), for assessing the program's efficacy and knowledge acquisition. One subject was excluded from the sample, due to only the before version (prior to the intervention) having been collected. Thus, the final sample consisted of 13 teachers. The 13 teachers were from the same Viseu School Cluster. This sample did not include any teachers from the initial group (n=85).

The questionnaire applied before and after the intervention included socio-demographic characterization questions; the Mental Health Literacy Questionnaire (MHLq) validated for the Portuguese population by Campos, Palha, Dias, Veiga, Duarte (2012)^{12,13}; and questions for assessing mental health knowledge specifically drafted for the study. For assessing the intervention's efficacy, only the MHLq was used. It consists of 33 multiple choice items in a 5-point Likert scale (1= strongly disagree; 5= strong-

ly agree). (13) The MHLq assesses: (1) knowledge about mental health issues; (2) knowledge about specific mental disorders (depression, anxiety, and schizophrenia); (3) stereotypes associated with mental disorders; and (4) behavioral interventions (predisposition to seek help, mental-health-promoting behaviors/self-help strategies, behaviors of seeking formal and/or informal help). Items were grouped under three dimensions: Knowledge/Stereotypes of Mental Health Problems (18 items: 3, 4, 7, 11, 12, 14, 15, 16, 17, 18, 22, 23, 25, 26, 27, 28, 31, and 33); First Aid Skills and Help Seeking Behavior (10 items: 5, 10, 20, 1, 6, 8, 13, 19, 24, 29), and Self-Help Strategies (5 items: 2, 9, 21, 30, 32). MHLq items 7, 12, 15, 17, 24, and 26 were rephrased for clarity.MHL MHLq total score was obtained from the sum of all items. The higher the score, the higher the level of mental health literacy. To assess the level of mental health knowledge, a set of True/False questions pooled under the ProMenteSã Program's themes was used.

The ethical requirements for the conduction of the study were warranted under a request submitted to the Portuguese Data Protection Authority. After its approval (ref. 03.01, 38790 of 12/18/2017), the research protocol was submitted to the General Directorate for Education (DGE; ref. number 0012100017) and subsequently approved. An authorization was then requested to the School Cluster Board and informed consent was obtained from teachers.

The Statistical Package for the Social Sciences software (SPSS, version 25.0) was used for data treatment. A Wilcoxon-Mann-Whitney test and a Monte Carlo simulation were used for the descriptive analysis of the data with a confidence interval (CI): 95%.

Results

Most teachers who underwent the ProMenteSã intervention (13 teachers) were female (11, 84.6%), with ages between 37 and 60 years (mean of 51.00 ±6,58 years), married (7, 53.8%), and lived in urban

settings (10, 76.9%). Teachers had been working for a mean of 26.46 ±8,39 years, most of them full time (92.3%). Analysis of the MHL's means shows an increase in all dimensions and in the global score after the application of the *ProMenteSā* training intervention program (see Table 1).

Table 1. Mental health literacy before and after the *ProMenteSã* training intervention program (n=13)

	Mental health literacy			
	Mean ±standard deviation	95% CI	Maximum	Minimum
MHLq dimensions				
Before				
Knowledge/Stereotypes of Mental Health Problems	74.31 ±7.36	69.86-78.76	88.00	58.00
First Aid Skills and Help Seeking Behavior	41.08 ±5.39	37.82-44.34	49.00	31.00
Self-Help Strategies	21.24 ±2.83	19.52-22.94	25.00	16.00
MHL total score	136.62 ±13.48	128.47-144.76	160.00	105.00
After				
Knowledge/Stereotypes of Mental Health Problems	78.28 ±6.79	74.28-82.49	90.00	69.00
First Aid Skills and Help Seeking Behavior	41.69 ±4.77	38.81-44.57	49.00	33.00
Self-Help Strategies	22.46 ±1.90	21.31-22.94	25.00	20.00
MHL total score	142.54 ±11.40	135.65-149.43	163.00	128.00

Sample comparison with the Wilcoxon-Mann-Whitney test showed there were no significant differences in values obtained before and after the training intervention program. The Wilcoxon-Mann-Whitney test with a Monte Carlo simulation for 10000 samples with a 95% CI did not show significant differences: for the Knowledge/ Stereotypes of Mental Health Problems dimension, p=0.088 (95% CI: 0.083-0.094); First Aid Skills and Help Seeking Behavior dimension, p=0.641 (95% CI: 0.631-0.650); Self-Help Strategies, dimension p=0.304 (95% IC: 0.295-0.313); total score, p=0.185 (95% CI: 0.177-0.193). There was no correlation between sociodemographic variables and results before/after the training intervention program. The assessment of the acquisition of mental health knowledge showed that after the application of the ProMenteSā Program teachers showed a significant increase in overall knowledge (p=0.02), particularly in the areas of "Abuse and dependence - New behaviors of addiction" (p=0.03) and "Significance of sleep in promoting mental health" (p=0.04) (Table 2).

Table 2. Acquisition of knowledge about areas of priority (n=13)

	Acquisition of knowledge				
	Before		After		
Intervention areas	Mean ±SD	95% CI	Mean ±SD	95% CI	P-value
Healthy sexuality and violence in dating	7.38 ±0.77	6.92-7.85	7.38 ±0.65	6.99-7.78	1.00
Eating disorders	4.38 ± 1.04	3.75-5.02	4.46 ± 0.66	4.06-4.86	0.77
Significance of sleep in promoting mental health	4.15 ±0.80	3.67-4.64	4.85 ±0.55	4.51-5.18	0.04
Abuse and dependence — New behaviors of addiction	3.69 ±0.75	3.24-4.15	4.38 ±0.51	4.08-4.38	0.03
Internalizing and externalizing behaviors	3.77 ±0.93	3.21-4.33	4.46 ±0.78	3.99-4.93	0.06
Overall knowledge	23.38 ±2.66	21.77-24.99	25.81 ±1.20	24.81-26.26	0.02

Considering all possible answers, knowledge was classified in 3 groups: poor (score \leq 21 points), average (22-24 points), and good (\geq 25 points). Before the *ProMenteSā* program, 3 (23.1%) teachers showed poor mental health knowledge; 6 (46.2%) showed average knowledge, and 4 (30.8%) showed good knowledge. After the training intervention program, 2 (15.4%) teachers continued showing poor knowledge and 11 (84.6%) showed good knowledge.

Discussion

According to the Ottawa Charter for Health Promotion, there are five fundamental strategies for the success of health promotion actions: building healthy public policies, creating supportive environments, strengthening community actions, developing personal skills, and reorienting health services. (14) Health promotion can be understood as the process of increasing individuals' power of action over health determinants, thus giving individuals and the community the means to best manage their own health and to get involved in decision-making processes. (15) Mental health constitutes a part of the individual's overall health and well-being. (6,7,16)

Mental health is recognizedly a priority issue in Portugal, and themes such as sleep hygiene, eating behavior, substance abuse, interpersonal relationships, sexuality, and mood disorders are intimately related to mental health along an individual's overall life cycle, particularly in children and adolescents. ^(1,11) In the epidemiology of mental health, promoting mental health in different areas of life and throughout the population's whole life cycle is a priority for Portugal's General Directorate for Health, particularly in children and adolescents, as well as a central axis

for School Health interventions. On the other hand, health literacy — especially mental health literacy is also a priority, in addition to identifying, understanding, and being able to refer the most commonly found issues in children and adolescents. In order to do so, it is paramount to train the school community, namely teachers, as well as making schools the preferred place for health learning, prevention, and promotion. (1) Mental health symptoms and issues' identification and control strategies — both on a community and on an individual level — are influenced by the level of mental health literacy of the various intervention agents. (17,18) Mental health literacy includes: knowledge about factors associated with mental issues and disorders; the capacity to recognize disorders; knowledge about available options and treatment; management interventions in moments of crisis; self-defense against crises; first aid skills to support those who seem to be suffering from mental illness; and knowledge about aid-seeking attitudes. (19,20) Thus, the school plays an essential role in the identification, referral, and recovery of students' mental health issues. (1) However, it is essential for the school community, namely teachers, to have an adequate level of mental health literacy.

After developing the *ProMenteSā* training intervention program, it was implemented and assessed for efficacy. As a program is planned and implemented, there are different types of assessments that can be applied to ultimately confirm the implementation has reached its goals. (21) Results show MHL means for all dimensions and global score increased after the training intervention program was applied. However, no statistical significance was found between the before and after samples. Regarding the acquisition of knowledge about intervention areas, after the application of the Program teachers showed a significant and statistical increase in overall knowledge, particularly in the areas of "Abuse and dependence — New behaviors of addiction" and "Significance of sleep in promoting mental health". This allows us to consider the study has had a positive impact. The program was shown to be limited in increasing the level of overall mental health literacy. However, it increased knowledge about the two aforementioned areas. We believe

this result may be due to the fact these areas are not directly evaluated in the MHL scale. Thus, an increase in these areas would go unaccounted for in the MHL. On the other hand, the result may also be explained by a small sample. Despite these limitations, the results correlate to the ones shown in previous reports for health prevention and promotion programs for children and adolescents in the school setting involving the teaching of social and self-regulation skills: this kind of intervention is of low cost and positive impact. To invest in children and adolescents' mental health is to invest the present and in the future, since the benefits of preventing and promoting mental health in the first years of life will be felt in the future.

One of the study's limitations was the small sample of teachers on whom the training intervention program was applied and the brief before/after time window in which efficacy was assessed. These limitations can be explained by a tight deadline to execute the project — which has nonetheless allowed for this pilot study to take place. The authors intend to expand this study to other School Clusters (including clusters in rural settings) with a longer before/after interval of assessment to more adequately promote reflection, internalization, and application of information.

The investigation has allowed to pinpoint the areas requiring intervention in the school setting for the promotion of mental health, firstly for children and adolescents, and secondly for the school community as a whole. Despite the study's limitations, data may allow for an improvement in the provision of nursing care and care specifically targeting priority areas, as well as for an improvement in promoting health, and training individuals and communities. Such an improvement can be seen particularly in community health and public health nurses, who play an important role in School Health and in the training of individuals, groups, and communities.

Conclusion

The training intervention program did not show effective increasing in mental health literacy. However

it allowed an increase in mental health knowledge, i.e, in recognizing sleep as a promoter of mental health and in the area of "Abuse and dependence — New behaviors of addiction". The educational context is critical for implementing health promotion interventions targeting children and adolescents. Overall, the authors infer the community training intervention program has aided in promoting health, citizenship, and in empowering individuals and communities.

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Contributions =

Amaral MOP, Silva DM, Costa MGA, Gonçalves AM, Pires SMCS, Cruz CMVM, Cabral LR, and Gil NCSP designed the project; contruct, and implemented the training intervention program; support in the analysis and interpreting the data; drafted the manuscript, and approval of the final version to be published.

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Appendix 1. Training intervention program design

Theme	Time	Goals - To train teachers on:	Content/topics	
Abuse and dependence — New behaviors of addiction: Internet, new technologies	5 hours	Recognizing risk factors in addictive behavior. Implementing preventive strategies on a family and social level.	- Concepts of dependence and drug dependence Youth and recreational drug use New addictions Prevention, treatment, and rehabilitation Case analysis and review.	
Eating disorders: Change in body image, anorexia, bulimia nervosa, obesity.	4 hours	Identifying the main eating disorders in children/adolescents. Recognizing signs and risk factors associated with eating disorders. Reviewing prevention programs and referral guidelines for eating disorders.	- Brief summary and characteristics of eating disorders Signs and symptoms associated with eating disorders Risk factors associated with eating disorders Prevention programs for eating disorders Testimony: a mother whose daughter has an eating disorder.	
Sleep	3 hours	- Understanding the importance of sleep for quality of life Recognizing main sleep issues and their health consequences Promoting sleep hygiene.	- How does sleep work? - Importance/benefits of sleep and rest in daily life Effects of sleep deprivation at an individual, family, and social level Fighting lack of discipline, distraction, and moodiness in the school setting by promoting sleep education Viewing a short video on sleep hygiene; debating it.	
Neurodevelopmental disorders: Internalizing and externalizing behaviors	6 hours	Recognizing causes and factors associated with mental conditions. How to deal with behavior changes: how to recognize them, signs of alert, risk and protection factors. Developing interventions for promoting mental health and neurodevelopment.	- Clarifying concepts: - Anxiety, stress, depression, suicidal behavior. - Prevention. - Referral. - Diagnosis and intervention. - Relaxation session.	
Interpersonal relationships: healthy and responsible sexuality, violence in dating, school violence, domestic violence, abuse/neglect/maltreatment, bullying, and cyberbullying.	5 hours	Awareness for a healthy and responsible sexuality. Training for identifying violence-predicting behavior. Awareness of the most common expressions of violence. Developing assertive communication as a technique for action in abusive relationships.	- Emotions, interpersonal relationships, and communication Characteristics of healthy and toxic relationships Conflicts and forms of violence.	
Seminars/assessment	2 hours	- Introducing the training intervention program's goals and content (beginning of training). - Reflecting about the relevance of the program during a practical group activity (end of training). - Application of a questionnaire to assess the training intervention program (after each session and at the end of the course).		