

RESEARCH ARTICLE (ORIGINAL) 

Mental Health Literacy About Psychosis: An Integrated Community-Based Intervention for Firefighters

Literacia em Saúde Mental Sobre Psicose: Uma Intervenção Integrada De Base Comunitária Para Bombeiros

Alfabetización en salud mental sobre la psicosis: una intervención integrada de base comunitaria para bomberos

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Abstract

Background: National and international studies have revealed low mental health literacy on population, and the need to develop psychoeducational interventions at community context.

Objective: This study aims to evaluate the effectiveness of a psychoeducational intervention program on psychosis, in a fire department.

Methodology: A pre-experimental design was used, with evaluation before and after intervention. The intervention lasted 9 hours, in which the program was applied to a sample of 30 firefighters.

Results: There were significant levels of increase in mental health literacy on psychosis, and specifically in the intention to seek help component.

Conclusion: The results indicate that the program contributes to increasing the participant's mental health literacy and, consequently, empowering them to act in favor of their mental health and those around them.

Keywords: health literacy; mental health; adults; nursing; psychosis

Resumo

Enquadramento: Estudos nacionais e internacionais, evidenciam lacunas na literacia em saúde mental (LSM) da população e a necessidade de serem desenvolvidas intervenções psicoeducacionais em contexto comunitário.

Objetivo: Avaliar a eficácia de um programa de intervenção psicoeducativa sobre psicose, numa população de Bombeiros da zona centro.

Metodologia: Realizou-se um estudo pré-experimental com pré e pós-teste num grupo único. A intervenção teve a duração de 9 horas, aplicada a uma amostra de 30 bombeiros.

Resultados: Observaram-se níveis significativos de aumento de LSM sobre psicose, e especificamente, na componente da intenção de procura de ajuda.

Conclusão: Os resultados indicam que o programa contribuiu para o incremento da LSM dos participantes e consequentemente, capacitá-los para agir em prol da sua saúde mental e daqueles que o rodeiam.

Palavras-Chave: literacia em saúde; saúde mental; adultos; enfermagem; psicose

Resumen

Marco contextual: Estudios nacionales e internacionales evidencian lagunas en la alfabetización en salud mental (ASM) de la población y la necesidad de desarrollar intervenciones psicoeducativas en contextos comunitarios.

Objetivo: Evaluar la eficacia de un programa de intervención psicoeducativa sobre psicosis en un cuerpo de bomberos del centro de Portugal.

Metodología: Se realizó un estudio pre-experimental con pre-test y post-test en un único grupo. La intervención tuvo una duración de 9 horas y se aplicó a una muestra de 30 bomberos.

Resultados: Se observaron niveles significativos de aumento en la ASM sobre psicosis, y específicamente en la componente de intención de búsqueda de ayuda.

Conclusión: Los resultados indican que el programa contribuye al incremento de la ASM de los participantes y, consecuentemente, los capacita para actuar a favor de su salud mental y de la de quienes los rodean.

Palabras Clave: alfabetización en salud; salud mental; adultos; enfermería; psicosis

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Introduction

Several national and international health policies emphasize the need to promote mental health (MH) and mental health literacy (MHL), as well as to prevent and identify mental disorders as early as possible. The Mental Health Action Plan 2013-2020, which runs until 2030, highlights the importance of promoting and protecting MH, focusing on the leading role of governments in this regard and the need to create programs to improve MH through health-promoting policies (WHO, 2013). According to the Directorate-General for Health (DGS), within the scope of the National Plan for Health Literacy and Behavioral Sciences 2023-2030, health promotion and disease prevention are important at any stage of the life cycle, as well as the need to create opportunities that encourage individuals and communities to adopt these behaviors (DGS, 2023).

MHL stands out as a crucial strategy for health promotion, emphasizing the development of interventions that combat stigma, discrimination, and human rights violations, while improving health literacy in various contexts (Jorm, 2012; Ordem dos Enfermeiros, 2023). In view of the above, MH interventions must focus increasingly on the community context to empower the population. As firefighters are often the first responders to individuals in crisis, it is essential to train and equip them to respond effectively to situations involving mental illness. In Portugal, mental health training for firefighters is virtually non-existent, as their training programs do not include any specific modules in this area. This absence can lead to significant gaps in the ability to recognize the main signs of mental health disorders and problems and acquire essential skills for providing psychological first aid both to individuals in crisis and those surrounding them. This study aims to assess the effectiveness of a psychoeducational intervention program on psychosis in a fire department in the central region of Portugal.

Background

MH is a fundamental component in the balance of individuals, both individually and socially. It is influenced by genetic, biological, social, and environmental factors (Conselho Nacional de Saúde, 2019).

Low MHL is recognized as a key factor that contributes to resistance, delay, or lack of help-seeking behaviors (Cottrill et al., 2021; Rosa, 2018). The concept of MHL stems from the broader concept of health literacy. Broadly defined, it encompasses an individual's functional ability to read, write, and understand medical terms, as well as the ability and knowledge to use available information to promote and maintain their physical health. Although it is an integral and vital aspect of health literacy, MHL has only recently been explored (Furnham & Swami, 2020; Rosa, 2018). The concept of MHL encompasses several components that must be present when empowering individuals and communities to take action. These components mainly emphasize MH promotion and the

prevention of mental illness, playing a crucial role in increasing literacy levels, combating stigma, facilitating the early recognition of mental disorders, and encouraging help-seeking behaviors (DGS, 2021; Jorm 2019; Rosa et al., 2019).

In Portugal, scientific evidence indicates a generally low level of MHL among the population, highlighting the urgent need to invest in literacy promotion (DGS, 2021). Due to the decentralization of hospital services, individuals with mental disorders have been integrated into community contexts, which has brought to light new issues that were previously not discussed or paid attention to (Neves, 2020).

MHL promotion programs are designed to train individuals to recognize signs and symptoms of disorders and crises related to problems specific to this area of intervention, as well as provide first aid and refer individuals to the appropriate professionals and services (Costa et al., 2020). MH first aid training originates from the "Mental Health First Aid (MHFA)" program developed by Betty Kitchener and Anthony Jorm in 2000 in Australia, which was adapted into Portuguese by Professor Luís Loureiro (Loureiro, 2014). This program has been implemented and disseminated all over the world and adapted to various age groups, cultural contexts, and professionals (Cottrill et al., 2021).

In terms of structure, the program follows the guidelines of the MHFA program and is divided into modules, with a total workload of nine hours. It teaches how to "recognize the signs and value the symptoms of various mental health problems, disorders, and crisis situations". It also recommends the most appropriate ways to provide first aid and refer individuals to mental health professionals and other resources (Loureiro et al., 2014 as cited by Loureiro & Sousa, 2019, p. 74).

In this context, first aid is often provided by someone close to the individual or belonging to their social network rather than a health professional. The program's objectives are to: preserve life as long as the individual poses a risk to themselves or others; provide help so that the MH problem does not worsen; promote recovery; and offer comfort to the individual experiencing a MH problem (Loureiro, 2014; Rosenbaum et al., 2023).

In Portugal, according to the Regulation of Specific Competences of Psychiatric Mental Health Nurses (Regulamento n.º 515/18, 2018), nurses implement projects to promote and protect MH and prevent mental disorders within communities and groups, drawing on psychotherapeutic, sociotherapeutic, psychosocial, and psychoeducational skills to provide the population with tools to manage these situations.

Studies show that knowledge about MH remains below recommended levels, highlighting the importance of developing these programs/interventions with a salutogenic and positive approach to the MHL of communities. To achieve more positive results, it is important to standardize programs/interventions whose main objective is to promote knowledge about MH and the use or development of instruments that can assess it, since MHL is increasingly recognized by research communities (Nobre et al., 2021).

Hypotheses

The PASM® (*Primeira Ajuda em Saúde Mental*) program contributes to increasing firefighters' MHL in the following areas: Recognition of the problem; Knowledge of professional help and treatments available; Knowledge of effective self-help strategies; Knowledge and skills to give first aid and support to others; and Confidence to provide help.

Methodology

This was a Level IV pre-experimental study with pre- and post-intervention assessment. It was carried out with a non-probability sample of 30 firefighters aged between 17 and 52 years ($M = 32.57 \pm 12.07$ years) from a fire department in the Central region of Portugal. The majority of participants were male (76.3%) and belonged to various ranks within the active firefighting force. All participants performed regular duties, including both emergency and inter-hospital transport. The vast majority (96.7%) of participants had never received specific training in psychiatric disorders and 90.0% had already had contact with individuals with mental disorders or MH problems.

Data were collected using the Portuguese version of the Mental Health Literacy Assessment Questionnaire (QuaLISMental; Loureiro, 2015). The first part of the questionnaire includes instructions on how to complete it and a set of sociodemographic questions (e.g., gender, age, firefighter category, length of service). The second part includes various sections related to the MHL components under analysis. The questions are related to the following clinical vignette focused on psychosis:

Miguel is a 16-year-old boy who lives with his parents. Over the past year, he has attended school irregularly and has recently dropped out. In the last six months, he has withdrawn from his friends and locks himself in his room. He refuses to eat with his family and has neglected his personal hygiene (he stopped bathing). His parents hear him wandering around his room at night. Although they know he is alone, they hear him shouting and arguing as if someone else were in his room. When they try to encourage him to engage in other activities, he whispers that he won't leave the house because the neighbor is spying on him.

They are certain he is not using drugs because he never interacts with anyone or leaves the house.

Procedure

The PASM® intervention was implemented in three sessions, with pre- and post-intervention assessments conducted using Google Forms. Each training session lasted three hours and took place on November 12, 19, and 26,

2021. Due to the COVID-19 pandemic, the sessions were conducted via videoconference, giving priority to the active method, including slide presentations and videos. To promote interaction between the participants and the researcher, the sessions also included open discussions of ideas and opportunities for questions, making the intervention more dynamic.

The project was submitted to the Ethics Committee of the Health Sciences Research Unit: Nursing (UICISA-E) of the Nursing School of Coimbra and received a favorable opinion (No. P809_10_2021). In addition, authorization to implement the intervention was requested from both the President of the Board of Directors and the Fire Chief of the institution.

Statistical analysis

Data were analyzed using IBM SPSS Statistics, version 24.0. For sample characterization, appropriate summary statistics were calculated, as well as absolute and percentage frequencies for the several variables. To assess the effectiveness of the intervention regarding the first component – Recognition of the problem, which involves nominal (categorical) data with multiple response options - absolute and percentage frequencies of the responses were analyzed before and after the intervention.

Hypotheses were tested using non-parametric tests (McNemar and Bowker) and the paired samples *t*-test after checking the normal distribution of the dependent variable (Shapiro-Wilk test; $p > 0.05$). In the Recognition of the problem component, effect size was calculated for the McNemar's test using Cohen's *g*, with the following reference values: small if $0.05 < g < 0.15$; medium if $0.15 \leq g < 0.25$; and large if $g \geq 0.25$.

Results

Recognition of the problem

With regard to this component and based on the vignette scenario and results presented in Table 1, a comparison of pre-test and post-test data indicates that the intervention produced statistically significant effects. Specifically, there was an increase in the proportion of participants who selected the items 'Schizophrenia' (13.3% - 53.3%; $p = 0.000$; $g = 0.50$), 'Psychosis' (20.0% - 53.3%; $p = 0.006$; $g = 0.42$), and 'Mental illness' (36.7% - 66.7%; $p = 0.022$; $g = 0.35$), as well as a decrease in those who selected the items 'Psychological, mental, emotional problems' (73.3% - 43.3%; $p = 0.012$; $g = 0.41$) and 'Has a problem' (30.0% - 3.3%; $p = 0.008$; $g = 0.50$).

The effect size measures (Cohen's *g*) for the categories that changed ranged from 0.32 to 0.5, indicating small to moderate effect sizes, which suggests evident and potentially relevant changes, though not very substantial.

Table 1

Percentage distribution of the items, before and after the intervention, in the Recognition of the problem component (N = 30)

Psychosis/schizophrenia vignette	Pre (%)	Post (%)	<i>p</i> [†]	G
Depression	40.0	16.7	0.065 [†]	0.32
Schizophrenia	13.3	53.3	0.000 [†]	0.50
Psychosis	20.0	53.3	0.006 [†]	0.42
Mental illness	36.7	66.7	0.022 [†]	0.35
Stress	30.0	13.3	0.125 [†]	0.36
Nervous breakdown	16.7	16.7	1.000 [†]	0.00
Psychological/mental/emotional problems	73.3	43.3	0.012 [†]	0.41
Has a problem	30.0	3.3	0.008 [†]	0.50

Note. *p*[†] = McNemar's test; G = Cohen's g.

Knowledge of the professionals and treatments available

With regard to the second component (Table 2), increases were observed in the following options: 'Family doctor' (93.3%), 'Psychologist' (90%), 'Nurse' (90%), 'Psychiatrist' (100%), 'Close family members' (80.0%), and 'Close friends' (86.7%). However, these increases

were not statistically significant.

In terms of available treatments (products and medications), only 36.7% of participants initially identified 'Antipsychotics' as useful for treating psychosis/schizophrenia. After the intervention, this percentage increased to 76.7%, with a statistically significant difference (*p* = 0.016).

Table 2

Percentage distribution of the answers, before and after the intervention, in the Knowledge of professionals and treatments available component (N = 30)

Psychosis/schizophrenia vignette	Pre (%)			Post (%)			<i>p</i>
	Useful	Harmful	DK	Useful	Harmful	DK	
Family doctor	83.3	6.7	10.0	93.3	3.3	3.3	0.311 [#]
Teacher	30.0	6.7	63.3	36.7	3.3	60.0	0.766 [#]
Psychologist	93.3	3.3	3.3	90.0	3.3	6.7	0.607 [#]
Nurse	76.7	3.3	20.0	90.0	3.3	6.7	0.135 [#]
Social worker	26.7	0.0	76.3	43.7	0.0	56.3	0.070 [†]
Psychiatrist	90.0	6.7	3.3	100.0	0.0	0.0	a)
Telephonic helpline	26.7	16.7	56.6	23.3	20.0	56.7	0.788 [#]
Close family member	80.0	3.3	16.7	80.0	0.0	20.0	a)
Close friend	73.3	6.7	20.0	86.7	0.0	13.3	a)
Solve problems alone	6.7	70.0	3.3	3.3	86.7	10.0	0.187 [#]
Vitamins	36.7	16.7	46.7	53.3	0.0	46.7	a)
Tea (e.g., chamomile or St. John's wort)	30.0	10.0	60.0	20.0	10.0	70.0	0.615 [#]
Tranquilizers	63.3	6.7	30.0	53.3	13.3	33.3	0.446 [#]
Antidepressants	33.3	16.7	50.0	40.0	16.7	43.3	0.172 [#]
Antipsychotics	36.7	10.0	53.3	76.7	6.7	16.7	0.016 [#]
Sleeping pills	50.0	13.3	36.7	40.0	10.0	50.0	0.344 [#]

Note. % = percentage; *p*[†] = McNemar's test; *p*[#] = Bowker's test; DK = Don't know; a) - Given the analysis model and the test used (Bowker's test), it was not possible to calculate a statistical result because one or more cells had percentage frequencies of 0.0%.



Knowledge of effective self-help strategies

In this component, the results shown in Table 3 indicate a tendency among participants to consider it useful and to give priority to 'Going to a specialized mental health service' (96.7%), 'Receiving therapy with a specialized

professional' (100%), and 'Becoming more physically active' (93.3%). After the intervention, the majority of participants (96.7%) considered the strategies of 'Using alcohol to relax' and 'Smoking cigarettes to relax' as harmful.

Table 3

Percentage distribution of the answers, before and after the intervention, in the Knowledge of effective self-help strategies component (N = 30)

Effective self-help strategies	Pre %			Post %			
	Useful	Harmful	DK	Useful	Harmful	DK	
Becoming more physically active	86.7	0.0	13.3	93.3	0.0	6.7	0.625 ^t
Getting relaxation training	83.3	0.0	16.7	93.3	3.3	3.3	a)
Practicing meditation	60.0	0.0	40.0	76.7	3.3	20.0	a)
Getting acupuncture	30.0	3.3	66.7	33.3	6.7	60.0	0.768 [#]
Getting up early each morning	50.0	6.7	43.3	50.0	10.0	40.0	0.574 [#]
Receiving therapy with a...	96.7	0.0	3.3	100.0	0.0	0.0	a)
Looking up a website giving...	36.7	26.7	36.7	26.7	33.3	40.0	0.532 [#]
Reading a self-help book on...	33.3	16.7	50.0	30.0	26.7	43.3	0.506 [#]
Joining a support group...	50.0	13.3	36.7	80.0	3.3	16.7	0.051 [#]
Going to a specialized mental...	100.0	0.0	0.0	96.7	0.0	3.3	a)
Using alcohol to relax	3.3	90.0	3.3	0.0	96.7	3.3	a)
Smoking cigarettes to relax	6.7	83.3	10.0	0.0	96.7	3.3	a)

Note. % = Percentage; p^t = McNemar's test; $p^{\#}$ = Bowker's test; DK = Don't know; a) - Given the analysis model and the test used (Bowker's test), it was not possible to calculate a statistical result because one or more cells had percentage frequencies of 0.0%.

Knowledge and skills to provide support and first aid

In the fourth component (Table 4), all participants rated the strategy of 'Listen to his problems in an understanding way' as useful (100%), followed by 'Suggest he seeks professional help' (93.3%), 'Make an appointment for him to see a GP with his knowledge' (83.3%), and 'Encourage him to become more physically active' (90%). On the other hand, 30% of participants consider it harmful to 'Ask him whether he is feeling suicidal' and 96.7% viewed 'Not acknowledging his problem, ignoring him until he gets over it' as harmful. Although some of these strategies

are known to be ineffective and not recommended, such as 'Keep him busy to keep his mind off problems' and 'Suggest he have a few drinks to forget his troubles', the former was considered useful by more than half of the participants (60.0%), while 10.0% viewed the latter as useful and 20.0% were uncertain about its usefulness. After the intervention, statistically significant changes were observed in this dimension, indicating the program's effectiveness. Specifically, there was a shift in participants' views regarding the usefulness of alcohol consumption as a coping strategy for the problem presented in the vignette ($p = 0.046$).

Table 4

Percentage distribution of the answers, before and after the intervention, in the Knowledge and skills to provide support and first aid component (N = 30)

Behavior	Pre (%)			Post (%)			p
	Useful	Harmful	DK	Useful	Harmful	DK	
Listen to his problems in an understanding way	100.0	0.0	0.0	0.0	a)	100.0	0.0
Talk to him firmly about getting his act together	53.3	23.3	23.3	46.7	16.7	36.7	0.682 [#]
Suggest he seeks professional help	96.7	0.0	3.3	93.3	3.3	3.3	a)
Make an appointment for him to see a GP with his knowledge	73.3	6.7	20.0	83.3	3.3	13.3	0.435 [#]
Ask him whether he is feeling suicidal	20.0	43.3	36.7	33.3	36.7	30.0	0.261 [#]
Suggest he have a few drinks to forget his troubles	10.0	70.0	20.0	6.7	93.3	0.0	0.046 [#]
Rally friends to cheer him up	53.3	13.3	33.3	53.3	6.7	40.0	0.446 ^t
Not acknowledging his problem, ignoring him until he gets over it	3.3	80.0	16.7	3.3	93.3	3.3	a)
Keep him busy to keep his mind off problems	60.0	16.7	23.3	43.3	16.7	40.0	0.261 [#]
Encourage him to become more physically active	70.0	3.3	26.7	90.0	3.3	6.7	0.105 [#]

Note. % = Percentage; p[#] = McNemar's test; p^t = Bowker's test; DK = Don't know; a) - Given the analysis model and the test used (Bowker's test), it was not possible to calculate a statistical result because one or more cells had percentage frequencies of 0.0%.

Confidence to provide help

As for the level of confidence to provide help and support to someone experiencing a situation similar to the one described in the vignette (Table 5), a slight decrease in

average confidence levels was observed. In the pre-test, the mean was 3.43 ± 0.774 , which decreased to 3.37 ± 0.669 in the post-test. However, this difference was not statistically significant ($t_{(29)} = 0.494$; $p = 0.625$).

Table 5

Summary statistics on confidence to provide help, before and after the intervention (N = 30)

	Pre (%)		Post (%)		t	p
	Mean	SD	Mean	SD		
Confidence	3.43	0.774	3.37	0.669	0.494	0.625

Note. % = percentage; SD = Standard deviation; t = Pared sample t test; p = Pared sample t test.

Discussion

This study aimed to assess the effectiveness of a psycho-educational intervention program on psychosis designed to enable the firefighters of a department in the Central region of Portugal to act appropriately as mental health first aid providers. The intervention is expected to increase their knowledge and reduce stigma.

The results related to the MHL components are consistent with findings from other studies on the pioneering MFHA program, despite having been conducted in a different population group (Morgan et al., 2018).

With regard to the first MHL component, which refers to the ability to recognize psychosis, there was a substantial increase in the ability to correctly identify the situation described as psychosis after the intervention. These results are encouraging, as the early recognition of psychosis can significantly reduce the time interval between symptom

onset and access to health care, thereby avoiding symptom exacerbation and improving both quality of life and health outcomes (Coentre & Levy, 2020; Rosa, 2018). The results obtained in this component are consistent with the findings from several national and international studies (Bond et al., 2015; Burns et al., 2017; Loureiro & Sousa, 2019; Loureiro et al., 2020), despite the specific nature and different age group of the population under analysis. It should be noted that the ability to recognize problems through the use of psychiatric labels does not equate to making a diagnosis, which is the responsibility of specialized health professionals. Rather, it serves to facilitate help-seeking and improve access to care (Jorm, 2014; Loureiro & Costa, 2019).

In terms of the clinical relevance of the change in participants' ability to recognize psychosis, small to moderate effect sizes were obtained. However, in public health and community education contexts, even small effects

can be highly valuable, particularly if the intervention is low-cost, scalable, easy to implement, and aligned with sustainable behavioral changes.

With regard to the ‘Knowledge of professional help and treatments available’ component, the literature highlights a range of health professionals qualified to help individuals with mental health problems (Jorm, 2012; Loureiro et al., 2020). The results of this study for this component also tend to be positive. In terms of health professionals, psychologists, psychiatrists, family doctors, and nurses stand out as a resource for help. However, given the context in which the study took place, family doctors emerge as the closest and most accessible resource, as they are responsible for referring individuals to more specialized levels of care (Rosa, 2018). Studies on the importance attributed to different sources of help for mental health problems show that participants tend to recognize the need for formal support, thus reflecting the program’s guidelines and its emphasis on appropriate care and health professionals. Nonetheless, they place highly value on informal support from family and friends (Loureiro & Costa, 2019).

As for the treatments available (products and medications), the intervention led to significant changes, particularly with regard to antipsychotics, with a notable increase in knowledge about the role of these medications in symptom control and, consequently, in medication adherence. These results can be attributed to the intervention itself and the importance and attention given to these issues, which helped to demystify the prejudice surrounding the use of these medications.

The literature shows that the vast majority of the population holds negative views toward psychotropic medications and their use, with a preference for other types of products such as vitamins and teas, which are over-the-counter products (Jorm, 2014; Loureiro & Sousa, 2019). It should be noted that participants’ acquisition of knowledge about the relevance of professional mental health support and available treatments is useful because it empowers them to act as mental health promoters for individuals who, for various reasons, may require their care. As for the ‘Knowledge of effective self-help strategies’ component, the findings highlight strategies that involve professional help (seeking specialized help and attending therapy with a specialized professional). Physical exercise and relaxation training were also identified as effective strategies, although they do not necessarily require professional support. On the other hand, alternative strategies or therapies, such as meditation, acupuncture, or engaging in relaxing activities, were not valued as highly as others. Similar findings are reported in the literature, with formal sources of help standing out (Loureiro & Sousa, 2019). As for the core component of the program, which refers to ‘Knowledge and skills to provide support and first aid to others’, statistically significant changes were observed in only a few items. Notably, participants placed strong value on listening, as reflected in the item ‘Listen to his problems in an understanding way’. This result aligns with the first step of the PASM guidelines, which consists of “approaching the person, observing

and helping” (Loureiro & Sousa, 2019).

Another aspect that deserves attention is the issue of suicidal ideation. Before the intervention, 43% of participants considered it harmful to ask someone about suicidal thoughts. Although this percentage decreased after the intervention, the difference was not statistically significant.

These results highlight the need to review the program’s content related to suicide, ensuring greater consistency, given that the program includes a set of strategies for approaching and assisting individuals in crisis (Loureiro, 2014). Similar studies involving different samples have reported more significant changes (Bond et al., 2015; Burn et al., 2017; Loureiro & Sousa, 2019; Morgan et al., 2018).

With regard to strategies considered inappropriate, statistically significant changes were found about the usefulness of alcohol consumption, which suggests that participants acquired an adequate level of knowledge about this strategy after the intervention. The strategy ‘Not acknowledging his problem, ignoring him until he gets over it’ was also recognized as harmful, which is a good indicator of the program’s quality, as can be seen in other studies (Jorm, 2012; Loureiro & Sousa, 2019; Loureiro & Costa, 2019).

Finally, a key aspect to the PASM® program, particularly relevant to the context and characteristics of the study participants, is confidence to provide first aid. This element stems from the concept of MHL and the program itself, suggesting that knowledge empowers individuals to act confidently when supporting others during a crisis (Loureiro & Sousa, 2019).

In terms of confidence to provide help, a slight decrease in the mean scores was observed. This may be due to participants’ awareness of the complexity involved in managing situations related to psychosis, leading to a more realistic and cautious perception of their own skills as a result of their participation in the study and the content covered in the program. Studies involving participants with different characteristics, such as adolescents, have reported more positive outcomes, with effective changes in confidence (Hadlaczky et al., 2014; Morgan et al., 2018). In this context, this type of psychoeducational program allows firefighters to increase their MHL levels and, consequently, respond more effectively and appropriately to individuals with mental disorders during crisis situations, both in emergency services (National Institute of Medical Emergency) and inter-hospital transport. The PASM program can be an excellent tool for firefighters to recognize mental disorders and their main signs and symptoms, approach individuals in crisis appropriately, and implement communication strategies to manage the situation, provide help, and refer them to mental health services.

This study has some limitations due to its pre-experimental design. The lack of a control group requires a more cautious interpretation of the results, as it prevents comparison between groups and the exclusion of alternative explanations for the changes observed in the dependent variable (MHL). In addition, the lack of a follow-up as-

assessment does not allow assessing the long-term stability of the gains achieved through the intervention.

Although pre-experimental studies have exploratory value, their results should be analyzed with caution, as they are more susceptible to biases that can compromise internal validity. It is therefore recommended that this study be complemented by research with more rigorous methodological designs, such as quasi-experimental or experimental designs. The data collection instrument is also a limitation, particularly in smaller samples and pre- and post-intervention assessments, where the application of statistical tests is more complex (Loureiro, 2015). Thus, although the sample in this study is considered reasonable (Loureiro & Gameiro, 2011), some statistical tests could not be applied in some situations due to unmet requirements or assumptions.

Conclusion

Based on the results observed in this study, the PASM program demonstrates effectiveness as a psychoeducational intervention for increasing MHL. These interventions promote public education and raise awareness of the need to be adequately trained to intervene in mental health crises.

In the case of firefighters, given the specific nature of their duties, the program can help increase their knowledge and strengthen both personal and professional skills to enable them to intervene more effectively in pre-hospital care situations.

The findings of this study are consistent with evidence on the effectiveness of the PASM® program, supporting its suitability and adaptation to community settings and its potential for improving the quality of firefighters' responses, bringing benefits to society as a whole.

Given the gap in research on the effectiveness of the PASM® program among firefighters, this study is a starting point for new interventions aimed at increasing MHL in the community, reaching broader segments of the population often exposed to the reality of mental health problems. Ongoing training or replication of the intervention are suggested to maintain and increase the gains achieved in MHL, ensuring that firefighters remain empowered and confident to act effectively in emergency contexts.

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