Article

Not peer-reviewed version

Promotion of Mental Health and Prevention of First-Episode Psychosis: A Pilot and Feasibility Non-Randomised Clinical Trial

Lucia Santonja Ayuso , José Vicente Carmona-Simarro * , Laura Andreu Pejó

Posted Date: 14 September 2023

doi: 10.20944/preprints202309.0928.v1

Keywords: social stigma; Psychotic disorders; Faculty; School teachers.

Article

Promotion of Mental Health and Prevention of First-Episode Psychosis: A Pilot and Feasibility Non-Randomised Clinical Trial

Lucia Santonja-Ayuso [1], José Vicente Carmona-Simarro [2,*] and Laura Andreu Pejó [3]

[1] Department of Nursing, Faculty of Health Sciences, Universitat Jaume I, Avda. Sos I Baynat s/n, 12071 Castellón, Spain; lucia.santonja@gmail.com
[2] Department of Nursing, European University of Valencia. Spain. c/Paseo Alameda, 7, 46010 Valencia, Spain
[3] Faculty of Health Sciences, Universitat Jaume I, Avda. Sos I Baynat s/n, 12071 Castellón, Spain; pejo@uji.es
* Correspondence: author: josevicente.carmona@universidadeuropea.es

Abstract: Background: Mental health-related stigma prevents active help-seeking and therefore early therapeutic approach and recovery of functionality. National and international agencies recommend the implementation of prevention and mental health promotion programs that support the elimination of stigma in the classroom since most mental health problems usually start in the adolescent stage. In view of the evidence that teachers present stigmatizing attitudes towards mental health, it has been considered convenient to carry out an anti-stigma program with the main objective of to evaluate the impact of an intervention based in Education and Promotion of mental health, aimed at teachers and counsellors of a secondary school. The specific objectives were to get to know which were the most stigmatising attitudes that prevailed in the sample before and after the intervention; to evaluate the knowledge of the teaching staff and counsellors on psychosis before the intervention; to analyse correlations between clinically relevant variables; and assess whether this programme was beneficial and feasible for alphabetising counsellors/teachers of educational centres on stigma and FEP. **Methods**: Non-randomised clinical trial in which a nursing intervention. Tools: psychosis test (pre), Stigma Attribution Questionnaire (AQ-27) (pre-post), satisfaction survey (post) was used and a semi-structured interview at six months to find out the number of referrals made to health services. The inferential analysis included the Wilcoxon and the Pearson Correlation Test. **Results**: in the sample (n=22), the predominant stigmatising attitude was "Help". The p-values obtained in the Wilcoxon Test were statistically significant except for "Responsibility" and "Pity". The following constructs of interest were faced: vs "Fear" vs "Age" and "Professional experience"; and "Help" vs "Psychosis test". **Conclusions**: Despite the scores obtained in "Responsibility" and "Pity", the intervention was useful for reducing stigma in the sample. **Implications for the profession:** There are adolescents who have suffered stigma from their teachers, and consequently have minimized the symptoms and have not asked for help. For this reason, we have implemented a nursing intervention, based on education and promotion of mental health with the aim of expanding knowledge and reducing stigma. In fact, this intervention, which we have carried out on high school teachers, has managed to reduce the majority of stigmatizing attitudes measured on the stigma attribution scale.

Keywords: social stigma; psychosis; mental health; mental disorders; school teachers; adolescent

1. Introduction

Adolescence is a concept that is difficult to categorise and comprises a transition period from infancy to adulthood in which there are important changes at a physical, cognitive and emotional level, making it a phase filled with energy and opportunities, but also with risks and vulnerabilities (Sawyer et al., 2018). In fact, literature suggests accompanying the adolescent in the academic, social and healthcare environments, for them to create their own identity in a positive way through the promotion of mental health and prevention of the pathology (Tamayo et al., 2021; Tejado et al., 2022).

For that, and following the latest international recommendations of the World Health Organisation (WHO) published in its Comprehensive Mental Health Action Plan 2013-2020 (World

 doi:10.20944/preprints202309.0928.v1

Health Organization, 2013), the "Mental Health Strategy of the National Health System 2022-2026" (Ministry of Health, 2022) has been recently published in Spain, in which the importance of prioritising mental health in all environments has been emphasised, and it focuses on the promotion and prevention of mental disorders and action against stigma.

Stigma is an extremely devaluing concept that, from the socio-cognitive perspective, is composed of stereotypes, prejudices and discrimination that are transmitted intergenerationally and are perpetuated through the media (Holder et al., 2019; Masedo et al., 2021). Consequently, this not only allows society to fear and avoid people with a mental disorder, but also for them to minimise the clinic, treatment and their recovery due to shame (DeFreitas et al., 2018; Drew & Martin, 2021; Lin & Tsang, 2020; Schulze et al., 2020).

As a matter of fact, there is evidence that states that adolescents with mental disorders have experienced stigmatisation from their peers, families and teachers, allowing negative emotional reactions, self-discriminatory attitudes and isolation (Amado-Rodríguez et al., 2022; Chang et al., 2022). This fact is particularly striking since teachers can be a unique figure for providing the necessary support in these cases (Yamaguchi et al., 2020).

At the same time, and despite the multiple instructions of carrying out specific programmes to increase knowledge on mental health and reduce stigma associated to the health, social and educational systems, there is scarce scientific evidence on the latter, since the majority of studies made have focused in students of different categories or in healthcare professionals (Beaulieu et al., 2017; Fernandes et al., 2022; Ma & Hsieh, 2020; Sickel et al., 2019; Walsh & Foster, 2021). Moreover, the few programmes performed on teaching staff have dealt almost exclusively with disorders like anxiety and depression (Holder et al., 2019; Jorm et al., 2010), leaving aside important disorders like psychosis, due to its high rates of Disability-Adjusted Life Years (DALY) (Ministry of Health, 2022; Tejado et al., 2022).

Given that psychosis, or First-Episode Psychosis (FEP) if it occurs for the first time, usually debuts from age 15 and its onset is progressive and insidious where there is an alteration of reality (Geng et al., 2018; Millan et al., 2016; Pardo-de-Santayana et al., 2020), it would be interesting to perform a psychoeducational programme to increase knowledge on mental health and FEP on teachers and counsellors of a secondary school in order to reduce the associated stigma. Some of the ways to carry it out that have been documented in the last few years have been psychoeducation and live interpersonal exchange of people with experiences on mental health disorders (Yin et al., 2020), although similar effects have been found in the latter when people contact virtually (videos, web interactions) (Gronholm et al., 2017; Tergesen et al., 2021).

For this reason, our intervention study has the general objective to evaluate the impact of an intervention based in Education and Promotion of mental health, anti-stigma, aimed at teachers and counsellors of a secondary school located in Spain. The specific objectives were to get to know which were the most stigmatising attitudes that prevailed in the sample before and after the intervention; to evaluate the knowledge of the teaching staff and counsellors on psychosis before the intervention; to analyse correlations between clinically relevant variables; and assess whether this programme was beneficial and feasible for alphabetising counsellors/teachers of educational centres on stigma and FEP.

2. Material and Methods

2.1. Design

Quasi-experimental (pre and post-test) clustered pilot study carried out in a secondary school located in Spain. For this reason, the TREND checklist (Transparent Reporting of Evaluations with Nonrandomized Designs) has been used (Des Jarlais et al., 2004).

2.2. Participants

The sample was composed by teachers and counsellors of a secondary school located in Spain. It was selected out of a simple random sampling between the secondary schools to which we had

access that belong to the department, in Spain. The software programme Excel® was used to perform this task.

This type of population was chosen since they are considered as communitary workers that spend most of their time with their students (being able to closely observe any behavioural change over time) aged 12 to 18 (starting period of FEP, for the most part); furthermore, they also are a support resource for students when necessary, and for that, stigma levels must be eradicated (in case of having them) and their knowledge on mental health must increase (Yamaguchi et al., 2020).

2.3. Recruitment

In the first place, a random sampling of the schools that belonged to the health area was carried out. In second place, counsellors of the selected secondary school were contacted in order to participate and were sent an email with the objectives and programme of the activity, altogether with an informed consent that had to be signed by the director of the centre. After establishing the pertinent inclusion and exclusion criteria, another informed consent was given to the participants and was signed by all of them.

All participants that complied with the selection criteria were included, performing then an intentional-type sampling.

2.4. Inclusion and Exclusion Criteria

Inclusion criteria: To work as a teacher and/or counsellor at the moment of the programme presentation, to have Spanish as mother tongue, to develop the teaching activity full-time, to voluntarily participate and to be public, semi-private and private secondary schools.

Exclusion criteria: Not having signed the informed consent, to be part-time teachers and/or teachers on sick leave, and to be nursery schools and public and/or private universities.

2.5. Assessment Instruments

2.5.1 The tool used for the assessment of stigma was the Attibution Questionaire (AQ-27) (created by Weiner and collaborators in 1988) (Weiner et al., 1988); in its Spanish version, which is composed by 27 items (AQ-27-E). The evaluation was carried out by Muñoz and collaborators (Muñoz et al., 2015), obtaining a reliability of 0.855 (Cronbach's alpha) for the scale total and presenting appropriate psychometric features for the Spanish population (Frías et al., 2018; Muñoz et al., 2015).

It consists of a self-administered questionnaire comprised of 27 items that are evaluated using a Likert-type scale (1 corresponding to "not at all" and 9 to "extremely") whose administration time is 10-20 minutes. The results of 9 subscales are obtained: "Responsibility" (the person is responsible for controlling their disorder), "Pity" (to feel empathy), "Anger" (to feel wrath), "Danger" (to believe they are a threat), "Fear", "Help" (willingness to assist a person with psychiatric-type problems), "Coercion" (obligation to receive treatment), "Segregation" (exclusion) and "Avoidance". It was performed at the beginning and after completing the intervention.

2.5.2 Multiple choice psychosis test: it consists of 10 questions about prevalence, aetiology, course and early detection of psychosis. It is based on scientific literature and was elaborated by the author and subsequently read, checked and structured by a total of 10 experts from the FEP Functional Unit using the Delphi technique with the aim of reaching a consensus with the experts. The range of results was from 0 to 10 points; it was performed at the beginning of the intervention.

2.5.3 Adapted satisfaction survey (Feixas i Viaplana et al., 2012): overall rating of the intervention (teachers, material, methodology and contents) by means of a numeric scale (from 0 to 10). It was performed at the end of the intervention.

2.6. Intervention

A training workshop on psychosis and general mental health was carried out in order to raise awareness to the teaching staff and counselling department. It was a psychoeducational-type

 doi:10.20944/preprints202309.0928.v1

intervention that was fundamentally inspired by the content of other guides, recommendations and renowned entities in the field of mental health in Spain (Amado-Rodríguez et al., 2022; Generalitat Valenciana, 2016, 2019; Ministry of Health, 2022). The intervention was carried out by a mental health specialist nurse.

The modules were designed to confront stigma regarding mental disorders and to identify the possible risk factors and behavioural changes, so that a subsequent preventive effort could be done. Within the health Education and Promotion framework, audiovisual materials, games, websites and a recorded interview with a person that suffers from schizoaffective disorder were used, since they are resources that have shown to be effective to reduce stigma (Tippin & Maranzan, 2019; Williams et al., 2021); in addition, it seems like the latter is the one that has made it possible to obtain better results (Corrigan et al., 2012; Fong & Mak, 2022). The activity was performed in the educational centre and was structured in two big blocks "stigma" and "psychoeducation in psychosis". The contents covered included: stigma (definition, causes and consequences; reflection and eradication), risk factors related to mental disorders, conflict resolution, substance abuse prevention, early detection of alarm symptoms, referral to specialised services, treatment (pharmacological and non-pharmacological), recovery in school, altogether with group dynamics. Its approximate duration was 3 hours in total, divided in three sessions (one each week).

The intervention was structured from August to December 2021 and was implemented at the end of February 2022.

2.7. Data Analysis

All statistical analyses were performed with IBM SPSS Statistics version 23. The level of significance was established with a p value of ≤ 0.05 and a confidence index of 95%.

Univariate analysis. The baseline sociodemographic and clinical features of the group were described using measures of central tendency for quantitative variables, and total frequency table and percentage for categorical variables.

Bivariate analysis. The parametric statistic Pearson's Correlation was used to analyse the correlation between two quantitative variables: The degree of relation was established with the following criterion: r higher than 0.5 (strong correlation), r between 0.5 and 0.25 (moderate correlation) and r lower than 0.5 (weak correlation).

The Wilcoxon test was used to assess the effectiveness of the intervention.

3. Results

3.1. Characteristics of Patients

A total of 22 participants (18% men and 82% women) were recruited for this study and completed the pre and post intervention questionnaires. The sample profile was mostly a woman aged 47.96 ± 10.12 years, with undergraduate studies and an experience of 18.64 ± 10.34 years. The rest of demographic characteristics are detailed in Table 1.

Table 1. Sociodemographic data of the sample.

Variable	%	Fa
Sex		
Male	18,2	4
Female	81,8	18
Age (years)		
Range (mean)	25-63 (47,86)	
Population		
Castellon	0	0
Valencia	100	22
Alicante	0	0
Offsprings		

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 14 September 2023 doi:10.20944/preprints202309.0928.v1

0	27,3	6
1	36,4	8
2	27,3	6
3	9,1	2
Level of studies		
Bachelor's degree / Licentiate degree	50	11
Master's degree	9,1	2
Doctoral degree	27,3	6
Others	13,6	3
Subject		
Sciences	45,5	10
Humanities / arts	9,1	2
Others	45,5	10
Professional experience		
Range (mean)	1-34 (18,64)	

3.2. Means of the Pre and Post Intervention AQ-27 Scores

Table 2 shows the means obtained of each stigmatising attitude, identifying "Coercion" as the predominant stigmatising variable before and after the intervention. It also shows the results of the p-values obtained in the Wilcoxon Test among the mean scores of each stigmatising attitude that comprises the AQ-27 scale before and after intervention.

It is observed that there are statistically significant differences in all stigmatising variables (in other words, these differences are not attributed to fortuity) except for "Responsibility".

Table 2. Correlations of the AQ-27 variable pre and post intervention. Wilcoxon Test.

Variable	Range	Mean	SD	Wilcoxon (p-value)
Responsibility pre	1-9	2,75	1,61	0,56
Responsibility post	1-9	2,95	1,13	
Pity pre	1-9	6,09	1,82	0,4
Pity post	1-9	6,20	1,33	
Anger pre	1-9	2,49	1,72	0,001*
Anger post	1-9	1,47	0,65	
Help pre	1-9	7, 19	1,79	0,002*
Help post	1-9	8,09	1,30	
Danger pre	1-9	3,08	1,40	0,001*
Danger post	1-9	2,10	1,17	
Fear pre	1-9	2,62	1,66	0,003*
Fear post	1-9	1, 84	1,13	
Segregation pre	1-9	2,10	0,92	0,037*
Segregation post	1-9	1,56	0,82	
Avoidance pre	1-9	4,00	2,08	0,031*
Avoidance post	1-9	2,85	1,80	

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 14 September 2023 doi:10.20944/preprints202309.0928.v1

Coercion pre	1-9	6,62	3,22	0,002*
Coercion post	1-9	5,26	3,90	

*p<0.05.

3.3. Correlations "Age" – "AQ-27 Pre Intervention" and "Experience" – "AQ-27 Pre Intervention"

These correlations can be seen in Table 3, with a statistically significant and inversely proportional relation, moderate in nature, between "Age" and "Fear", that is to say, the older the sample, the less fearful they are of people with mental disorders. This result coincides with the correlation between "Professional experience" and "AQ-27 pre intervention" (Table 4).

Table 3. Correlations between the variables "Age" and "AQ-27 pre intervention".

Variable	Range	Mean	SD	r	p-value
Age	25-63	47,86	10,12	0,28	0,2
Responsibility pre	1-9	2,75	1,61		
Age	25-63	47,86	10,12	-0,163	0,482
Pity pre	1-9	6,1	1,82		
Age	25-63	47,86	10,12	-0,140	0,545
Anger pre	1-9	2,49	1,72		
Age	25-63	47,86	10,12	-0,187	0,417
Danger pre	1-9	3,08	1,40		
Age	25-63	47,86	10,12	-0,484	0,026*
Fear	1-9	2,62	1,66		
Age	25-63	47,86	10,12	-0,272	0,233
Help	1-9	7,19	1,79		
Age	25-63	47,86	10,12	-0,086	0,709
Coercion	1-9	6,62	3,22		
Age	25-63	47,86	10,12	0,149	0,520
Avoidance	1-9	4,0	2,08		
Age	25-63	47,86	10,12	-0,55	0,812
Segregation	1-9	2,1	0,92		

*p<0.05.

Table 4. Correlations between the variable "Professional experience" and "AQ-27 pre intervention".

Variable	Range	Mean	SD	r	p-value
Experience	1-34	47,86	18,64	0,268	0,240
Responsibility pre	1-9	2,75	1,61		
Experience	1-34	47,86	18,64	-0,201	0,383
Pity pre	1-9	6,1	1,82		
Experience	1-34	47,86	18,64	-0,121	0,601
Anger pre	1-9	2,49	1,72		

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 14 September 2023 doi:10.20944/preprints202309.0928.v1

Experience	1-34	47,86	18,64	-0,200	0,384
Danger pre	1-9	3,08	1,40		
Experience	1-34	47,86	18,64	-0,460	0,036*
Fear	1-9	2,62	1,66		
Experience	1-34	47,86	18,64	-0,324	0,153
Help	1-9	7,19	1,79		
Experience	1-34	47,86	18,64	-0,179	0,437
Coercion	1-9	6,62	3,22		
Experience	1-34	47,86	18,64	0,211	0,359
Avoidance	1-9	4,0	2,08		
Experience	1-34	47,86	18,64	-0,001	0,998
Segregation	1-9	2,1	0,92		

*p<0.05.

3.4. Correlations of "Psychosis Test" – "Age" and "Psychosis Test" – "Professional Experience"

As seen in Table 5, as age and professional experience increase, knowledge on psychosis decreases. Result with no statistical significance.

Table 5. Correlations of "Psychosis test", "Age" and "Professional experience".

Variable	Range	Mean	r	p-value
Psychosis test	0-10	4,89	-0,23	0,3
Age	18-75	47,86		
Psychosis test	0-10	4,89	-0,17	0,4
Professional experience	1-60	18,64		

3.5. Psychosis Test

The mean score obtained before the intervention was 4.89 out of 10. Table 6 shows correlations between "Psychosis test" and "AQ-27 pre intervention". The statistically significant and directly proportional relation between knowledge on psychosis and the item "Help" is highlighted.

Table 6. Correlations of "AQ-27 pre intervention" and "Psychosis".

Variable	Range	Mean	r	p-value
Psychosis test	0-10	4,89	-0,273	0,258
Responsibility pre		2,75		
Psychosis test	0-10	4,89	-0,056	0,819
Pity pre	1-9	6,1		
Psychosis test	0-10	4,89	-0,197	0,420
Anger pre	1-9	2,49		
Psychosis test	0-10	4,89	-0,286	0,235
Danger pre	1-9	3,08		
Psychosis test	0-10	4,89	-0,217	0,371

 doi:10.20944/preprints202309.0928.v1

Fear	1-9	2,62		
Psychosis test	0-10	4,89	0,514	0,024*
Help	1-9	7,19		
Psychosis test	0-10	4,89	-0,176	0,472
Coercion	1-9	6,62		
Psychosis test	0-10	4,89	-0,295	0,220
Avoidance	1-9	4,0		
Psychosis test	0-10	4,89	-0,049	0,841
Segregation	1-9	2,1		

*p<0.05.

3.6. Course Rating

Table 10 points is shown in Table 7. There were no side effects.

Table 7. Scores of the satisfaction survey.

Contents	Methodology	Material	Evaluation	Overall	Teachers
8,5	9	8,5	8,7	9	9,2

3.7. Semi-Structured Interview

Since the end of the program, counsellors reported 11 cases referred to the health system, of which 9 required assessment and follow-up by the Child and Adolescent Mental Health Unit: 5 boys and 4 girls between 13 and 16 years due to behavioural alterations and anxious symptoms.

4. Discussion

For what is known, this is the first study that explores the effect of a psychoeducational programme on mental health and FEP aimed at teachers and counsellors in a secondary school in Spain. The outcomes showed that the intervention was useful for increasing knowledge on mental health and reducing the stigma associated with this type of population, given the statistically significant differences found in the average scores of the AQ-27 variables pre and post intervention.

This result could be explained by the approach of the programme in promotion and prevention of mental disorders, the implementation of group dynamics and the audiovisual sources used, since these are tools that have been scientifically endorsed by other stigma reduction programmes (İnan et al., 2019; Martin et al., 2020). However, in line with a similar study from 2021, it should be noted that the intervention had to be adapted prior to the schedule of the sample, making it impossible to randomly sampling participants and performing a posterior follow up (Rodríguez-Rivas et al., 2021).

It should be highlighted that, in the present study, the sample started from low levels of stigma, as opposed to Foster et al. (Foster et al., 2019), Masedo et al. (Masedo et al., 2021) and Tergesen et al. (Tergesen et al., 2021), in which high scores were found in all studied stigma dimensions. This difference may be due to the type of population that teachers treat (minors) in contrast with the adult population when it comes to previous studies (students and healthcare professionals).

However, the scores obtained in the "Pity", "Help" and "Coercion" subscales were in accordance with other studies (Fernandes et al., 2022; Frías et al., 2018). On the one hand, and taking into account the results of "Pity" and "Help", it could be suggested that teachers and counsellors empathise with the person suffering from a mental disorder and would be willing to help them; on the other hand, the results could indicate that our sample considers that these people are dependent and incapable of making decisions, and therefore would need help, in line with other research like the one from Hamilton et al. (Hamilton et al., 2016) and Eissa et al. (Eissa et al., 2020). In fact, the latter

 doi:10.20944/preprints202309.0928.v1

would coincide with other studies that suggested that nursing students prioritised the fulfilment of the medical treatment because they considered the person with a mental disorder to be incapable of making decisions regarding their own health and avoiding their participation in decision making, as Fernandes et al. (2022), Giral et al. (2019) and Beaulieu et al. (2017) suggest.

As for "Coercion", it should be noted that there were no high scores in other related subscales like "Danger", "Anger", "Fear", "Avoidance" or "Segregation", in contrast to what has been obtained in other studies (Corrigan P, 2018; Fernandes et al., 2022; Giralt et al., 2019). In our sample, this fact could be explained by different reasons: firstly, due to the scarce knowledge that our sample presented on psychosis in general, as the scores obtained in the Psychosis Test showed; and, secondly, due to the context of action in which our participants are, since they are responsible for the adolescents within the centre, and must comply with the parents' indications regarding medical issues (for example, knowing allergies and/or administering medication).

Although it is true that "coercion" continued to be the most stigmatising attitude after completing the programme, its statistically significant differences, along with the other items, stated that the contents of the programme were useful to work on this stigmatising attitude on this type of population, answering then to our research hypothesis.

That said, the only item against which the programme was not effective was "Responsibility"; that is to say, participants continued to believe that the person was responsible for the onset and maintenance of their illness. The study of Hunter et al. (Hunter et al., 2015), which was on the same line, suggested, altogether with Hinshaw (Hinshaw, 2009), to focus on the cause of the mental disorder in the recapitulation theory in order to increase empathy and decrease guilt (Fernandes et al., 2022). However, the paradigm used in this programme is "Vulnerability-stress" by Zubin and Spring (Zubin & Spring, 1977), since this multicausal model is the most accepted nowadays.

In any case, an opportunity to improve the scores obtained in this subscale would be adding specific material or performing a complementary programme that treated prevention and consequences of consumption of toxic substances, since we consider that these also present stigma and disinformation because it can cause substance-induced psychosis, but other factors like addiction and severity of consumption should be taken into account, as Fiorentini et al. (Fiorentini et al., 2021) state in their study.

Regarding the correlations performed, we find interesting to mention the statistically significant relation between age and work experience compared with "Fear", since it has been the only statistically significant negative variable, in contrast with that obtained in the study by Tooby and Cosmides (Tooby & Cosmides, 2015), in which "Fear" increased proportionally as age increased. Taking into account the scarce knowledge of the sample regarding psychosis and mental disorder, and that all scores of the AQ-27 subscales could be further reduced, we emphasise the importance of actively involving the healthcare and educational sectors in the needs and requests of adolescents regarding mental health (Chamorro et al., 2022; Fernandes et al., 2022; Ruiz et al., 2022; Saguem et al., 2023).

Even so, ahead of the severe consequences of stigma and the promising result of the programme (considering that counsellors have confirmed the practical application of this program by making an appropriate derivation) its performance is suggested as a mandatory and educational part of the curricular schedule of the centre. It would get both teachers and counsellors to increase their theoretical-practical knowledge on mental health, to acquire skills on handling possible difficult situations and even to develop the necessary skills to apply actions against stigma and early detection from the classrooms.

Strengths and Limitations

Since the study was carried out voluntarily in real life from La Ribera health department, it was not possible to randomise the participants, there could not be a control group and the sample could not be randomised given the prior need of planning lessons, and the intervention content had to be adapted to the available time of the sample, like in other studies (Jorm et al., 2010; Yamaguchi et al., 2020). However, its duration was similar to the one of other alphabetisation study about mental

health that also had promising outcomes (although related to depression) (Swartz et al., 2017) regardless of not being able to perform a posterior follow up from the centre, as has happened in similar researches (Yamaguchi et al., 2020).

We generally are satisfied with the results obtained with this programme due to the reduction of scores of the stigmatising attitudes. Together with the contribution of knowledge on mental health, the possibility that an alteration can be early identified and more positively approached by this population, this programme will directly impact health and recovery of the adolescent.

However, in order to make sure it happens, studies that include a larger number of participants and include a follow-up on stigma levels, psychosis knowledge and number of cases identified would be required. Other detected limitations were time and lack of research in compliance with our line of results.

Future Lines

Given the promising data of this Mental Health Nursing psychoeducational-type intervention, its performance in other educational centres is suggested, taking into account that the sample should be more homogeneous and representative, preferably scheduled within work hours and with the possibility to get further official certification. Perhaps this way the sample size can be increased. Or, indeed, adding this type of training to the curricular records of teachers and counsellors of the centre and give the option to do it both onsite and online.

The importance of performing a posterior follow-up of the clinical variables of interest must be emphasised to be able to answer if having knowledge on psychosis reduces the attribution stigma, as well as using other complementary scales to enrich the result obtained.

5. Conclusions

The impact of a nursing intervention on mental health stigma in teachers and counsellors of a secondary school was positive, given the statistically significant differences observed in the change of average scores on stigmatising attitudes of the AQ-27 scale pre and post intervention. The stigmatising attitude that prevailed in the sample before and after the intervention was “Coercion”. It was objectified that knowledge on psychosis before the intervention was scarce, which possibly influenced wrong psychosis beliefs. The correlations made have stated that, the older the person or the more experience in the sector, the lower is fear towards the mental disorder, and complementary qualitative studies should be carried out to learn more about why it does not happen on the rest of variables. Given the overall result of all scores obtained, including the satisfaction scale, we consider that the programme was helpful and feasible to alphabetise counsellors and teachers of educational centres on stigma and First-Episode Psychosis.

A funding statement: General Nursing Council and Nursing College of Valencia.

An ethics approval statement: Ethical approval was granted from the Ethics Committee - Research Commission of the pertinent Health Department [PI06072022]. All participants gave written permission for their anonymized data to be used for academic purpose.

Patient consent for publication statement: All participants gave written permission for their anonymized data to be used for academic purpose.

An acknowledgments statement: The authors would like to thank the teachers and counsellors for your willingness to participate and learn about your students' mental health.

A conflict of interest statement: There were no conflicts of interest with any person, company and/or institution that could affect the conduct of this research.

Clinical Relevance: There are adolescents who have suffered stigma from their teachers, and consequently have minimized the symptoms and have not asked for help. For this reason, we have implemented a nursing intervention, based on education and promotion of mental health with the aim of expanding knowledge and reducing stigma. In fact, this intervention, which we have carried out on high school teachers, has managed to reduce the majority of stigmatizing attitudes measured on the stigma attribution scale.

References

1. Amado-Rodríguez, I.D.; Casañas, R.; Mas-Expósito, L.; Castellví, P.; Roldan-Merino, J.F.; Casas, I.; Lalucat-Jo, L.; & Fernández-San Martín, M.I. (2022). Effectiveness of mental health literacy programs in primary and secondary schools: A systematic review with meta-analysis. *Children*, *9*, 480. https://doi.org/10.3390/children9040480
2. Beaulieu, T.; Patten, S.; Knaak, S.; Weinerman, R.; Campbell, H.; & Lauria-Horner, B. (2017). Impact of skill-based approaches in reducing stigma in primary care physicians: results from a double-blind, parallel-cluster, randomized controlled trial. *The Canadian Journal of Psychiatry*, *62*, 327–335. https://doi.org/10.1177/0706743716686919
3. Chamorro, A.; Aristizabal, E.; Hoyos de los Rios, O.; & Aguilar, D. (2022). Danger appraisal and pathogen-avoidance mechanisms in stigma towards severe mental illness: the mediating role of affective responses. *BMC Psychiatry*, *22*, 330. https://doi.org/10.1186/s12888-022-03951-x
4. Chang, K.C.; Chang, Y.H.; Yen, C.F.; Chen, J.S.; Chen, P.J.; Lin, C.Y.; Griffiths, M.D.; Potenza, M.N.; & Pakpour, A.H. (2022). A longitudinal study of the effects of problematic smartphone use on social functioning among people with schizophrenia: Mediating roles for sleep quality and self-stigma. *Journal of Behavioral Addictions*, *11*, 567–576. https://doi.org/10.1556/2006.2022.00012
5. Corrigan P. (2018). *The stigma effect: Unintended consequences of mental health campaigns*. Columbia University Press. https://psycnet.apa.org/record/2018-35597-000
6. Corrigan, P.; Morris, S.; Michaels, P.; Rafacz, J.; & Rüsch, N. (2012). Challenging the public stigma of mental illness: a meta-analysis of outcome studies. *Psychiatric Services*, *63*, 963–973. https://doi.org/10.1176/appi.ps.201100529
7. DeFreitas, S.C.; Crone, T.; DeLeon, M.; & Ajayi, A. (2018). Perceived and personal mental health stigma in Latino and African American college students. *Frontiers in Public Health*, *6*, 49. https://doi.org/10.3389/fpubh.2018.00049
8. Des Jarlais, D.C.; Lyles, C.; Crepaz, N.; & Group, T. (2004). Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: the TREND statement. *American Journal of Public Health*, *94*, 361–366. https://doi.org/10.2105/ajph.94.3.361
9. Drew, J.M.; & Martin, S. (2021). A national study of police mental health in the USA: stigma, mental health and help-seeking behaviors. *Journal of Police and Criminal Psychology*, *36*, 295–306. https://psycnet.apa.org/record/2021-11456-001
10. Eissa, A.M.; Elhabiby, M.M.; El Serafi, D.; Elrassas, H.H.; Shorub, E.M.; & El-Madani, A.A. (2020). Investigating stigma attitudes towards people with mental illness among residents and house officers: an Egyptian study. *Middle East Current Psychiatry*, *27*, 1–8. https://doi.org/10.1186/s43045-020-0019-2
11. Feixas i Viaplana, G.; Pucurull, O.; Roca, C.; Paz, C.; García Grau, E.; & Bados López, A. (2012). Satisfaction with the treatment received scale (CRES-4): the Spanish version. *Revista de Psicoterapia, 2012, Vol. 23, Num. 89, p. 51-58*. https://diposit.ub.edu/dspace/bitstream/2445/65891/1/637379.pdf
12. Fernandes, J.B.; Família, C.; Castro, C.; & Simões, A. (2022). Stigma towards People with Mental Illness among Portuguese Nursing Students. *Journal of Personalized Medicine*, *12*. https://doi.org/10.3390/jpm12030326
13. Fiorentini, A.; Cantù, F.; Crisanti, C.; Cereda, G.; Oldani, L.; & Brambilla, P. (2021). Substance-induced psychoses: an updated literature review. *Frontiers in Psychiatry*, *12*, 694863. https://doi.org/10.3389/fpsyt.2021.694863
14. Fong, T.H. C. C.; & Mak, W.W. S. S. (2022). The effects of internet-based storytelling programs (Amazing Adventure Against Stigma) in reducing mental illness stigma with mediation by interactivity and stigma content: Randomized controlled trial. *Journal of Medical Internet Research*, *24*, e37973. https://doi.org/10.2196/37973
15. Foster, K.; Withers, E.; Blanco, T.; Lupson, C.; Steele, M.; Giandinoto, J.; & Furness, T. (2019). Undergraduate nursing students' stigma and recovery attitudes during mental health clinical placement: A pre/post-test survey study. *International Journal of Mental Health Nursing*, *28*, 1068–1080. https://doi.org/10.1111/inm.12634
16. Frías, V.M.; Fortuny, J.R.; Guzmán, S.; Santamaría, P.; Martínez, M.; & Pérez, V. (2018). Stigma: the relevance of social contact in mental disorder. *Enfermeria Clinica*, *28*, 111–117. https://doi.org/10.1016/j.enfcli.2017.05.007
17. Generalitat Valenciana. (2016). *AUTONOMIC MENTAL HEALTH STRATEGY 2016-2020*. https://www.san.gva.es/documents/156344/6700482/Estrateg%C3%ADa+Auton%C3%B3mica+de+Salud+mental+2016+2020+.pdf
18. Generalitat Valenciana. (2019). *Guide to Prevention and Promotion of Mental Health in the Classroom*. https://www.ptonline.com/articles/how-to-get-better-mfi-results
19. Geng, H.; Chuang, D.; Yang, F.; Yang, Y.; Liu, W.; Liu, L.; & Tian, H. (2018). Prevalence and determinants of depression in caregivers of cancer patients: A systematic review and meta-analysis. *Medicine*, *97*. https://doi.org/10.1097/MD.0000000000011863

20. Giralt, R.; Prat, G.; & Tort, G. (2019). Attitudes and stigma toward mental health in nursing students: A systematic review. *Perspectives in Psychiatric Care*, *56*, 243–255. https://doi.org/10.1111/ppc.12419
21. Gronholm, P.C.; Henderson, C.; Deb, T.; & Thornicroft, G. (2017). Interventions to reduce discrimination and stigma: the state of the art. *Social Psychiatry and Psychiatric Epidemiology*, *52*, 249–258. https://doi.org/10.1007/s00127-017-1341-9
22. Hamilton, S.; Pinfold, V.; Cotney, J.; Couperthwaite, L.; Matthews, J.; Barret, K.; Warren, S.; Corker, E.; Rose, D.; & Thornicroft, G. (2016). Qualitative analysis of mental health service users' reported experiences of discrimination. *Acta Psychiatrica Scandinavica*, *134*, 14–22. https://doi.org/10.1111/acps.12611
23. Hinshaw, S.P. (2009). *The mark of shame: Stigma of mental illness and an agenda for change*. Oxford University Press.
24. Holder, S.M.; Peterson, E.R.; Stephens, R.; & Crandall, L.A. (2019). Stigma in mental health at the macro and micro levels: Implications for mental health consumers and professionals. *Community Mental Health Journal*, *55*, 369–374. https://doi.org/10.1007/s10597-018-0308-y
25. Hunter, L.; Weber, T.; Shattell, M.; & Harris, B.A. (2015). Nursing students' attitudes about psychiatric mental health nursing. *Issues in Mental Health Nursing*, *36*, 29–34. https://doi.org/10.3109/01612840.2014.935901
26. İnan, F.; Günüşen, N.; Duman, Z.; & Ertem, M. (2019). The Impact of Mental Health Nursing Module, Clinical Practice and an Anti-Stigma Program on Nursing Students' Attitudes toward Mental Illness: A Quasi-Experimental Study. *Journal of Professional Nursing : Official Journal of the American Association of Colleges of Nursing*, *35*, 201–208. https://doi.org/10.1016/j.profnurs.2018.10.001
27. Jorm, A.F.; Kitchener, B.A.; Sawyer, M.G.; Scales, H.; & Cvetkovski, S. (2010). Mental health first aid training for high school teachers: a cluster randomized trial. *BMC Psychiatry*, *10*, 1–12. https://doi.org/10.1186/1471-244X-10-51
28. Lin, C.-Y.; & Tsang, H. (2020). Stigma, health and well-being. *International Journal of Environmental Research and Public Health*, *17*, 7615. https://doi.org/10.3390/ijerph17207615
29. Ma, H.-I.; & Hsieh, C.-E. (2020). An anti-stigma course for occupational therapy students in taiwan: development and pilot testing. *International Journal of Environmental Research and Public Health*, *17*, 5599. https://doi.org/10.3390/ijerph17155599
30. Martin, A.; Krause, R.; Jacobs, A.; Chilton, J.; & Amsalem, D. (2020). The Mental Status Exam Through Video Clips of Simulated Psychiatric Patients: an Online Educational Resource. *Academic Psychiatry : The Journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*, *44*, 179–183. https://doi.org/10.1007/s40596-019-01140-9
31. Masedo, A.; Grandón, P.; Saldivia, S.; Vielma-Aguilera, A.; Castro-Alzate, E.S.; Bustos, C.; Romero-López-Alberca, C.; Pena-Andreu, J.M.; Xavier, M.; & Moreno-Küstner, B. (2021). A multicentric study on stigma towards people with mental illness in health sciences students. *BMC Medical Education*, *21*, 1–11. https://doi.org/10.1186/s12909-021-02695-8
32. Millan, M.; Andrieux, A.; Bartzokis, G.; Cadenhead, K.; Dazzan, P.; Fusar-Poli, P.; Gallinat, J.; Giedd, J.; Grayson, D.; Heinrichs, M.; Kahn, R.; Krebs, M.-O.; Leboyer, M.; Lewis, D.; Marin, O.; Marin, P.; Meyer-Lindenberg, A.; McGorry, P.; McGuire, P.; … Weinberger, D. (2016). Altering the course of schizophrenia: progress and perspectives. *Nature Reviews Drug Discovery*, *15*, 485–515. https://doi.org/10.1038/nrd.2016.28
33. Ministry of Health. (2022). *Mental Health Strategy of the National Health System. Period 2022-2026*. https://www.sanidad.gob.es/bibliotecaPub/repositorio/libros/29236_estrategia_de_salud_mental_del_Sistema_Nacional_de_Salud_2022-2026.pdf
34. Muñoz, M.; Guillén, A.I.; Pérez-Santos, E.; & Corrigan, P.W. (2015). A structural equation modeling study of the Spanish Mental Illness Stigma Attribution Questionnaire (AQ-27-E). *American Journal of Orthopsychiatry*, *85*, 243–249. https://doi.org/10.1037/ort0000059
35. Pardo-de-Santayana, G.; Vázquez-Bourgon, J.; Gómez-Revuelta, M.; Ayesa-Arriola, R.; Ortiz-Garcia de la Foz, V.; Crespo-Facorro, B.; & Pelayo-Terán, J.M. (2020). Duration of active psychosis during early phases of the illness and functional outcome: The PAFIP 10-year follow-up study. *Schizophrenia Research*, *220*, 240–247. https://doi.org/10.1016/j.schres.2020.03.009
36. Rodríguez-Rivas, M.E.; Cangas, A.J.; & Fuentes-Olavarría, D. (2021). Controlled Study of the Impact of a Virtual Program to Reduce Stigma Among University Students Toward People With Mental Disorders. *Frontiers in Psychiatry*, *12*, 632252. https://doi.org/10.3389/fpsyt.2021.632252
37. Ruiz, J.; Fuentes-Durá, I.; López-Gilberte, M.; Dasí, C.; Pardo-García, C.; Fuentes-Durán, M.C.; Pérez-González, F.; Salmeron, L.; Soldevila-Matías, P.; Vila-Francés, J.; & Balanza-Martínez, V. (2022). Public stigma profile toward mental disorders across different university degrees in the University of Valencia (Spain). *Frontiers in Psychiatry*, *13*. https://doi.org/10.3389/fpsyt.2022.951894
38. Saguem, B.N.; Ouanes, S.; Rhouma, A.; & Nakhli, J. (2023). Effectiveness of an educational program for reducing mental illness stigma targeting family medicine trainees in Tunisia: A quasi-experimental study. *Applied Psychology. Health and Well-Being*, *15*, 686–704. https://doi.org/10.1111/aphw.12405

39. Sawyer, S.M.; Azzopardi, P.S.; Wickremarathne, D.; & Patton, G.C. (2018). The age of adolescence. *The Lancet. Child & Adolescent Health*, *2*, 223–228. https://doi.org/10.1016/S2352-464230022-1
40. Schulze, L.N.; Klinger-König, J.; Stolzenburg, S.; Wiese, J.; Speerforck, S.; Van der Auwera-Palitschka, S.; Völzke, H.; Grabe, H.J.; & Schomerus, G. (2020). Shame, self-identification with having a mental illness, and willingness to seek help in northeast Germany. *Psychiatry Research*, *285*, 112819. https://doi.org/10.1016/j.psychres.2020.112819
41. Sickel, A.E.; Seacat, J.D.; & Nabors, N.A. (2019). Mental health stigma: Impact on mental health treatment attitudes and physical health. *Journal of Health Psychology*, *24*, 586–599. https://doi.org/10.1177/1359105316681430
42. Swartz, K.; Musci, R.J.; Beaudry, M.B.; Heley, K.; Miller, L.; Alfes, C.; Townsend, L.; Thornicroft, G.; & Wilcox, H.C. (2017). School-Based Curriculum to Improve Depression Literacy Among US Secondary School Students: A Randomized Effectiveness Trial. *American Journal of Public Health*, *107*, 1970–1976. https://doi.org/10.2105/AJPH.2017.304088
43. Tamayo, A.; Elías, Y.; Coto, T.; & Sánchez, Y. (2021). Risk factors associated with suicide attempt in adolescents. Pediatric Intensive Care Unit. 2018-2019. *Multimed*, *25*. https://www.medigraphic.com/cgi-bin/new/resumenI.cgi?IDARTICULO=109487
44. Tejado, L. de A.; Martín, M.V. A.; & Quintero, J. (2022). Mental health in adolescence (II). Psychosis and bipolar disorder. *Medicine (Spain)*, *13*, 3590–3599. https://doi.org/10.1016/j.med.2022.08.002
45. Tergesen, C.L.; Gurung, D.; Dhungana, S.; Risal, A.; Basel, P.; Tamrakar, D.; Amatya, A.; Park, L.P.; & Kohrt, B.A. (2021). Impact of Service User Video Presentations on Explicit and Implicit Stigma toward Mental Illness among Medical Students in Nepal: A Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, *18*, 2143. https://doi.org/10.3390/ijerph18042143
46. Tippin, G.K.; & Maranzan, K.A. (2019). Efficacy of a Photovoice-based video as an online mental illness anti-stigma intervention and the role of empathy in audience response: A randomized controlled trial. *Journal of Applied Social Psychology*, *49*, 381–394. https://doi.org/10.1111/jasp.12590
47. Tooby, J.; & Cosmides, L. (2015). Conceptual foundations of evolutionary psychology. *The Handbook of Evolutionary Psychology*, 5–67. https://psycnet.apa.org/record/2005-08200-001
48. Walsh, D.A. B.; & Foster, J.L. H. (2021). A Call to Action. A Critical Review of Mental Health Related Anti-stigma Campaigns. *Frontiers in Public Health*, *8*, 990. https://doi.org/10.3389/fpubh.2020.569539
49. Weiner, B.; Perry, R.P.; & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology*, *55*, 738–748. https://doi.org/10.1037/0022-3514.55.5.738
50. Williams, T.; Salmonsen, J.; & Mizock, L. (2021). *Webinar Intervention Research to Reduce Stigma Using a Pre–Post Research Design*. SAGE Publications Ltd. https://doi.org/10.4135/9781529764130
51. World Health Organization. (2013). *Mental health action plan 2013-2020*. https://www.who.int/publications/i/item/9789241506021
52. Yamaguchi, S.; Foo, J.C.; Nishida, A.; Ogawa, S.; Togo, F.; & Sasaki, T. (2020). Mental health literacy programs for school teachers: A systematic review and narrative synthesis. *Early Intervention in Psychiatry*, *14*, 14–25. https://doi.org/10.1111/eip.12793
53. Yin, H.; Wardenaar, K.J.; Xu, G.; Tian, H.; & Schoevers, R.A. (2020). Mental health stigma and mental health knowledge in Chinese population: a cross-sectional study. *BMC Psychiatry*, *20*, 323. https://doi.org/10.1186/s12888-020-02705-x
54. Zubin, J.; & Spring, B. (1977). Vulnerability--a new view of schizophrenia. *Journal of Abnormal Psychology*, *86*, 103–126. https://doi.org/10.1037//0021-843x.86.2.103