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Original Article

# Impact of an intervention on stigma in mental health and intergroup anxiety

## Impacto de uma intervenção no estigma em saúde mental e ansiedade intergrupal

## Impacto de una intervención sobre el estigma en salud mental y ansiedad intergrupal

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## Abstract

**Objective:** To assess the effectiveness of an intervention to reduce stigmatizing attitudes and anxiety towards people with mental illness among nursing students.

**Methods:** This was a quasi-experimental study including an intentional sample of 99 nursing students from university of Central Portugal. In the control group, students developed the clinical teaching plan in mental health and psychiatric nursing in psychiatric health services, according to the syllabus (n=50). In the experimental group, in addition to complying with the syllabus, the students participated in a psychoeducational program oriented towards stigma (n=49). To assess stigma, the Portuguese versions of *Mental Illness: Clinicians' Attitudes Scale* (MICA-4) and AQ27 were used; and to measure intergroup anxiety, the *Intergroup Anxiety Scale* (IAS).

**Results:** The sample presents homogeneous variables in the initial time (p>0.05), with statistically significant improvement of stigmatizing attitudes and reduction of anxiety towards people with mental illness in both studied groups (p<0.005). The impact of the intervention was not significant, the experimental group improved stigmatizing attitudes regarding fear (p=0.03) and the ones regarding help had worsened (p= 0.04).

**Conclusion:** We verified a positive impact of clinical teaching in the reduction of anxiety towards people with mental illness, which led to a reduction of stigma associated to mental health. The intervention oriented towards stigma did not reveal significant effects concerning global stigma, nor intergroup anxiety, which showed the future necessity of its reformulation and comparison with samples of students from other nursing universities.

## Resumo

**Objetivo:** Avaliar a eficácia de uma intervenção na redução das atitudes estigmatizantes e ansiedade perante o doente mental em estudantes de enfermagem.

**Métodos:** Estudo quase experimental, realizado com uma amostra intencional de 99 estudantes de enfermagem de um instituto universitário da região centro de Portugal. No grupo de controlo, os estudantes desenvolveram o plano de ensino clínico em Enfermagem de saúde mental e psiquiátrica em serviços de psiquiatria, conforme o plano de estudos (n=50). No grupo de teste, além de cumprirem o plano de estudos, os estudantes participaram de um programa psicoeducativo dirigido ao estigma (n=49). Utilizaram-se as versões portuguesas da *Mental Illness: Clinicians' Attitudes Scale* (MICA-4) e AQ27 para avaliação do estigma e a *Intergroup Anxiety Scale* (EAI) para medir a ansiedade intergrupal.

**Resultados:** A amostra apresenta homogeneidade de variáveis no momento inicial (p>0,05), com melhorias estatisticamente significativas das atitudes estigmatizantes e redução da ansiedade perante o doente mental em ambos os grupos (p<0,005). O impacto da intervenção não foi significativo, tendo o grupo de teste melhorado as atitudes estigmatizantes de medo (p=0,03) e piorado relativamente à ajuda (p= 0,04).

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**Conflicts of interest:** none to report.

Conclusão: Verificou-se um impacto positivo do ensino clínico na redução da ansiedade perante o doente mental, conduzindo a uma redução do estigma em saúde mental. A intervenção dirigida ao estigma não revelou efeitos significativos no estigma global nem na ansiedade intergrupal o que aponta para a necessidade futura da sua reformulação e comparação com amostras de estudantes de outras instituições de ensino de enfermagem.

## Resumen

Objetivo: Evaluar la eficacia de una intervención en la reducción de actitudes estigmatizantes y ansiedad ante la persona con enfernedad mental en estudiantes de Enfermería.

Métodos: Se trata de un estudio cuasi experimental, realizado con un muestreo intencional de 99 estudiantes de Enfermería de un instituto universitario de la región centro de Portugal. En el grupo de control, los estudiantes realizaron el plan de enseñanza clínica en enfermería de salud mental y psiquiátrica en servicios de psiquiatría, de acuerdo con el plan de estudios (n=50). En el grupo experimental, además de cumplir con el plan de estudios, los estudiantes participaron en un programa psicoeducativo orientado al estigma (n=49). Se utilizaron las versiones portuguesas de la *Mental Illness: Clinicians' Attitudes Scale* (MICA-4) y AQ27 para evaluar el estigma y la *Intergroup Anxiety Scale* (EAI) para medir la ansiedad intergrupal.

Resultados: La muestra presentó homogeneidad de variables en el momento inicial (p>0,05), con mejoras estadísticamente significativas de las actitudes estigmatizantes y reducción de la ansiedad ante la persona con enfermedad mental en ambos grupos (p>0,005). El impacto de la intervención no fue significativo: el grupo experimental mejoró las actitudes estigmatizantes de miedo (p=0,03) y empeoró relativamente la ayuda (p=0,04).

Conclusión: Se verificó un impacto positivo de la enseñanza clínica en la reducción de la ansiedad ante la persona con enfermedad mental, lo que lleva a una reducción del estigma en salud mental. La intervención orientada al estigma no reveló efectos significativos en el estigma global ni en la ansiedad intergrupal, lo que advierte la necesidad futura de su reformulación y comparación con muestras de estudiantes de otras instituciones educativas de Enfermería.

## Introduction

Stigma towards mental illness is still a current issue with consequences for everyone involved, whether they are patients, family or health professionals. There is a strong relationship between the reduction of stigma and the promotion of positive attitudes towards people with mental illness.[1] For health professionals, this phenomenon becomes a problem, since their stigmatizing attitudes, often based on myths and beliefs deeply-rooted and spread, have a greater impact than to those from the rest of the population.[2,3] This stigma represents an important barrier to the access to mental health care, and has an impact on the perception and acceptance of the illness among health providers.[4-6]

Sometimes nursing students have negative attitudes and poor knowledge about mental illness, which may continue even after graduation, and such facts may have an impact on practice of these future professionals.[2] Nursing syllabuses should include programs for stigma awareness and its consequences, since this period is adequate to change attitudes towards mental illness stigma.[2,7,8]

Students' stigmatizing attitudes tend to decrease after interaction with mental health services and professionals.[4] Different authors mention education and contact as two of the most effective strategies against stigma.[4,5,8-10] Many interventions that have been carried out to connect education with contact have shown results concerning the improvement of stigmatizing attitudes towards people with mental illness, especially if there is some kind of integration of both strategies, therefore, aiming to promote self-reflection and personal development.[8,11-13,14]

The educational component in this kind of intervention becomes more effective if the information transmitted is as factual as possible, and by adoption of interesting, clear and simple educational strategies.[12] The effectiveness of the contact depends on its quality and on other factors such as emotional burden, attitudes towards stigma and monitoring during the contact,[10] in which the attitude of nurses during the contact with people with mental illness as they play the role of nursing students supervisors is fundamental.[13]

One of the emotions that students describe before starting clinical teaching in mental health area is anxiety, along with fear, agitation and rejection that are feelings partly related with myths, stereotypes, negative attitudes and lack of knowledge or preconceived beliefs about possible aggressive incidents that they may face.[13,15] As a way to mitigate or fight against these emotions, students should have a previous contact with the professional activity and receive training and specific instructions about this subject, mainly in clinical teaching scenarios.[15] There are few studies conducted in Portugal about the impact of interven-

tion oriented towards stigma in clinical scenarios, even though there is evidence that shows the existence of stigma and negative emotions such as anxiety, among students.[1,14-17] Some experiences in the United Kingdom demonstrated the effectiveness of interventions oriented towards stigma, such as *Responding to Experienced and Anticipated Discrimination (READ training)* in the reduction of anxiety and stigmatizing attitudes in clinical scenarios with medicine school students.[16]

The aim of this study is to assess the effectiveness of an intervention to reduce stigmatizing attitudes and anxiety towards people with mental illness among nursing students. Our hypotheses were: (H1) Is there a significant reduction of the level of stigmatizing attitudes and intergroup anxiety among students between the first and second time of the assessment?; (H2) Are there significant differences in the level of stigma and intergroup anxiety among the students of the experimental group compared with the control group?

## Methods

This was a quasi-experimental study, with a before-and-after design, that included third year nursing undergraduate students who were attending nursing clinical teaching in mental and psychiatric health acute-care services in hospitals of Central Portugal, between March 2016 and June 2019.

Students eligible for the research were those enrolled in nursing clinical teaching in mental and psychiatric health in the higher education institution where the study took place within the stipulated period (n=165). The participants were students aged 18 or older, who were from Portuguese nationality, and accepted to participate in the study. Students participating in mobility or exchange programs nationally or internationally were excluded. All students that accepted to participate in the research signed the informed consent form. The recruitment was conducted in stages in every academic year before starting clinical teaching.

The study was developed in hospitals where clinical teaching occurred. All institutions followed the research ethical standards. The study was approved by the National Commission for Data Protection and by the Ethics Committee of the Hospital where study was conducted, under the respective numbers: 11816/2016 and CE-nº 27/16.

Students were divided into two groups: a control group (CG) made up by students who fully accomplished the clinical teaching plan according to the syllabus of nursing undergraduate program; and an the experimental group (EG) including students who, besides accomplishing the syllabus, also had participated in a psychoeducational intervention oriented towards stigma designed for that context and target public.

Data collection occurred before starting clinical teaching and on the last day of completion. The instruments were applied by independent research assistants. The interview occurred in a separate room to preserve privacy and anonymity.

Four instruments were implemented in both stages of the research to collect data. The first questionnaire was comprised of clinical sociodemographic questions including age, gender, marital status, and with who participants lived with. There were also questions regarding the perception of knowledge and stigma towards mental illness (0=none; 10=excellent / Total). For the second instrument, the Portuguese version of *Mental Illness: Clinicians' Attitudes Scale* (MICA-4) was used to determine the stigma of health students regarding mental illness. This instrument included 16 items in a *Likert* scale type, scoring from 1 – Strongly agree to 6 – Strongly disagree,[18] with a scale variation from 16 to 96, where high scores correspond to more stigmatizing attitudes. The third instrument was the Portuguese version of the *Attribution Questionnaire* (AQ-27)[19,20] to assess social stigma and stigmatizing attitudes of students. AQ-27 is comprised of a clinical vignette about mental health and 27 items with *Likert type answers* (1 to 9) to classify stigma in nine dimensions: Responsibility, Pity, Angry, Dangerous, Fear, Help, Coercion, Segregation, Avoidance.[20] Higher punctuation represents greater stigma towards people with mental illness, and each of the dimensions vary from 3 to 27 points. The *Intergroup Anxiety Scale* (IAS) was the fourth

instrument used to assess the anxiety experienced by students in group relationships with people with mental illness and their consequences in the relationships through self-report.[21] The scale included 12 items that reflect different anxiety states in three components: affective, cognitive, and behavioral, scoring 0 to 4 (0=none to 4=extreme). The scoring of positive emotions was reversed for the final score (0 to 48 points), where high scoring corresponded to higher levels of intergroup anxiety.[21]

The psychoeducational program for nursing students was the result of the benchmarking of the intervention developed within the project INDIGO led by Professor Dr Graham Thornicroft from *King's College of London*.[22] Taking *READ* intervention as a reference, it was adapted to the institution's culture, considering the results of previous research including nursing students.[23,24] The planning of the intervention had the authorization and the scientific supervision of Professor Dr Claire Henderson. The intervention program was developed by the researcher with specialized training in mental health and psychiatric nursing at three meetings. The first meeting was focused on addressing concepts, stigma topics and health professionals. The second meeting was dedicated to the identification, recognition and acting towards stigmatizing situations and its consequences. The last meeting was focused on reflection, debate and discussion about the measures of action towards stigmatizing situations. Pedagogical strategies included presentation of contents, field work, group discussion, role-play, and video analysis and discussion. In all meeting the students active participation was encouraged, allowing them to express their feelings, doubts and concerns

The program *SPSS* 24.0 was used for data analysis, which consisted of descriptive analyses, absolute and relative frequencies for nominal variables, and measures of position (mean) and of variability (standard deviation) for continuous variables. Parametric tests were used for hypotheses tests, assuming normality by application of central limit theorem: Student's *t* test was conducted to compare variables in the two times of evaluation, and Pearson's correlation test was used for continuous variables. Mann-Whitney test was used to analyze the differences in non-continuous variables. The level of significance adopted was 0.05.[25,26]

## Results

A total of 49 students made up the experimental group and 50 were part of the control group. Sociodemographic characteristics of both groups have no statistical differences, excepted for the concerning towards people with mental illness, although there was no difference concerning the intergroup anxiety (Table 1).

Of the 99 nursing students in the sample, 88 (88.9%) were female, aged between 20 and 40 years old (mean = 21.98, ± 3.414), and they were mainly single (96; 97.0%).

In the initial evaluation, students showed, on average, a low self-perception of stigma (3.01 ± 1.776), with mean/low values of stigma when evaluated with MICA-4-PT (35.52 ± 6.899). Help and Pity were the attitudes that revealed more stigma, followed by Coercion (table 1). In terms of intergroup anxiety, the results were satisfactory (2.22 ± 0.521). Strangeness (1.17, ± 0.915) and Apprehension (1.35, ± 0.719) were not much mentioned, and Unconcerning (3.41, ± 0.833) and Relaxing (3.28, ± 0.821) were the feelings that most contributed to intergroup anxiety among the students.

To test hypothesis 1, the difference between the two times of evaluation was analyzed using the *t*-test for matched samples, comparing the means of the variables analyzed in the two times in both groups (Table 2). A significant reduction of self-perceived stigma was verified and measured through MICA-4 in both groups. The dimensions Help and Coercion that increased the means in the second time were an exception, and were statistically significant in the experimental group. Fear (mean difference=2.959) and danger dimensions revealed greater mean differences between the first and second evaluation, mainly in the experimental group. In the second time, a reduction in the students' level of intergroup anxiety towards people with mental illness was observed, which was significant in all the feelings of the experimental group students.

**Table 1.** Characterization of control and experimental groups at the initial time (before intervention)

| | | Total sample | | Experimental group | | Control group | | Difference among groups | |
|---|---|---|---|---|---|---|---|---|---|
| | | n(%) | | n(%) | | n(%) | | *U** | *p-value* |
| Gender | Female | 88(88.9) | | 42(85.7) | | 46(92.0) | | -0.990 | 0.326 |
| | Male | 11(11.1) | | 7(14.3) | | 4(8.0) | | | |
| Marital status | Single | 96(97.0) | | 47(95.9) | | 49(98.0) | | -0.601 | 0.548 |
| | Married / Civil union | 3(3.0) | | 2(4.1) | | 1(2.0) | | | |
| Suffer from mental illness | Yes | 20(6.9) | | 7(14.3) | | 7(14) | | -0.41 | 0.968 |
| | No | 235(81.6) | | 42(85.7) | | 43(86) | | | |
| | | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation | *t** | *p-value* |
| Age | | 21.98 | 3,414 | 22.43 | 4.005 | 21.54 | 2.682 | 1.299 | 0.197 |
| Perception of stigma level | | 3.01 | 1,776 | 2.47 | 1.515 | 2.38 | 1.602 | 0.285 | 0.776 |
| Mental health stigma (MICA-4) | | 32.52 | 6,899 | 32.37 | 6.963 | 32.66 | 6.903 | -0.210 | 0.834 |
| Mental health stigma (AQ-27) | Responsibility | 8.78 | 3,086 | 8.51 | 3.130 | 9.04 | 3.050 | -0.853 | 0.396 |
| | Pity | 14.70 | 4,925 | 14.55 | 5.120 | 14.84 | 4.774 | -0.291 | 0.772 |
| | Anger | 7.35 | 3,541 | 7.49 | 3.489 | 7.22 | 3.621 | 0.377 | 0.707 |
| | Dangerousness | 8.45 | 4,074 | 8.10 | 3.687 | 8.80 | 4.431 | -0.851 | 0.397 |
| | Fear | 8.45 | 4,381 | 8.20 | 4.238 | 8.70 | 4.546 | -0.561 | 0.576 |
| | Help | 21.95 | 4,441 | 22.37 | 4.091 | 21.54 | 4.765 | 0.926 | 0.357 |
| | Coercion | 13.68 | 3,719 | 13.65 | 3.655 | 13.70 | 3.819 | -0.062 | 0.950 |
| | Segregation | 6.58 | 3,637 | 6.08 | 3.297 | 7.06 | 3.914 | -1.344 | 0.182 |
| | Avoidance | 10.63 | 5,585 | 10.69 | 5.459 | 10.56 | 5.761 | 0.119 | 0.906 |
| Intergroup anxiety | TOTAL | 2.22 | 0.521 | 2.16 | 0.523 | 2.27 | 0.518 | -0.947 | 0.326 |

** Mann–Whitney U; ** Student's t-test*

**Table 2.** Descriptive statistics and *t*-test to compare stigma and intergroup anxiety before and after the intervention in the experimental and control groups

| | | Experimental group | | | | Control group | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Before Mean (SD) | After Mean (SD) | r | *Student's t / p-value* | Before Mean (SD) | After Mean (SD) | r | *Student's t / p-value* |
| Self-perceived stigma | | 3.04(1.859) | 2.47 (1.515) | 0.296 | 1.979* | 2.98 (1.708) | 2.38 (1.602) | 0.406 | 2,348** |
| Stigma (MICA-4-PT) | | 32.37(6.963) | 29.23(7.121) | 0.707 | 3.711** | 32.66(6.903) | 29.02(6.951) | 0.720 | 4,896** |
| Mental health stigma (AQ-27) | Responsibility | 8.51 (3.130) | 8.73(3.438) | 0.346 | -0.417 | 9.04 (3.050) | 8.36 (2.678) | 0.455 | 1,599 |
| | Pity | 14.55 (5.120) | 13.42(4.188) | 0.606 | 1.864 | 14.84(4.774) | 12.90(4.953) | 0.332 | 2,440** |
| | Anger | 7.49 (3.489) | 6.16 (2.771) | 0.336 | 2.541** | 7.22 (3.621) | 6.06 (3.621) | 0.588 | 2,619** |
| | Danger | 8.10 (3.687) | 5.77 (2.702) | 0.421 | 4.603** | 8.80 (4.431) | 6.24 (3.388) | 0.652 | 5,036** |
| | Fear | 8.20 (4.238) | 5.24 (2.250) | 0.263 | 4.88** | 8.70 (4.546) | 6.63 (3.844) | 0.634 | 4,009** |
| | Help | 22.27 (4.077) | 23.75(2.964) | 0.409 | -2.600** | 21.54(4.765) | 22.80 (4.005) | 0.425 | -1,103 |
| | Coercion | 13.65 (3.655) | 15.38(3.598) | 0.310 | -2.850** | 13.70(3.819) | 14.40 (3.953) | 0.324 | -1,095 |
| | Segregation | 6.08 (3.297) | 5.48(2.821) | 0.623 | 1.539 | 7.06(3.919) | 5.52 (3.221) | 0.608 | 3,381** |
| | Avoidance | 10.69 (5.459) | 8.24(2.250) | 0.633 | 4.036** | 10.56(5.761) | 9.02 (5.285) | 0.683 | 2,508** |
| Intergroup anxiety | Anxiety | 1.55 (0.765) | 0.82 (0.667) | 0.080 | 5.279** | 1.68 (0.978) | 1.00(0.808) | 0.026 | 3,839** |
| | Apprehension | 1.35 (0.663) | 0.80 (0.645) | 0.315 | 5.039** | 1.36 (0.776) | 0.82 (0.825) | 0.358 | 4,204** |
| | Comfort | 2.88 (0.881) | 1.97 (1.010) | 0.278 | 5.509** | 3.06 (0.682) | 2.10 (1.09) | 0.183 | 5,766** |
| | Safety | 2.78 (0.798) | 1.97 (0.923) | 0.220 | 5.160** | 2.78 (0.815) | 1.98(1.059) | 0.349 | 5,199** |
| | Concern | 1.37 (1.014) | 0.67 (0.718) | 0.254 | 4.481** | 1.60 (0.782) | 0.760 (0.687) | 0.046 | 5,838** |
| | Stillness | 2.86 (0.646) | 1.95 (1.117) | 0.078 | 5.046** | 2.76 (0.744) | 1.96 (1.194) | 0.196 | 4,427** |
| | Trust | 2.73 (0.638) | 2.06 (1.008) | 0.123 | 4.190** | 2.92 (0.778) | 2.22 (1.035) | 0.174 | 4,186** |
| | Strangeness | 1.20 (0.841) | 0.50 (0.619) | 0.486 | 6.68** | 1.14 (0.990) | 0.90 (0.863) | 0.088 | 1,353 |
| | Stress | 1.41(0.840) | 0.59 (0.537) | 0.239 | 6.478** | 1.34 (0.872) | 0.820 (0.825) | 0.172 | 3,366** |
| | Unconcern | 3.22 (0.919) | 2.55 (1.225) | 0.258 | 3.547** | 3.60 (0.700) | 2.56 (1.387) | 0.193 | 0.515** |
| | Nervous | 1.43 (0.890) | 0.80 (0.612) | 0.164 | 4.457** | 1.58 (0.835) | 1.04 (0.856) | 0.167 | 3,497** |
| | Relaxation | 3.18 (0.808) | 2.32 (1.214) | 0.362 | 5.041** | 3.38 (0.830) | 2.32 (1.202) | 0.182 | 5,631** |
| | TOTAL | 2.16 (0.523) | 1.40 (0.579) | 0.292 | 7.889** | 2.27 (0.518) | 1.54 (0.735) | 0.110 | 6,033** |

(SD)- Standard Deviation, * *p-value* <0.05; ** *p-value* <0.01

Table 3 shows the results of the tests for hypothesis 2. The significance of the difference between stigma and anxiety of students that participated in the intervention oriented towards stigma compared to those who did not participate in the intervention was analyzed with Student's *t*-test for

independent samples. Statistically identical values of self-perceived stigma were observed, evaluated by the MICA-4 and intergroup anxiety between experimental and control groups, thus the hypothesis was not proved. However, a significant reduction of stigma concerning fear was observed in the experimental group as compared with the control group. By contrast, an increase of stigma regarding the dimension help was confirmed in both groups, being greater in the experimental group (1.47, ± 0.714) (Table 3).

**Table 3.** Results of Student's *t*-test to determine the difference of means between experimental group and control group in the second time

| | | Mean difference | Standard error of difference | *t-test* | *p-value* |
|---|---|---|---|---|---|
| Self-perceived stigma | | 0.061 | 0.359 | 0.170 | 0.866 |
| Stigma (MICA-4-PT) | | 0.217 | 1,459 | 0.149 | 0.882 |
| Mental health stigma (AQ-27) | Responsibility | 0.374 | 0.618 | 0.606 | 0,546 |
| | Pity | 0.528 | 0.922 | 0.573 | 0,568 |
| | Anger | 0.103 | 0.605 | 0.170 | 0,865 |
| | Dangerousness | -0.469 | 0.619 | -0.758 | 0,450 |
| | Fear | -1,387 | 0.636 | -2,181 | 0,032* |
| | Help | 1,470 | 0.714 | 2,071 | 0,041* |
| | Coercion | 0.987 | 0.760 | 1,299 | 0.197 |
| | Segregation | 0.961 | -0.030 | -0.50 | 0,961 |
| | Avoidance | -0.775 | 0.935 | -0.829 | 0,409 |
| Intergroup anxiety | | -0.13549 | 0.13413 | -1.010 | 0.315 |

## Discussion

Sociodemographic characteristics of the students were similar to other studies, and the majority were young adult single women.[1,2,7,14] The values of stigma observed in the sample are aligned with research conducted with students in different contexts.[1,7,10,13] In the second part of the study, a reduction in both experimental and control group was verified. Part of these results confirm those of other studies, which can be explained by the contact of the students with people with mental illness and professionals.[1,7,-11-15] Clinical teaching in mental health and psychiatric nursing contributed to reduce negative attitudes in general with positive and significant effects in the perception and attitudes of students towards people with mental illness, confirming the results of other studies.[1,11-15] In fact, nursing graduation courses in Portugal include a theoretical-practical part of teaching of contents oriented towards mental illness and its consequences for the patients and their families, carried out in the educational scenario, and another practical part of clinical teaching carried out in real environments in the presence of people with mental illness and their families. The systematic review performed on the attitudes towards mental illness of students of initial nursing graduation shows a tendency of more positive attitudes on those who had more hours of theoretical preparation and longer clinical teaching.[27,28] Even though it is not possible to compare with other students of other Portuguese universities, the mixed composition of the students' course curriculum of our sample, as well as the duration of theoretical teaching and clinical practice (one of the longest taught in Portugal) may be the reason why the results are aligned with the literature.[28,29]

On the other hand, an increase of the stereotypes related to help and coercion was verified, which may suggest a parental attitude underlying nursing care, marked by a feeling of pity and, consequently, increase of controllability.[19] These results may be partially explained by the influence of the context where the clinical teaching took place (hospitalization services) and by the attitude of nurses acting as supervisors of nursing students.[13] In Portugal, aligned with international instructions, there has been a change in mental illness care, more open and centered in the community, where nurses have a fundamental role in changing this type of care. However, the reports of the National Mental Health Plan execution show a loss in the number of nurses assigned to multidimensional teams, which hampers the adoption of new approaches centered in the patient and less parental.[30] Despite the composition and duration of the students' curriculum, the influence of clinical scenarios – still structured in traditional models, may have reinforced the socially rooted culture of stigmatization.

The intervention oriented towards stigma did not show any differentiating effect on either intergroup anxiety or stigmatizing attitudes towards people with mental illness, except for fear (with a significant reduction in the experimental group)

and help (significant increase), suggesting the need of reformulation. Some authors defend the need of working with students on aspects about personal development, attitudes towards care, communication and relational skills, and abilities to identify their own beliefs and negative attitudes concerning people with mental illness.[14]

This study presents some limitations that influence the results interpretation and conclusion. The sample technique and the small sample size are limitations to the generalization of results. In addition, due to the study design, the experimental group was assigned to conduct the clinical teaching in a hospital different from the control group. The difference of the clinical teaching scenarios and culture characteristic of the different institutions may have influenced the level of stigma and intergroup anxiety and hidden the possible effects of the intervention. This limitation has consequences in the research, which reveals the need of reformulating the study design, ensuring that both the experimental and control groups are subject to the same clinical teaching conditions. Another limitation was that the students already knew the facilitator of the intervention program meetings, and they had a previous contact during the theoretical training. We believe that the results obtained could have been different if the facilitator belonged to the group of specialized nurses of psychiatry services, and did not have previous contact with the students.

This study contributed to increase the knowledge about the impact of a 3-day intervention program performed in a clinical teaching scenario on intergroup anxiety and stigma of Portuguese students. Although the results did not show the desired effect of the program, we recognize they produced an impact on nursing regarding clinical practice, teaching, management, and research.

Concerning clinical practice, the study demonstrates the need of an active engagement of professionals of the institutions in the planning and implementation of intervention programs oriented towards stigma of clinical teaching students. In terms of teaching, it is suggested to use alternative teaching methods to reduce stigma in an integrated manner, emphasizing in this subject since the early years of the course. On the other hand, the approach of contents of mental health and psychiatric nursing is focused on the teaching of signs, symptoms and therapeutic interventions oriented towards people with mental illness and their caregivers. Little academic time is dedicated for students to reflect on their attitudes and feelings. In this regard, there is an urgent need to provide an environment for reflection and debate of ideas towards mental illness in the academic context. The results also reveal the need of a change in the curriculum to reflect the customer focus and the partnership with the patient for the provision of care, aiming to reduce stigma related to Help and Coercion. A curricula reformulation, engaging students in the construction of innovative anti-stigma programs, including greater proximity with people with mental illness in open contexts, using a model of residential workshops, could be favorable for eliminate stigma. Regarding management, it is suggested greater inclusion of people with mental illness in planning their care in hospitalization contexts, similar to what is recommended in recovery models. Including students in these type of contexts during clinical teaching will have an impact in the way they relate to people with mental illness and in the reduction of their own stigma. New studies are essential to identify models and teaching/learning strategies oriented towards students, professors, health professionals, sick persons and caregivers to reduce negative perceptions towards mental illness.

## Conclusion

Based on the objective of this study, we could confirm that clinical teaching promoted the reduction of stigmatizing attitudes and anxiety towards people with mental illness among nursing students. The intervention oriented towards stigma did not reveal significant effects concerning global stigma, nor intergroup anxiety, showing the future necessity of its reformulation, and comparison with samples of students from other nursing universities. As this study was performed only in one nursing education institution, the results must be interpreted with care-

ful, as well as the conclusions resulting from them, since the sample is not representative of Portuguese population.

## Collaborations

Querido AIF, Tomás CC, Carvalho DRS, Gomes JMF and Cordenrio MSS declared that they have contributed to the design of the study, analysis and interpretation of data, drafting of the article, relevant critical review of the content, and approval of the final version to be published.

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