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How the use of the term "schizo*" has changed in an Italian newspaper from 2001 to 2015: findings from a descriptive analysis

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3

4 How the use of the term "schizo*" has changed in an Italian newspaper from 2001 to 2015: findings
5 from a descriptive analysis

6

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27

1 Abstract

2 The study aims to report the number of newspaper articles including the word “schizo” in the period
3 2001 – 2015 and to identify possible predictors reinforcing negative stereotypes about people with
4 schizophrenia. The electronic archives of the Italian newspaper “La Stampa” have been searched for
5 the term “schizo”. Selected articles were grouped in articles related to mental health (rMH) or
6 article not related to mental health (nrMH). 946 articles were identified. Schizophrenia-related
7 terms were used in 356 (36.03%) article rMH, which mainly reinforce negative stereotypes
8 regarding mental illness both in rMH and nrMH groups. Over time, only in the rMH group a
9 significant reduction of articles reinforcing negative stereotypes was found. Several factors have
10 been identified as predictors of article reinforcing negative stereotypes: unnecessarily dramatic or
11 sensational headline or content; inaccurate or not in the correct context use of medical terminology;
12 emphasis to the illness rather than to the person; mental disorders are the same; disclosure of
13 particular individual has a mental illness. Although there has been a significant reduction in
14 stigmatizing articles, in the rMH group one article out of three reinforces negative stereotypes.

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16 Key words (MeSH terms): newspapers as topic, social stigma, social discrimination, schizophrenia
17 and disorders with psychotic features.

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1 **1. Introduction**

2 The media plays an important role in disseminating information about mental health (Coverdale et
3 al., 2002) as they represent the main source of information for the general population (Schomerus et
4 al., 2015), health care professionals (Philo, 1994; Wahl, 2003) and politicians (Murphy et al., 2013).
5 However, newspapers too often perpetuate misconceptions and stigma about mental health and
6 mental disorders (Wahl, 2003). As described by Goulden et al., there is a bidirectional role between
7 the stigmatization process and the mass media, influencing each other, positively or negatively. In
8 particular, the media can be a useful instrument for fighting stigma (Klin and Lemish, 2008), but at
9 the same time they can contribute to create myths or false information regarding mental disorders.
10 Negative media reports reinforce negative attitudes and behaviors, thereby producing or
11 perpetuating stigma (Carpiniello et al., 2007; Dietrich et al., 2006; Murphy et al., 2013; Wahl and
12 Lefkowitz, 1989). Stereotypes more frequently reported by the media are that people with mental
13 disorders are violent, dangerous and devoted to criminal acts (Whitley and Wang, 2016); that
14 patients are victims of their disorders; that they do not have the hope of recovery; that they cannot
15 have a life like other people (Coverdale et al., 2002; Rhydderch et al., 2016); or that they are
16 incompetent, strange, bizarre and unpredictable (Francis et al., 2001; Goulden et al., 2011; Klin and
17 Lemish, 2008).

18 Reviewing the evidence on media portrayals of mental disorders, Thornicroft (2013) concluded that
19 the media is “one of the most potent forces contributing to the structural discrimination against
20 people with mental disorders”.

21 Among different national media, newspapers have a special role because they can be considered an
22 index of wider public opinion (Aoki et al., 2016) and a privileged source of information on mental
23 health (Whitley and Wang, 2016). In a recent retrospective analysis (2016), Aoki and colleagues
24 showed that 14-49% of articles on mental disorders published in newspapers highlight the
25 association between mental disorders and dangerousness. Moreover, a Canadian study considering
26 the period 2005-2015 found a significant increase – up to over 50% - in the rate of articles focused
27 on the relationship between crimes, violent behaviours and mental disorders (Whitley and Wang,
28 2016).

29 Schizophrenia is the most frequent mental disorder reported in newspapers (Aoki et al., 2016;
30 Carpiniello et al., 2007; Goulden et al., 2011; Nawková et al., 2012, 2012) and it still represents the
31 most stigmatized disorder for patients and their family members (Corrigan and Watson, 2002).
32 Therefore, the need to challenge stigma associated with schizophrenia has become an ethical and
33 public health priority. A recent attempt to reduce stigmatization attached to schizophrenia has
34 included the change of the name of the disorder, with several authors being in favour of renaming it

1 (Ellison et al., 2015; Lasalvia et al., 2015). This change has already been implemented in some
2 Asian countries (Lee et al., 2013; Chan et al., 2017), with the aim to reduce the inappropriate use of
3 the word “schizophrenia” by journalists and the media (Aoki et al., 2016; Vahabzadeh et al., 2011).
4 However, the debate about the need to rename schizophrenia is still very controversial. In fact,
5 according to some studies, the impact of the change of the term “schizophrenia” has been very
6 small, suggesting that after the name change, articles related to schizophrenia still continue to be
7 associated with violent crimes (Koike et al., 2017). On the other hand, according to a recent
8 systematic review by Yamaguchi et al. (2017), the name change has been associated with a
9 reduction of stigma in other countries (Koike et al., 2015; Koike et al., 2016; Yamaguchi et al.,
10 2017).

11 Moreover, as part of the evaluation of several anti-stigma campaigns, the thematic analyses of
12 media coverage have focused on the use of the label “schizo”. In particular, in Canada it has been
13 found a significant reduction of the inappropriate use of this term, concluding for a positive impact
14 of the use of guidelines on reporting about mental disorders (Mental Health Commission of Canada,
15 2018). In Japan, in the last 30 years an improvement in the number of articles related to
16 schizophrenia has been found (Koike et al., 2016). Although thematic analyses of newspaper reports
17 have been performed in several countries (Aoki et al., 2016; Bevilacqua et al., 2017; Carrà and
18 Clerici, 2013; Dubugras et al., 2011; Whitley and Wang, 2016) and showed a heterogeneous
19 improvement of the usage of the term “schizophrenia” over time, few data are available on the
20 Italian context (Carpiniello et al., 2007, 1991; Magliano et al., 2011).

21 In the present study, we aim to: 1) report the number of newspaper articles including the word
22 “schizo” (prefix, suffix or word by itself) in the period between 2001 and 2015; 2) identify possible
23 predictors for reinforcing negative stereotypes about people with schizophrenia.

24

25 **2. Methods**

26 The search strategy was implemented using the free electronic archives of the Italian newspaper “La
27 Stampa”, containing the word “schizo” (Editrice La Stampa S.p.A., 2016a, 2016b). The online
28 archives, in Italian language, were available from January 1st, 2001 to December 31st, 2015. During
29 the period 2001-2015, “La Stampa” newspaper had a global coverage (both paper and digital
30 version) equal to an average/day of 290212.80 copies (SD=± 51017.11). We selected “La Stampa”
31 newspaper since it was the only newspaper providing free access to its historical archives of articles
32 (Wikipedia, 2018) among the first five non-thematic Italian newspapers (“Corriere della Sera”,
33 “Repubblica”, “Quotidiano Nazionale”, “La Stampa”, and “Il Messaggero”).

1 Based on the same methodology already adopted in previous content analytic studies (Carpiniello et
2 al., 2007), the number of words of the title and of the text of the article were counted for each
3 article; a junior researcher (GB), who received a specific training, categorized all the articles in
4 “related to mental health (rMH)” or “not related to mental health (nrMH)” groups. The (rMH)
5 category includes articles providing information on mental health issues (such as the use of a
6 specific diagnosis, the use of mental health services, the features of psychotherapy, the use of
7 psychopharmacological treatment or the description of psychosocial rehabilitation). The nrMH
8 category includes articles referring to mental health issues only metaphorically.

9 Each article was assessed through the use of a 9-item validated questionnaire (see Table 1)
10 (Department of Health and Aged Care, 1999). Questions 1, 2, 3 and 5 have been applied to both
11 rMH and nrMH articles. Questions 4, 6, 7, 8 and 9 have been applied only to rMH articles. Each
12 question has a binary answer (yes/no) and includes also a “not applicable” option.

13 As regards question 5 “Does the article reinforce negative stereotypes about mental illness?”, the
14 definition of a stigmatizing article provided by Stuart (2003) has been endorsed. An example of
15 each item of the questionnaire is provided in Table 1.

16 An experienced researcher (LP) performed the same procedure for all articles published in the last
17 four years chosen randomly with a difference of at least three years between two selected years:
18 2001, 2005, 2010 and 2015. The agreement between the two assessors was carried out by Cohen's
19 kappa coefficient and analysed using the published guidelines of Fleiss: 0 poor agreement, 0.01 –
20 0.20 slight agreement, 0.21 – 0.40 fair agreement, 0.41 – 0.60 moderate agreement, 0.61 – 0.80
21 substantial agreement, 0.81 – 1.00 almost perfect agreement (Fleiss, 1981).

22

23 *2.1 Statistical analysis*

24 Data were analysed using descriptive statistics or frequency counts as appropriate.

25 T-test was used to test differences between the number of words used (titles and texts) between
26 rMH and nrMH articles (Bland, 1995; Greenwood and Nikulin, 1996). One-way ANOVA was used
27 to calculate the variation of distribution in time of rMH articles from 2001 to 2015 (Moore and
28 McCabe, 2003).

29 A logistic regression model was performed in order to identify predictors of articles reinforcing
30 negative stereotypes towards mental illness. As dependent variable, the question 5 (“Does the
31 article reinforce negative stereotypes about mental illness?”) was selected and the following

1 variables were entered as possible predictor: year of publication of the article, page numbers,
2 number of words of the title, number of words of the text and qualitative characteristics of the
3 identified articles.

4

5 **3. Results**

6 Based on the database search, 15 words were found containing schizophrenia-related terms (Table
7 2). 946 articles were identified containing at least one of those schizophrenia-related terms. Of
8 them, 42 articles contained the term “schizo” twice in the same article. Only 37.63% ($N=336$) of
9 articles were included in the rMH group.

10 The inter-rater agreement was made on all articles of the years 2001 ($N=93$; 9.83%), 2005 ($N=76$;
11 8.03%), 2010 ($N=65$; 6.87%) and 2015 ($N=49$; 5.18%). The average value of Cohen's kappa was
12 0.88 ($SD= \pm 0.09$) meaning an “almost perfect agreement”.

13 The average length of the title is 6.77 ($SD= \pm 2.61$) words, and no differences were found between
14 the two groups (rMH articles: 6.64; $SD= \pm 2.38$ vs. nrMH: 6.85; $SD= \pm 2.73$, $t=1.20$; $df=944$; $p=0.23$).
15 The mean length of the text is of 605.80 words ($SD= \pm 313.97$), and nrMH articles were longer than
16 those in rMH group (nrMH: 635.70; $SD= \pm 319.83$ vs. rMH: 551.52; $SD= \pm 295.88$; $t=3.98$; $df=944$;
17 $p<0.001$) (Table 3).

18

19 *3.1 Comparison between questionnaire responses for the two subgroups (rMH and nrMH).*

20 In the rMH group, the number of articles with an inaccurate or inconsistent headline with the focus
21 of the article (13.39% vs. 7.21%; $\chi^2=9.71$; $df=1$; $p=0.002$) or a negative/inappropriate language
22 (13.39% vs. 0.33%; $\chi^2=78.33$; $df=1$; $p<0.001$) was significantly higher compared with those from
23 the nrMH (Table 4).

24 The word “schizo” was found to reinforce negative stereotypes regarding mental illness both in
25 rMH and nrMH groups (61.61% vs. 52.62%; $\chi^2=7.09$; $df=1$; $p=0.008$), with a percentage higher
26 than 50%.

27 In the rMH group, 63.69% of articles used an appropriate medical terminology and in the 52.68% of
28 cases a greater emphasis to the illness rather than the person was given (Table 4).

29 *3.2 Description of articles that reinforce negative stereotypes in the two groups*

1 In both groups, the majority of articles (rMH, N=38/45, 84.44% and nrMH, N=37/44, 84.09%) have
2 reported an inaccurate or inconsistent headline reinforcing negative stereotypes (Table 5).

3 In the rMH group, 94.59% (70/74) of items is characterized by stigmatizing attitudes, have an
4 unnecessarily dramatic or sensational title or content. Among these items, articles were equally
5 distributed between the categories of articles reinforcing stereotype about mental illness (52.29%;
6 N=137/262) or not reinforcing it (47.71%; N=125/262). In nrMH group, only 22.43% (N=72/321)
7 of the articles reinforcing negative stereotypes had an unnecessarily dramatic or sensational
8 headline or content, while articles not reinforcing stigma that are not characterized by unnecessarily
9 dramatic or sensational headline or content were 95.50% (N=276/289).

10 In the rMH group, an outdated, negative or inappropriate language has been used in 20.29% of the
11 article reinforcing negative stereotypes (vs. 2.33% not using inappropriate language) ($\chi^2=22.11$;
12 $df=1$; $p<0.001$). In the nrMH group, no differences were found between type of language used and
13 reinforcement of negative stereotype ($\chi^2=1.81$; $df=1$; $p=0.179$).

14 In rMH group, 84.50% (N=109/129) of items not reinforcing negative stereotypes are characterized
15 by an incorrect medical terminology (vs. 15.20%, N=20/129) ($p<.001$).

16 No significant differences have been found in the reinforcement of negative stereotypes when the
17 article emphasizes the illness rather than the person (rMH: 58.45%, N=121/207 vs. nrMH: 56.59%,
18 N=73/129) ($\chi^2=39.16$; $df=1$; $p<0.001$ and $\chi^2=7.22$; $df=1$; $p=0.0007$).

19 The reinforcement of negative stereotypes is higher in articles consider that all psychiatric disorders
20 are equal (86.84% vs. 13.16%) ($\chi^2=26.44$; $df=1$; $p<0.001$). Moreover, the provision of information
21 regarding help-seeking or referral to mental health services is not associated with the reinforcement
22 of stigmatizing stereotypes.

23 *3.3 Usage over time of the term "schizo" in the two groups*

24 In both groups, it has been found a statistically significant reduction over time in the rate of
25 publication of articles using the schizophrenia-related terms ($F=3.603$; $df=14$; $p<0.001$) (Figure 1).

26 In both groups, there has been a progressive but not constant decrease in the percentage of articles
27 over time. Moreover, except for the year 2002, the number of articles was always higher in the
28 nrMH group compared to the other group (e.g., in 2001: nrMH: N=56/93 vs. rMH: N=37/93; in
29 2007: nrMH: N=36/62 vs. rMH: N=26/62; in 2015: nrMH: N=25/49 vs. rMH: N=24/49). The
30 maximum gap was in 2004 and 2009 with a difference of articles of 47 and 45, whereas the
31 minimum gap was in the year 2015 (26 articles in both groups).

1

2 *3.4 Usage over time of the term “schizo” in articles reinforcing negative stereotypes*

3 In the rMH group, it has been found a significant reduction of articles reinforcing negative
4 stereotypes about mental disorders ($F=2.77$; $df=14$; $p=0.001$), but not in the nrMH group ($F=1.375$;
5 $df=14$; $p=0.16$) (Figure 2). The rMH group had the highest percentage of articles that reinforce
6 negative stereotypes in 2005 (89.47%) while the minimum was reached in 2015 (29.17%); for the
7 nrMH group the maximum percentage was in 2002 (70.83%) and the minimum in 2012 (35.71%).

8

9 *3.5 Predictors of negative stereotypes in national newspaper.*

10 The logistic regression model was statistically significant ($\chi^2=149.095$; $p<0.001$), explaining
11 48.20% (Nagelkerke R^2) of the variance and classifying correctly 77.6% of cases.

12 Several factors have been identified as predictors of reinforcing negative stereotypes: the headline
13 or content unnecessarily dramatic or sensational (OR=17.78; CI=5.55 to 57.00; $p<0.001$); the
14 medical terminology inaccurately or not in the correct context (OR=0.14; CI= 0.07 to 0.28;
15 $p<0.001$); to emphasize the illness rather than the person (OR=4.21; CI= 2.20 to 8.04; $p<0.001$); to
16 imply that all mental illnesses are the same (OR=3.14; CI= 1.27 to 7.78; $p<0.01$) and to disclose
17 that a particular individual has a mental illness, identifying the person by name (OR=6.27; CI= 3.12
18 to 12.59; $p<0.001$) (Table 6).

19

20 **4 Discussion**

21 Our findings show that the majority of articles containing the term "schizo" are not related to mental
22 health. This suggests that this term is mostly used as a metaphor rather than with its clinical
23 significance. The word count of the articles included in the study showed that there is a statistically
24 significant difference between the rMH and nrMH group only regarding to the number of words of
25 the texts and not for the title and this is in line with previous findings (Carpiniello et al., 2007).

26

27 *4.1 Comparison between questionnaire responses for the two subgroups (rMH and nrMH).*

28 Articles in the rMH group are characterized by an inappropriate or negative language, an inaccurate
29 or inconsistent headline, an unnecessarily sensationalistic or dramatic topics compared with the

1 nrMH group. This finding is extremely relevant considering that negative media coverage can
2 contribute to discrimination, stigmatization, and marginalization of people with mental disorders
3 (Whitley and Wang, 2016). Moreover, information about help-seeking and referral to mental health
4 services are lacking in both categories of articles, as already reported by Vahabzadeh and
5 colleagues (Vahabzadeh et al., 2011).

6 *4.2 Description of articles that reinforce negative in the two groups.*

7 Articles in the rMH groups have unnecessarily sensationalist or a dramatic title more frequently
8 than those in nrMH group. Sensational titles encourage reading, but at the same time provide a
9 negative interpretation that may strengthen stereotypes about mental illness. This is in line with
10 other studies carried out in different countries such as Brazil (Bevilacqua Guarniero et al., 2017) or
11 Japan (Aioki et al., 2017).

12 In the rMH Group, we found a substantial difference regarding the use of inaccurate or incorrect
13 medical language. The use of appropriate language in an article can be due to several factors, such
14 as words provided by a person with personal experience during an interview or the quality of
15 information received by experts in the field.

16 Among the rMH group, we found that an article out of three (31.88%) reinforces negative
17 stereotypes and consider all mental disorders are similar; while the 92.25% of the non-stigmatizing
18 articles do not consider that all mental disorders are similar. This finding is very relevant since it
19 confirms the low level of mental health literacy in journalists and – as consequence – also in the
20 general population. The idea that people with mental disorders share the same symptoms, regardless
21 the specific diagnosis, is associated with the idea that they have the same responsibility for the
22 development of the disorder. On the other hand, in our study we are not able to detect the
23 importance given to the specific mental disorders. In particular, personality disorders,
24 schizophrenia, OCD and PTSD are known to be more exposed to stigmatizing attitudes than other
25 disorders (Rhydderch et al., 2016), but unfortunately the design of our study does not allow us to
26 support this finding.

27

28 *4.3 Usage over time of the term “schizo” in the two groups*

29 Two previous longitudinal studies carried out in United Kingdom found an increase in reporting
30 issues related to mental health/mental illness between 1998-2008 and 2008-2014 (Murphy et al.,
31 2013; Rhydderch et al., 2016). We found that the number of articles containing schizophrenia-

1 related terms in an Italian newspaper constantly decreased from the year 2001 to 2015. However,
2 these studies did not consider specifically the term "schizo" as in our study, and it may be that in the
3 Italian press there was an increase in rMH articles, alongside a decrease in the use of the term
4 "schizo" in articles of newspapers.

5 The increased use of the term "schizo" in nrMH articles is due to the fact that such term was used in
6 different contexts, such as economics, history, politics or culture. Schizophrenia-related terms were
7 used more in a metaphorical sense, as already described by other authors (Athanasopoulou and
8 Välimäki, 2014; Magliano et al., 2011), referring to its etymological meaning of "division" or
9 "split" in the context of political articles (referring also to the unpredictability) and in the context of
10 culture/entertainment/sport articles (referring to eccentricity or oddness).

11

12 *4.4 Usage over time of the term "schizo" in articles reinforcing negative stereotypes*

13 In the nrMH group, no change over time was found in the rate of articles reinforcing negative
14 stereotypes. On the other hand, in the rMH group, a significant reduction of stigmatizing articles was
15 found from 2005 to 2015. This finding is not in line with those from other European countries, for
16 example in the UK, Clement and Foster (2008) have shown that there are no particular changes in
17 reporting schizophrenia between 1996 and 2005; while Goulden and colleagues (2011) highlighted
18 that there was a significant reduction of negative articles about mental health during the period
19 1992-2008. More recently, a substantial increase in the number of articles covering mental health
20 with an increase in the proportion of anti-stigmatising articles has been found, but a not reduction in
21 the rate of stigmatizing articles (Thornicroft et al., 2013). In Canada and in the US, it has been
22 found and improvement in reporting news concerning mental health (Whitley and Wang, 2016;
23 Wahl, 2003). Our results appear to be surprising because Italy has not had a national anti-stigma
24 campaign but only small local initiatives, that could have had small impact on a national level.
25 Therefore, further studies are needed in order to evaluate the role of other contextual, social and
26 environmental factors that should explain this change in media reporting. Moreover, in Italy, the
27 last anti-stigma campaign dates back to 2006 and it consisted in the distribution of an informative
28 booklet through a national newspaper (Ministero della Salute, 2006). Based on our findings it is not
29 possible to define the efficacy of this initiative, but it can be noticed that in the rMH group, the
30 percentage of articles reinforcing negative stereotype about mental illness dropped from 2006 to
31 2007 (69.57% vs 65.38%) and this should be considered as an indirect effect of the campaign. Of
32 course, this is only a tentative explanation and further studies are needed in order to test this
33 association.

1

2 *4.5 Predictors of negative stereotypes in national newspaper.*

3 The use of improper or hardly understandable medical terminology in a newspaper article have been
4 identified as possible predictors of articles reinforcing negative stereotypes. These findings are in
5 line with Dubugras and colleagues which found that when medical terms were not translated into
6 lay language, the comprehensibility of the disorder is reduced and the stigmatization increases
7 (Dubugras et al., 2011). Moreover, the tendency to give more importance to the disorder rather than
8 to the person is associated with high levels of stigmatization (Corrigan and Watson, 2002).

9 Moreover, the non-respect of the privacy of a person with a mental disorder has been identified as a
10 predictor of negative stereotypes. Several institutions such as World Health Organization (Pathare
11 and Freeman, 2006), World Psychiatric Association (Bhugra, 2016), European Psychiatric
12 Association (Gaebel et al., 2014) and Mental Health America have included information about the
13 rights of people with mental disorder in their official documents. Rights are given much importance
14 to privacy, which guarantees an individual not to see reported in a newspaper or in other contexts
15 information related to his clinical history or to own recovery path (Stoltzfus, 2006). Another
16 variable associated with the presence of negative stereotypes is a headline or content unnecessarily
17 dramatic or sensational. The sensational use of the articles to attract the reader's attention may lead
18 to the creation of false myths or stereotypes associated with strongly negative connotations of
19 mental illness such as violence or unpredictability (Chen and Lawrie, 2017).

20

21 *4.6 Limitations*

22 This study has some limitations, which must be acknowledged. Firstly, only one national newspaper
23 has been considered. This methodological choice was due to the fact that the historical archives of
24 the journal were available online. There is the need to promote further content analysis on other
25 national newspapers in order to improve the generalizability of results. As regards the adopted
26 search strategies, it must be acknowledged that only one person collected the articles and the
27 agreement was obtained between two other researchers. This possible bias has been reduced
28 through the provision of an ad-hoc training for the content extraction for the involved researchers.

29 Moreover, the adopted questionnaire does not include any questions for evaluating the role of
30 articles in promoting the positive portrayal of schizophrenia and to reduce the stigmatizing
31 stereotypes. Therefore, it would be useful to develop new extraction tools in order to evaluate also

1 the positive attempts of newspaper articles to counterbalance the negative portrayal of
2 schizophrenia. Another limitation is the use only of the “schizo” suffix, which represent an initial
3 effort for understanding the complex phenomenon of stigma and stigmatization. However, this
4 methodological choice has been due to the fact that schizophrenia still represents the most
5 stigmatized mental disorder.

6

7 **5 Conclusion**

8 Based on our findings, we can conclude that: 1) schizophrenia-related terms are most commonly
9 used in topic not related to mental health contexts; 2) rMH articles are characterized by an
10 inappropriate/ negative language and an inaccurate/inconsistent headlines compared with the nrMH
11 group; 3) for both rMH and nrMH groups there has been a continuous but not constant decrease in
12 the percentage of published articles over time; 4) over time a significant reduction of the frequency
13 of articles reinforcing negative stereotypes was found in the rMH group but not in the nrMH group;
14 6) possible predictors of article reinforcing negative stereotypes are an inconsistent headline,
15 inaccurate medical terminology, outdated or negative language and giving more excessive emphasis
16 to the illness rather than the person.

17 In the next future, it would be advisable to develop anti-stigma campaign targeting journalists and
18 media professionals in order to improve the media coverage and the way to report news related to
19 mental health issues (Maiorano et al., 2017). Moreover, it should be advisable to promote the
20 establishment of task-force with all stakeholders (including users, carers, psychiatrists, all other
21 mental health professionals, journalists) for the prompt detection of stigmatizing articles in Italian
22 newspapers and in other common media.

23

24 **Author contributions**

25 L.P. and A.F. conceptualized and designed this work. L.P., G.S., M.L. and G.B. supervised and
26 carried out the data collection and analysis. A.M.N, S.C., G.M.G., S.E.L. and A.F. provided
27 extensive comments and critiques of the work at all the stages, from writing the proposal to the final
28 manuscript. All authors actively participated in writing the manuscript.

29

30 **Declaration of interest**

1 None.

2

3 **Ethical Standards**

4 The authors assert that all procedures contributing to this work comply with the ethical standards of
5 the relevant national and institutional committees on human experimentation and with the Helsinki
6 Declaration of 1975, as revised in 2008.

7

8

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12

13 **Availability of Data and Materials**

14 All data used for this study are available upon request addressed to the corresponding author.

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Tables

Table 1. *Questions to Assess the Identification of Stigmatizing Attitudes in Newspaper Articles*

	Question	Example
1	Is the headline inaccurate or inconsistent with the focus of the article?	Title: The perfect woman? In pieces Excerpt of the article: [Name] suffers from multiple personality syndrome, a dissociative disorder that is not very common and above all not very well known, that would make her call it crazy like a horse. He has it (we are told once again in passing) always, but it is the life that makes the evil explode.
2	Is the headline or content unnecessarily dramatic or sensational?	Incapable of understanding and will but fierce killers
3	Is the language outdated, negative or inappropriate?	On 2 June 1943, they had changed the diagnosis from dementia precox to "a constitutional psychotic state, with schizoid personality", and on the 28th they had driven him from the Navy, starting it up to literary glory. [Name]: for military doctors he had suicidal fantasies and delusions of «philosophical grandeur».
4	Is the medical terminology inaccurately or not in the correct context?	... accused the interlocutors of «spiritual Alzheimer» and «existential schizophrenia» ...
5	Does the article reinforce negative stereotypes about mental illness?	Ed was declared schizophrenic-psychotic. He ended up in an asylum. He hired a desperate duel against the evil that possessed him, trying to soothe a past marked by the abuses of the arid mother, suffocating with his son to compensate for a pathological inability to love the male sex; and from adoration for his father, a peaceable man with a very tall John Wayne face. He confessed to a psychiatrist, playing chess and driving bad thoughts with reading Crime and Punishment, Dostoevskij. After five years he managed to get himself declared harmless by the shrinks.
6	Does the article emphasize the illness rather than the person?	And it is perhaps the most balanced position for a man who according to the experts suffers from "paranoid schizophrenia" and in this state he crossed the sea as a clandestine wandering between detention centers and prisons for months, before landing in Milan and carrying out a massacre guided by "the voices". A madman but «not totally absent» at the time of the facts and according to the prosecutor who asked for his sentence, could have among the motives «the grudge towards society», «hatred towards the whites», «a predatory purpose ». [Name] never opened his mouth, he never explained, maybe he barely understood what he was doing.
7	Does the article imply that all mental illnesses are the same?	"They also think that I want to lock up the crazy people and throw away the key. And they say I'm a reactionary. In this country things are like this: for years we leave issues at the mercy of politics and then nothing is resolved ... So I speak because I know what it means to live with the madness of those you love. In all its forms: from self-harm to violence on others, even with the use of weapons ... The Basaglia law must be reviewed. Thinking the opposite, especially in the face of the latest news stories, shows only an ideological obstinacy".
8	Does the article provide information about sources of help or referral to mental health services?	«From the lack of staff between medical doctors, social workers, educators and nurses, up to the reduction and inadequacy of Mental Health Centers, of the Day-time centers, of the training facilitating the social integration of our sons»
9	Does the article disclose that a particular individual has a mental illness, identifying the person by name?	[Name], [Age], suffering from schizophrenia since he was twenty, died the day before yesterday after being admitted to hospital for a compulsory medical treatment. An investigation was opened on this matter. Three policemen blocked and handcuffed him, intervening together with two doctors of the psychiatric service of the ASL, including the specialist who had been following him for years.

Table 2. Words identified containing the term "schizo"

Italian word	Entire sample (N=946)	rMH (N=336)	nrMH (N=610)	English translation
Schizofrenia	425 (44.93%)	184 <i>(54.76%)</i> <i>(19.45%)</i>	241 <i>(39.51%)</i> <i>(25.48%)</i>	Schizophrenia
Schizofrenico	242 (25.58%)	78 <i>(23.21%)</i> <i>(8.25%)</i>	164 <i>(26.89%)</i> <i>(17.34%)</i>	Schizophrenic
Schizofrenica	164 (17.34%)	35 <i>(10.42%)</i> <i>(3.70%)</i>	129 <i>(21.15%)</i> <i>(13.64%)</i>	
Schizofrenici	65 (6.87%)	26 <i>(7.74%)</i> <i>(2.75%)</i>	39 <i>(6.39%)</i> <i>(4.12%)</i>	Schizophrenics
Schizoide	36 (3.81%)	19 <i>(5.65%)</i> <i>(2.01%)</i>	17 <i>(2.79%)</i> <i>(1.80%)</i>	Schizoid
Schizofreniche	19 (2.01%)	2 <i>(0.60%)</i> <i>(0.21%)</i>	17 <i>(2.79%)</i> <i>(1.80%)</i>	Schizophrenics
Schizoidi	16 (1.69%)	7 <i>(2.08%)</i> <i>(0.74%)</i>	9 <i>(1.48%)</i> <i>(0.95%)</i>	Schizoids
Schizofrenie	11 (1.16%)	1 <i>(0.30%)</i> <i>(0.11%)</i>	10 <i>(1.64%)</i> <i>(1.06%)</i>	Schizophrenias
Schizofrenicamente	3 (0.32%)	0	3 <i>(0.49%)</i> <i>(0.32%)</i>	Schizophrenically
Schizo	2 (0.21%)	0	2 <i>(0.33%)</i> <i>(0.21%)</i>	Schizo
Schizophrenia	1 (0.11%)	1 <i>(0.30%)</i> <i>(0.11%)</i>	0	Schizophrenia
Schizotipici	1 (0.11%)	1 <i>(0.30%)</i> <i>(0.11%)</i>	0	Schizotypal
Schizoid	1 (0.11%)	1 <i>(0.30%)</i> <i>(0.11%)</i>	0	Schizoid
Schizofonia	1 (0.11%)	0	1 <i>(0.16%)</i> <i>(0.11%)</i>	Schizophrenia
Schizotimia	1 (0.11%)	1 <i>(0.30%)</i> <i>(0.11%)</i>	0	Schizothymia

The percentages related to the group (rMH or nrMH) are shown in *Italic* characters. The percentages for the entire sample are shown in **bold** characters.

Table 3. Length of the title and of the text in the whole sample and in the two subgroups (rMH and nrMH).

		Entire sample (N=946)	rMH (N=336; 35.52%)	nrMH (N=610; 64.48%)	t test
Number of words of the title	Mean	6.77	6.64	6.85	t=1.20; df=944; p=0.23
	SD	±2.61	±2.38	±2.73	
	Minimum	1	1	1	
	Maximum	17	14	17	
Number of words of the text	Mean	605.80	551.52	635.70	t=3.98; df=944; p<0.001
	SD	±313.97	±295.88	±319.83	
	Minimum	25	53	25	
	Maximum	2281	1892	2281	

Table 4. Analysis of the questionnaire responses for the two groups (rMH and nrMH).

Question	rMH group		nrMH group		χ^2
	Yes	No	Yes	No	
1	45 13.39%	291 86.61%	44 7.21%	566 92.79%	$\chi^2=9.71$; df=1; p=0.002
2	74 22.02%	262 77.98%	85 13.93%	525 86.07	$\chi^2=10.14$; df=1; p=0.002
3	45 13.39%	291 86.61%	2 0.33%	606 99.34%	$\chi^2=78.33$; df=1; p<0.001
4	214 63.69%	122 36.31%	NA	NA	NA
5	207 61.61%	129 38.39%	321 52.62%	289 47.38%	$\chi^2=7.09$; df=1; p=0.008
6	177 52.68%	159 47.32%	NA	NA	NA
7	76 22.62%	260 77.38%	NA	NA	NA
8	89 26.49%	247 73.51%	NA	NA	NA
9	88 26.19	248 73.81%	NA	NA	NA

Table 5. Description of articles that reinforce negative stereotypes towards mental illness in the rMH and nrMH groups

Question		Does the article reinforce negative stereotypes about mental illness?					
		rMH group			nrMH group		
		Yes	No	χ^2	Yes	No	χ^2
1. Is the headline inaccurate or inconsistent with the focus of the article?	Yes	38	7	$\chi^2=11.46$; df=1; p=0.001	37	7	$\chi^2=18.84$; df=1; p<0.001
		<i>84.44</i>	<i>15.56</i>		<i>84.09</i>	<i>15.91</i>	
		18.36	5.43		11.53	2.42	
	169	122	284		282		
	<i>58.08</i>	<i>41.92</i>	<i>50.18</i>		<i>49.82</i>		
2. Is the headline or content unnecessarily dramatic or sensational?	Yes	70	4	$\chi^2=43.66$; df=1; p<0.001	72	13	$\chi^2=40.78$; df=1; p<0.001
		<i>94.59</i>	<i>5.41</i>		<i>84.71</i>	<i>15.29</i>	
		33.82	3.10		22.43	4.50	
	137	125	249		276		
	<i>52.29</i>	<i>47.71</i>	<i>47.43</i>		<i>52.57</i>		
3. Is the language outdated, negative or inappropriate?	Yes	42	3	$\chi^2=22.11$; df=1; p<0.001	2	0	$\chi^2=1.81$; df=1; p=0.179
		<i>93.33</i>	<i>6.67</i>		<i>100.00</i>	<i>0.00</i>	
		20.29	2.33		0.62	0.00	
	165	126	319		289		
	<i>56.70</i>	<i>43.30</i>	<i>52.47</i>		<i>47.53</i>		
4. Is the medical terminology inaccurately or not in the correct context?	Yes	105	109	$\chi^2=39.16$; df=1; p<0.001	NA		
		<i>49.07</i>	<i>50.93</i>				
		50.72	84.50				
	102	20					
	<i>83.61</i>	<i>16.39</i>					
6. Does the article emphasize the illness rather than the person?	Yes	121	56	$\chi^2=7.22$; df=1; p=0.007	NA		
		<i>68.36</i>	<i>31.64</i>				
		58.45	43.41				
	86	73					
	<i>54.09</i>	<i>45.91</i>					
7. Does the article imply that all mental illnesses are the same?	Yes	66	10	$\chi^2=26.44$; df=1; p<0.001	NA		
		<i>86.84</i>	<i>13.16</i>				
		31.88	7.75				
	141	119					
	<i>54.23</i>	<i>45.77</i>					
8. Does the article provide information about sources of help or referral to mental health services?	Yes	68.12	92.25	$\chi^2=0.05$; df=1; p=0.833	NA		
		54	35				
		<i>60.67</i>	<i>39.33</i>				
	153	94					
	<i>61.94</i>	<i>38.06</i>					
9. Does the article disclose that a particular individual has a mental illness. identifying the person by name?	Yes	73.91	72.87	$\chi^2=17.11$; df=1; p<0.001	NA		
		169	79				
		<i>68.15</i>	<i>31.85</i>				
	38	50					
	<i>43.18</i>	<i>56.82</i>					
		18.36	38.76				

The numbers in italics represent the percentage of articles that reinforce / do not reinforce negative stereotypes, for each item in the questionnaire. The numbers in bold represent the percentages of articles relating to the intersection of the answers to the items in the questionnaire described in Table 1 and their reinforcing / not reinforcing negative stereotypes.

Table 6. Logistic regression model used to define predictive variables of articles reinforcing negative stereotypes towards mental illness.

	<i>T</i>	Standard Error	df	<i>p</i>	Exp (B)	95% CI for EXP(B)	
						Lower	Upper
Year of publication	-0.029	0.033	1	0.371	0.971	0.910	1.036
Number of words in the title	0.063	0.066	1	0.344	1.065	0.935	1.212
Number of words in the article	0.000	0.001	1	0.443	1.000	0.999	1.001
Relating Mental Health article (rMH)	0.327	1.055	1	0.756	1.387	0.176	10.962
Headline inaccurate or inconsistent with the focus of the article (Question 1)	0.511	0.614	1	0.406	1.666	0.500	5.552
Headline or content unnecessarily dramatic or sensational (Question 2)	2.878	0.594	1	<0.001	17.784	5.548	57.002
Language outdated, negative or inappropriate? (Question 3)	0.585	0.753	1	0.437	1.794	0.410	7.843
Medical terminology inaccurately or not in the correct context (Question 4)	-1.999	0.373	1	<0.001	0.136	0.065	0.282
Article emphasize the illness rather than the person (Question 6)	1.437	0.330	1	<0.001	4.207	2.203	8.035
Article imply that all mental illnesses are the same (Question 7)	1.145	0.462	1	0.013	3.144	1.270	7.782
Article provide information about sources of help or referral to mental health services (Question 8)	-0.353	0.350	1	0.313	0.702	0.354	1.395
Article disclose that a particular individual has a mental illness, identifying the person by name (Question 9)	1.835	0.356	1	<0.001	6.268	3.122	12.586

Figure 1. Time distribution of the articles (in percentage) for the rMH and nrMH groups

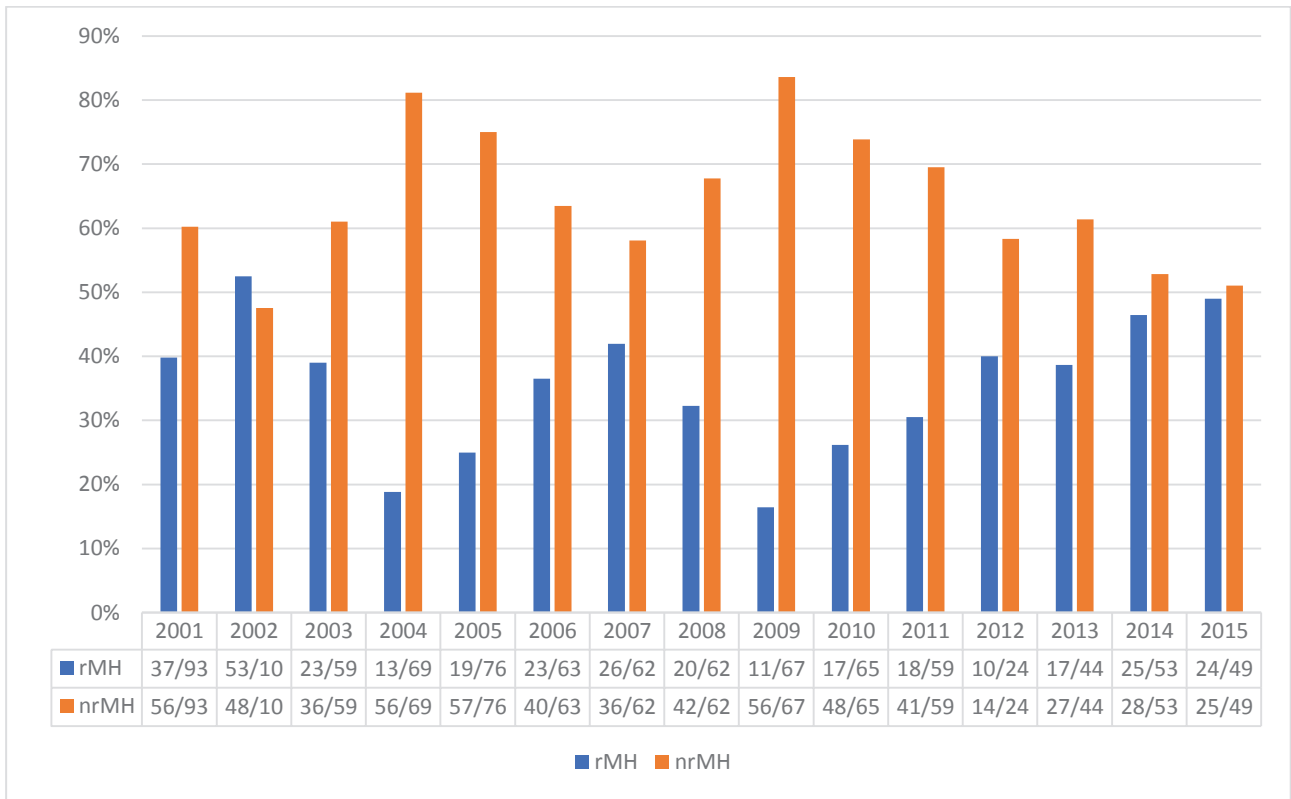


Figure 2. Distribution over time (in percentage) of the articles that reinforces negative stereotype about mental illness for the two groups (rMH and nrMH)

