

## **Title page.**

### **Title.**

Stigma: the representation of mental health in UK newspaper twitter feeds.

### **Running title.**

Mental health in UK newspaper twitter feeds.

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### **Ethical statement.**

This study is based on publically available data and therefore did not require ethical review.

There are no conflicts of interest in relation to this study.

## **Stigma: the representation of mental health in UK newspaper twitter feeds.**

### Background

The press' representation of mental illness often includes images of people as dangerous, and there is evidence that this contributes to stigmatising understandings about mental illness. Little is known about how newspapers portray mental health on their Twitter feeds.

### Aims

To explore the representation of mental health in the UK national press' Twitter feeds.

### Method

Content analysis was used to code the Tweets produced by UK national press in two time periods, 2014 and 2017. Chi-square analysis was used to identify trends.

### Results

The analysis identified a significant reduction in the proportion of tweets that were characterised as Bad News between 2014 and 2017 ( $\chi^2 = 14.476$ , d.f. = 1,  $p < .001$ ) and a significant increase in the tweets characterised as Understanding ( $\chi^2 = 9.398$ , d.f. = 1,  $p = .002$ ). However, in 2017, 24% of the tweets were still characterised as Bad News. Readers did not retweet Bad News stories significantly more frequently than they were produced.

### Conclusions

There is a positive direction of travel in the representations of mental health in the Twitter feeds of the UK press, but the level of Bad News stories remains a concern.

### Declaration of interest

No declarations of interest

## Introduction.

Additional to the direct impact of mental illness on people's lives many who receive a psychiatric diagnosis experience a range of social barriers that diminish their life opportunities (Thornicroft, 2006). This has included reduced employment (Hipes et al., 2016), poor housing (Byrne et al., 2013), distancing behaviours from friends and family (Hamilton et al., 2016), lower quality physical healthcare (Noblett, Lawrence & Smith, 2015;) and high levels of custodial sentencing (Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016). These range of social factors have a pattern of working in consort, and collectively have been implicated in the reduced life expectancy of people with mental illness (PWMI) (Livingstone, 2013).

Whilst the nature of the social forces at play are complex the concept of stigma can help explain some of these patterns. Stigma is understood to arise through the process of people being labelled as different from 'us' as a result of the diagnosis (Link & Phelan, 2013), and that difference is associated with negative stereotypical beliefs (Link & Phelan, 2001), and negative affective responses (Corrigan & Watson, 2002). For stigma to be enacted this leads to behaviour that discriminates against someone with a mental illness, or a change in behaviour by a person with a diagnosis as a result of a negative re-evaluation of their self (Thornicroft, 2006) or through fear of being stigmatised by others (Waugh, Lethem, Sherring & Henderson, 2017).

As beliefs and attitudes are central to the processes of stigmatisation, the role the media, including the press, play in shaping the public's understanding has come under scrutiny (Chapman, Shankar, Palmer & Laugharne, 2017; Murphy, Fatoye & Wibberley, 2013). Whilst the exact nature of the impact of news stories is unclear, as studies are limited to examining the immediate effect, and rely on self-reporting tools, there is growing evidence that they do affect their readers. Research by Corrigan, Powell and Michaels (2013) examining participants' responses to news articles demonstrated that reports of a PWMI committing suicide whilst in the prison service was associated with increased negative attitudes towards all PWMI. Additionally, studies by McGinty, Webster and Barry (2013) indicate that news items of PWMI committing acts of violence to others were associated with a desire to withdraw contact from all PWMI. Further, research by Hoffner, Fujioka, Cohen and Seate (2017) has indicated that for people who self-identified as having mental health problems that such news stories were associated with a reduced desire to seek support from others for fear that they would be judged harshly. The latter may increase the risk that someone struggles alone to manage life's challenges, and thereby finds it harder to tolerate their experiences, and their problems may worsen until a point of crisis.

Given the evidence that the media plays a role in the public's beliefs, attitudes and intended behaviours, it is of concern that press representations have often been disproportionately negative (Bowen & Lovell, 2013). This is a global phenomenon and studies from Japan (Ottewell, 2017), Canada (Whitley & Wang, 2017) and the US (McGinty, Kennedy-Hendrick, Chosky & Barry, 2016) indicate that PWMI have been represented as violent or aggressive in 44% to 55% of newspaper reports. Further, longitudinal studies in Canada (Whitley & Wang, 2017) and Bermuda (Roberts, Bourne & Basden, 2013) indicate little evidence of improvement in this. In the UK the picture has been a little more positive, with research indicating a positive trend between 2008 and 2016, with the proportion of articles coded as danger to others reducing from 21% to 17% (Anderson, Robinson, Koupra & Henderson, 2018). However, this is a modest change and 35% of newspaper articles presented broadly stigmatising accounts of mental health (Anderson et al., 2018). Whilst it is not clear why the press continue to characterise mental health in a negatively light it has been theorised that this reflects the cyclical nature of the relationship between the press and the readers (Morris, 2006) and the pressure the readers' desire to consume negative stories places on newspapers to produce these accounts. However, it is important to avoid viewing this in too broad terms and there is evidence that different disorders tend to be represented more or less sympathetically. Depression, for example, has tended to be represented more sympathetically and the representation of schizophrenia has tended to be represented more negatively (Goulden et al. 2011; Rhydderch et al., 2016). Likewise, there is evidence in the UK that different sectors of the press are differentiated by their representation of mental health, with Broadsheets tending to take a less stigmatising stance (Goulden et al., 2011) and Redtop tabloids most likely to present a stigmatising perspective (Clement & Foster, 2008).

Newspaper readership of national UK papers, though reducing, still remains high and the most popular newspapers amongst the three sectors of the industry (Broadsheets, Midrange Tabloids and Redtop Tabloids) have a daily brand reach, including desktop, mobile phones and tablets as well as printed press of 4.6 million (*The Guardian*), 7.6 million (*The Mail*), 7.5 million (*The Sun*) (Publishers Audience Measurement Company, 2018). Increasingly newspapers are using social media as a format to reach readers and Twitter is the most popular choice within the industry (Scourfield et al. 2018), and the most highly subscribed Twitter feeds from each sector have 1.4 million (*The Sun*), to 2.4 million (*Daily Mail*) and 2.6 million (*Daily Telegraph*) followers. Despite this change to the manner in which newspapers engage with their readers, to the researchers' knowledge, there is no research into how the press have represented mental health issues on their Twitter feeds. Though there is emerging evidence that in the broader Twitter-sphere mental health is discussed in more stigmatising manners than physical health conditions (Robinson, Turk, Jilka & Cella, 2018).

## Aims and Questions.

The research aim of the study is to explore the representation of mental health in an area of social media, specifically the UK newspapers' Twitter feeds.

The research study was guided by the following questions:

- What is the manner of the UK national press representation of mental health in their Twitter feeds?
- How may the UK press Twitter feed representations of mental health contribute to the processes of stigmatisation?
- What patterns are there in the news stories that readers are more likely to engage with?

Informed by research into the press printed representation of mental health the study tested the following hypotheses:

- H1      There will be a decrease in the proportion of Bad News stories from 2014 to 2017.
- H2      There will be an increase in the proportion of Understanding stories from 2014 to 2017.
- H3      There will be an increase in the proportion of Understanding stories about depression from 2014 to 2017.
- H4      There will be no significant change in the proportion of Bad News stories about schizophrenia from 2014 to 2017.
- H5      Readers across different newspaper sectors will retweet a disproportionately high number of Bad News stories.

## Method.

The study employed a content analysis method, which has the benefit of managing relatively large datasets and producing quantifiable results, and has been adopted in a number of studies examining the press' representation of mental health (Bowen, 2016; Goulden et al, 2011; Rhydderch et al., 2016). In this approach all press outputs are treated as singular units, and are coded for the content of their message. The construction of a coding manual is central to meeting the requirements of research validity and reliability (Krippendorff, 2012). To address issues of validity the coding manual must be

informed by research in the field. The coding manual in this study was informed by prior researchers' accounts (Nawkova et al., 2012; Rhydderch et al, 2016; Wahl, Woods & Richards, 2002) and was most closely based on the study by Goulden et al. (2011). The model has three broad categories (Bad News, Understanding and Service/Advocacy) each containing several sub-categories. The sub-categories were also informed by Goulden et al.'s (2011) study and consisted of: Bad News – danger/suicide/victims/sensationalism; Understanding – biological/psychosocial/unspecified/impact; Service and Advocacy – service/advocacy. An iterative approach was used to elaborate on how this could be operationalised with the Twitter dataset. This led to the construction of a detailed coding manual that formed the basis of the coding procedure that enabled each Tweet to be coded under one, and only one, sub-category. Where photographs were included in the tweet they were included in the dataset and the coding manual included direction as to how to incorporate the image into the decision about coding.

The reliability of content analysis is measured as the degree to which different coders would produce the same results coding the same dataset. There is an inherent vulnerability in content analysis that coding may be subjective to the coder (Krippendorff, 2012). To address this issue a second coder was trained to use the coding manual and independently coded a sample of the dataset. Krippendorff (2012) advises that a 10% sample is the industry standard for a reliability test, so all tweets were allocated a number stratified by year, newspaper sector and search term and a 10% sample was generated using <https://www.random.org>. The degree of inter-rater reliability was calculated using Cohen's Kappa, which identified that all sub-categories had an acceptable level of inter-rater reliability. The least reliable sub-category was 'unspecified explanation', which had a Kappa value of  $k = .0676$ , which is regarded as a substantial level of agreement (Landis & Koch, 1977). All other sub-categories had Kappa values of  $k = .75$  (danger), or above, up to  $k = .89$  (sensationalism), indicating between substantial and near perfect levels of agreement (Landis & Koch, 1977).

Twitter has advanced search functions to identify tweets by individual newspaper outputs and by combinations of search terms. The dataset was constructed from all tweets by all UK national newspapers (*The Sun, Daily Mirror, Daily Star, Sunday Star, Sunday Mirror, The Sunday People, The Sunday Sun*) in the full calendar years 2014 and 2017. The years 2014 and 2017 were selected to enable analysis of trends. An initial scoping of years prior to 2014 indicated that the press were not consistently using Twitter and therefore there was risk that differences between years would indicate a change in uptake of a relatively new media platform rather than a change in representation of mental health. The choice of search terms plays an important role in the construction of the dataset, with use of a limited range of terms running the risk of skewing the results. This study followed the approach used by Rhydderch et al. (2016) and employed a wide range of terms that included both

broad references to mental health and specific mental disorders. The following search terms were used to identify relevant tweets: *mental (health/illness/patient/home/disorder/asylum), secure hospital, mentally ill, psychiatry, psychiatric, psychiatrist, depression, depressive, anxiety disorder, anxiety attack, panic disorder, panic attack, obsessive compulsive disorder, OCD, social phobia, agoraphobia, agoraphobic, eating disorder, bulimia, bulimic, anorexia, anorexic, post-traumatic stress, PTSD, personality disorder, psychosis, psychotic, schizophrenia, schizophrenic, bipolar*. A combination of using the exclusion function of the advanced search, and hand searches of results meant that duplication of tweets were excluded. This included 4 tweets in the dataset that were duplications, with the same text and image and the same number of likes and retweets, hence these were removed to avoid double counting. Exclusion criteria to avoid double counting also included the use of depressed and depression with reference to the economy, and duplications of tweets that contained both a generic term for mental health (such as psychiatrist) and a specific disorder, or included 2 disorders (such as depression and anxiety). Again this was to avoid double counting in the process of coding the tweets. This produced an initial dataset of 755 tweets in 2014 and 1253 tweets in 2017. After duplications and exclusion criteria were applied this produced datasets of 698 tweets in 2014 and 1,110 tweets in 2017.

Research into sampling of newspaper tweets has indicated that a simple random sample is the most effective and efficient approach rather than the need for constructing samples of composite weeks (Kim, Jang, Kim, Wan, 2018), therefore all tweets were assigned a number, stratified by year, newspaper sector and search term, and <https://www.random.org> was used to generate a random sample of 50% of the population of tweets for each year.

Analysis for trends was conducted using SPSS v25 (IBM Corp, v25, 2017) to perform Pearson's chi-squared analysis to compare patterns between years, and the relationship between the proportions of tweets and retweets. An alpha threshold of .05 was used to indicate significance, however, to avoid a Type 1 error Bonferroni adjustment was applied where analysis involved multiple testing (Field, 2013).

## Results.

The results demonstrate that there had been an increase in the total number of tweets produced by the UK national newspapers in relation to mental health, from a 50% sample of 349 tweets in 2014 to 555 tweets in 2017. The analysis of the total dataset in the two years reviewed, indicated a broadly positive trend, see table 1.

Table 1. All Categories and components separated by years.

	2014		2017		Trend	
	N	%*	N	%*	Chi	P
Total	349		555			
Themes						
Bad News Total	126	36%	135	24%	14.476	< .001
Danger	56	16%	42	8%	15.935	< .001
Suicide	16	5%	23	4%	.101	.751
Victims	6	2%	10	2%	.008	.927
Sensational	48	14%	60	11%	1.764	.184
Understand Total	139	40%	279	50%	9.398	.002
Biological	20	6%	43	8%	1.345	.246
Psychosocial	11	3%	35	6%	4.415	.036
Unspecified	40	11%	96	17%	5.710	.017
Impact	68	19%	105	19%	.044	.833
Service & Adv Total	84	24%	141	26%	.205	.651
Services	59	17%	71	13%	2.943	.086
Advocacy	25	7%	70	13%	6.765	.009

\* Not all percentages total 100% as a result of rounding to whole numbers.

Due to multiple testing Bonferroni adjustment was applied (.05/13) and the alpha threshold adjusted to .004. There was a reduction in the proportion of Bad News tweets and chi-squared analysis of the trend suggests this was significant ( $\chi^2 = 14.476$ , d.f. = 1,  $p < .001$ ), and that hypothesis (H1) can be tentatively accepted. Within the Bad News category the sub-category of danger exhibited the largest change between years, and the only sub-category with a significant reduction ( $\chi^2 = 15.935$ , d.f. = 1,  $p < .001$ ).

The results also reveal that the most common category in both years was the dominant message of Understanding mental illness, which significantly increased as a proportion of the overall tweets from years 2014 to 2017, ( $\chi^2 = 9.398$ , d.f. = 1,  $p = .002$ ), and consequently hypothesis (H2) can be tentatively accepted. Each of the sub-categories, within the Understanding news items, either increased or was stable as a proportion of the overall tweets, though no individual sub-category demonstrated a significant change.

The proportion of tweets about Services and Advocacy remained relatively stable, increasing from 24% to 26%, and therefore the reduction in the proportion of Bad News tweets can be largely accounted for by the increase in the number of tweets that supported readers' understanding of mental illness.

Newspapers have been found to present differing accounts of different disorders (Anderson et al., 2018) so the dataset was examined to determine whether their Twitter output was also characterised

by difference. As this involved multiple testing Bonferroni adjustment was applied (.05/27) and the alpha threshold adjusted to .002.

Table 2. Analysis of all disorders for trends between 2014 and 2017.

		2014		2017		Trend	
		N	%	N	%	Chi	P
No disorder specified.	Bad News	61	40	62	27	7.252	.007
	Understand	26	17	70	31	5.931	.015
	Serv & Ad	66	43	94	42	.573	.449
Depression	Bad News	27	30	22	15	5.949	.015
	Understand	56	62	110	77	2.036	.154
	Serv & Ad	8	8	12	8	.017	.897
Eating disorders	Bad News	6	16	14	21	.638	.424
	Understand	29	76	41	61	.255	.614
	Serv & Ad	3	8	12	18	2.229	.135
Schizophrenia	Bad News	12	50	20	55	.017	.896
	Understand	9	38	15	42	.013	.910
	Serv & Ad	3	12	1	3	-	-
PTSD	Bad News	2	20	9	20	-	-
	Understand	8	80	21	47	1.535	.215
	Serv & Ad	0	0	15	33	9.591	.002
Anxiety disorders	Bad News	9	60	1	10	-	-
	Understand	6	40	9	90	11.269	.001
	Serv & Ad	0	0	0	0	-	-
ADHD	Bad News	5	63	4	29	-	-
	Understand	2	25	8	57	-	-
	Serv & Ad	1	12	2	14	-	-
Bipolar	Bad News	2	25	1	10	-	-
	Understand	3	38	5	50	-	-
	Serv & Ad	3	38	4	40	-	-
Personality disorder	Bad News	2	100	2	67	-	-
	Understand	0	0	0	0	-	-
	Serv & Ad	0	0	1	33	-	-

P values are not provided for categories with expected counts less than 5.

There were two areas that met the threshold for significance, namely the increase in the proportion of tweets that helped to understand anxiety disorders ( $\chi^2 = 11.269$ , d.f. = 1,  $p = .001$ ) and an increase in Service and Advocacy tweets about PTSD, ( $\chi^2 = 9.591$ , d.f. = 1,  $p = .002$ ). A large number of the total output of tweets were about either unspecified disorders ( $n = 226$  in 2017) or depression ( $n = 144$  in 2017) and both were approaching significance in the reductions of Bad News stories and increase in Understanding new items. However, there was not a significant increase in the proportion of Understanding stories about depression ( $\chi^2 = 2.036$ , d.f. = 1,  $p = .154$ ) and that hypothesis (H3) can be tentatively rejected. Consistent with wider research the representation of schizophrenia was not only

heavily characterised by Bad News stories but also not indicate a significant change in the pattern ( $\chi^2 = .017$ , d.f. = 1,  $p = .896$ ) and therefore hypothesis (H4) can be tentatively accepted.

A helpful supplement to the analysis of changes between the time periods is a figurative representation of the proportion of tweets by categories within each diagnosis, illustrated in a stacked chart in Figure 1.

Figure 1. Coding of tweets as a proportion related to diagnoses in 2017.

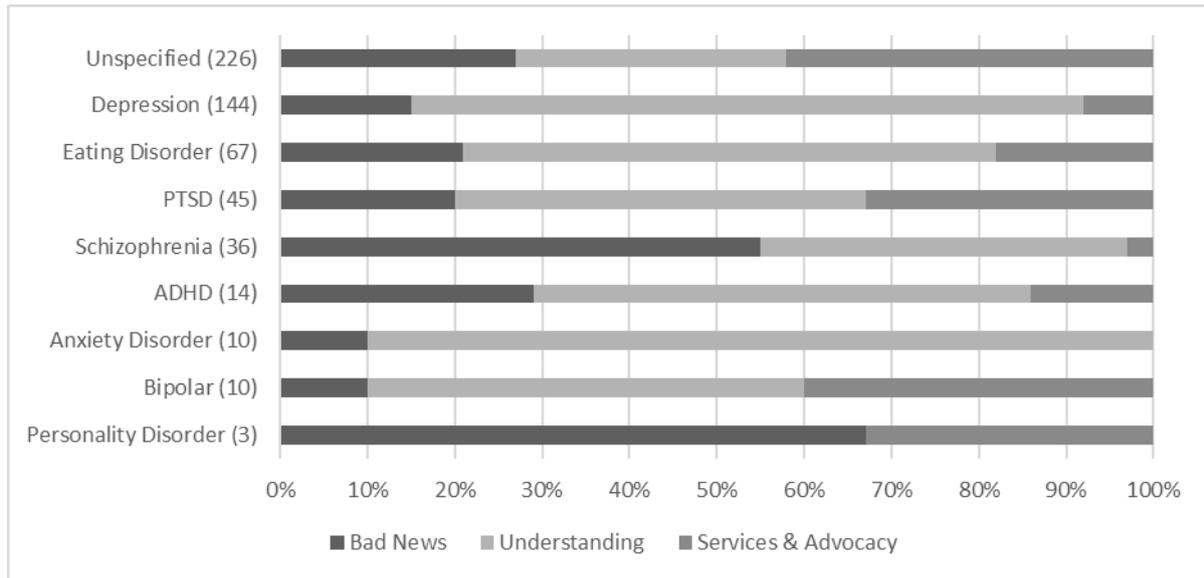
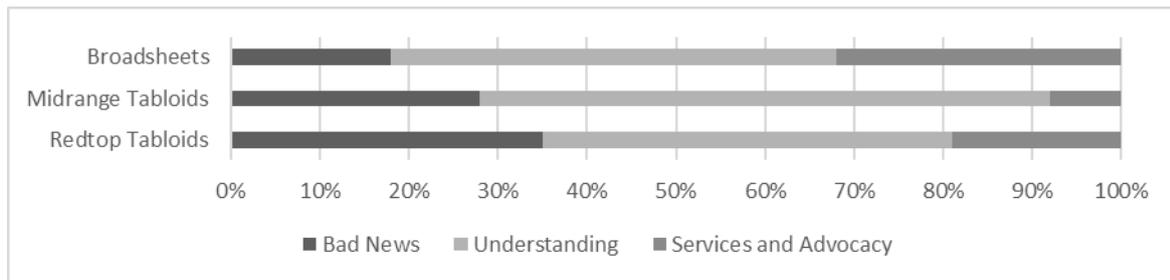


Figure 1 highlights that the representations of schizophrenia and personality disorder in the newspapers tweets was strongly characterised by the theme of Bad News, which is congruent with other research in this field (Rhydderch et al., 2016). By contrast anxiety disorders, depression and eating disorders were each largely represented in manners that encouraged readers to better understand the conditions. Of those three, eating disorders had the highest proportion of Bad News stories. This reflected a pattern in some of the tweets where the written text was sympathetic but the accompanying image was sensationalistic, e.g. sexualised images of women who were very underweight in just their underwear in glamorised selfie style poses. In terms of impact on readers the image was considered to be stronger than the text message.

The dataset was also examined to identify differences between the three sectors of the industry (see Figure 2).

Figure 2. Comparison of newspaper types by proportion of category of tweets in 2017.



The results indicated the broadsheets had the lowest proportion of Bad News stories (18%), followed by the midrange tabloids (28%) and the redtop tabloids had the highest proportion (35%). The midrange tabloids had the highest proportion of articles coded as Understanding (64%), and a very small proportion of their tweets were coded in the Services and Advocacy category (8%).

Twitter based research can provide information about readership engagement with individual news items through information about how often a tweet is retweeted by the original reader (Cork & Eddy, 2017). The number of retweets was identified for each newspaper tweet and the total number of retweets were calculated for each news category. Analysis was performed of the relationship between the proportion of tweets and retweets in each news category, using chi-squared (see table 3), Bonferroni adjustment was applied (.05/8), which meant that the alpha threshold was .006.

Table 3. Analysis of relationship between coded tweets and retweets by newspaper sector.

		Tweets		Retweets		Chi Value	P Value
		No	%	No	%		
Broadsheets	Bad News	55	18	2320	15	1.201	.273
	Understanding	156	50	5763	38	18.165	< .001
	Services & Advocacy	99	32	6919	46	24.621	< .001
Midrange Tabloids	Bad News	20	28	454	40	4.149	.042
	Understanding	46	64	669	59	.743	.389
	Services & Advocacy	6	8	16	1	18.224	< .001
Redtop Tabloids	Bad News	60	35	474	36	.172	.678
	Understanding	77	46	481	37	3.834	.050
	Services & Advocacy	36	19	351	27	2.910	.088

% represent the proportions of tweets or retweets in each category within that newspaper sector.

Analysis indicated that the readers of the Broadsheets were more engaged with tweets about Services and Advocacy than was reflected in the actual proportion of news items produced by these newspapers ( $\chi^2 = 24.621$ , d.f. = 1,  $p < .001$ ) and less engaged with tweets that were focused on Understanding ( $\chi^2 = 18.165$ , d.f. = 1,  $p < .001$ ). Amongst the Midrange tabloids there was a significantly lower level of engagement with tweets about Services and Advocacy ( $\chi^2 = 18.224$ , d.f. = 1,  $p < .001$ ). The Redtop tabloids did not have any news categories where the proportion of tweets and retweets

were significantly different. None of the newspaper sectors indicated a significantly higher proportion of retweets of Bad News stories and therefore Hypothesis (H5) was tentatively rejected.

### Discussion.

In several areas of the findings there is evidence of a positive change in the messages presented on newspaper Twitter feeds. There was a significant reduction in the proportion of Bad News stories ( $\chi^2 = 14.476$ , d.f. = 1,  $p < .001$ ) and a significant increase in the proportion of Understanding stories ( $\chi^2 = 9.398$ , d.f. = 1,  $p = .002$ ). These findings can be viewed in the context of other evidence that the UK press have improved their representation of mental illness between 2008 and 2016 (Anderson et al., 2018). It appears that this trend has extended to their use of Twitter representations of mental health, and provides some optimism for viewing areas of improvement. This was particularly the case in tweets about depression and unspecified disorders, which both demonstrated reductions in the proportion of Bad News stories from 2014 to 2017 and were the most commonly tweeted areas, by diagnostic category. These reductions, however, were not at a level considered to be significant and the proportion of Bad News stories in the sample of Tweets in the most common category, Unspecified Disorder, in 2017 (24%) is still high. Almost one in four tweets that were sent by the newspapers were dominated by one of the sub-categories of Bad News, and in doing so risk contributing to stigmatising attitudes in the public.

The improvement evident in the dataset as a whole also belies some areas that cause concern. The representation of people with schizophrenia and personality disorder continues to be characterised by Bad News stories, which reflected findings from other studies (Rhydderch et al., 2016). Community studies into the attitude of the public towards different mental health conditions has indicated that schizophrenia is a disorder that the public typically more closely associate with danger and fear (Schomerus et al., 2012). Therefore the continued repetition in social media of Bad News stories may well reinforce existing prejudicial attitudes towards this group. Jonny Benjamin commented that when he first received a diagnosis of schizophrenia he felt that all he knew “was what I read in the papers, that people with schizophrenia are violent” (O’Hare, 2013, p27). It is concerning that the newspaper tweets continue to present this image and this may affect how people they re-evaluate their sense of self in light of their diagnosis.

The results also indicate that there are differences between the newspaper sectors in their representations of mental health, with the Broadsheets having the lowest proportion of tweets

characterised by Bad News (18%) and the Redtop Tabloids the highest (35%). These findings are congruent with findings for other studies that have indicated that the Redtop tabloids have tended to present more stigmatising images (Clement & Foster, 2008). A novel contribution from this study is that the examination of retweets provides some indication of levels of reader engagement and endorsement. The newspaper industry exists in a free market economy and has struggled with falling revenues as fewer people purchase hardcopies of papers (Tobitt, 2018). It is understood that part of the dynamic of the press presenting negative and sensationalistic images of mental health is the belief that these are the images that their readers find the most engaging and therefore will be drawn to their particular news output (Morris, 2006). The results indicate that the level of engagement and endorsement of Bad News tweets was not significantly different from their proportional representation in Twitter feeds. Together these findings suggest that it would be helpful to target engagement with the Redtop tabloids newspapers about the representation of mental health issues, and to work collaboratively on how this can change in the context of the pressures they are under to maintain a style of presentation.

The majority of research into newspaper representations of mental illness only examine the text and not the accompanying images (McGinty et al., 2016; Rhydderch et al., 2016; Whitley & Wang, 2017), which reflects that the dominant database used in this field (LexisNexis) only provides the text. By contrast using the advanced searches within Twitter it is possible to access an accompanying image and this study is therefore somewhat novel in the field by incorporating images into the analysis. For the vast majority of the tweets the image was congruent with the text message, however, the study did identify a particular pattern, amongst the Midrange and Redtop tabloids of sensationalistic, and typically sexualised, images related to eating disorder that were incongruent with the sympathetic text message. Media guidance has included advice about not falling back onto a stereotypical image trope of people with their heads in their hands (Rhydderch et al., 2016), but the findings from this study suggest that there should be advice about the use of images when tweeting about eating disorders, particularly anorexia. It was striking that many of the sexualised images were in the style of sexualised selfies, common to other social media such as Instagram, and this highlights how different media repeat and recycle images and in doing so gain currency with readers (Nairn, 2007).

Overall, the findings indicate some areas of improvement but suggest that tweets dominated by Bad News still play a significant aspect of the representation of mental health and in some newspaper sectors, and for some diagnoses, this is especially common. This suggests that there is still much work to be done about the stigma attached to mental health which the newspaper tweets both reflect and contribute to. In particular it suggests that public mental health campaigns need to ensure that they respond to the changing nature of the media industry and consider how to engage with

representations of mental health in social media and to focus attention on areas where stigmatising message are most common.

Acknowledgements and conflicts of interest.

This study was carried out without any external funding and there are no conflicts of interest to report.

Ethical statement.

This study is based on publically available data and therefore did not require ethical review.

There are no conflicts of interest in relation to this study.

Data Sharing.

The data that support the findings of this study are available from the corresponding author, XX, upon reasonable request.

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