FP7-ICT Strategic Targeted Research Project PHEME (No. 611233)
Computing Veracity Across Media, Languages, and Social Networks

D7.2.2 Annotated Corpus – Final Version

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This deliverable describes the creation and annotation of four corpora of tweets on medication, legal highs, mental health stigma, and self-harm and suicide as well as a corpus of reddit posts on rumours surrounding highly publicised suicides. We present the development of the corpora together with a detailed methodology of their annotation and their corresponding manually-annotated codes at the end of the document. Lastly, we present work we have completed on the temporal relationships between occurrences in social media and events in the clinical record through a series of graphs in respective appendices. The aim of this deliverable is to describe the latest version of the Twitter and reddit corpora corresponding to the four demonstration studies of WP7.

Keyword list: tweets, corpora, annotation, mephedrone, legal highs, medication, self-harm, suicide, stigma, mental health disorder, reddit

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Firstly, we provide a summary of the aims and objectives of PHEME's WP7 together with a short description of the four demonstration studies under development.

We present the background and aims of our first demonstration study on social media and medication choice. Then, we describe the methodology for the development of the corpus and search term and report on the 3-part annotation process as well as the results arising from this activity, in detail. The temporal relationship between each medication mention on Twitter and its reference in the clinical record is shown in Appendix 1.

For our second demonstration study on social media and 'legal highs', we provide a short summary of the background and objectives. We present the methodology for corpus and related-terms selection of both Twitter and the clinical record. The process and results from the annotation are then described in detail. The temporal trends in mephedrone mentions in Twitter, searches in Google, visits in Wikipedia and references in CRIS are represented in Appendix 2.

We present a brief summary of the background and objectives for our third demonstration study on mental health stigma. We describe the methodology for the development of the corpus and search terms with an additional analysis on depression and the Germanwings incident. The annotation process and results are extensively described. A series of graphs representing the temporal relationship between mentions for each disorder in Twitter and the clinical record is shown in Appendix 3.

We describe the background and aims of the fourth demonstration study on self-harm and suicide. We present the methodology for the development of the Twitter corpus and search terms as well as the corpus comprising reddit posts related to highly publicised suicides. We describe, in detail, the annotation process and results for tweets and rumours in reddit. Two graphs showing the temporal relationship between mentions of self-harm and suicide in Twitter and the clinical record are included in Appendix 4.

We conclude each case study by outlining the completed tasks and summarise the next steps to deliverable 7.3 at the end of the report.

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1 Introduction

1.1 WP7 – Veracity intelligence for patient care

The PHEME project ((http://www.pheme.eu/) is focusing on social media veracity, a largely unstudied big data computational challenge. It will model, identify and verify information as it spreads across media, languages and social networks and will test this system in two case studies: WP7 (healthcare) and WP8 (digital journalism).

The broad aims of WP7 are to turn the project technologies toward practical applications in the healthcare domain, to enable health professionals and policy makers to analyse Internet content for emerging medically-related patterns, rumours, and other health-related issues. This analysis may in turn be used (i) to develop educational materials for patients and the public, by addressing concerns and misconceptions, and (ii) to link to analysis of the electronic health record.

The objective of WP7 is therefore to carry out research towards a PHEME-based platform for the medical domain for multi-channel media monitoring, extraction, verification, and visualisation of automatically extracted knowledge across media and languages. This case study provides the integration of PHEME's technology into a (hospital-based) health records application and methodological and user verification, for the ultimate goals of monitoring health related rumours and misinformation in social media.

To this end, there are four main demonstration studies being developed in WP7 with a particular focus on four social/online media sources: Twitter, GoogleTrends, Wikipedia and reddit. The aims of these studies are to:

1) Identify social media preferences and dislikes about certain medications and the temporal relationships of these trends with medication uptake and adherence in the clinical record.
2) Monitor the emergence of novel psychoactive substances in social media, and identify if and how promptly they appear in the clinical record.
3) Explore how mental health stigma arises in social media and the temporal relationship of periods of high stigma with adverse outcomes recorded in the clinical record.

4) Ascertain comments and sentiment associated with suicide and self-harm in social media and the temporal relationships of these with adverse outcomes in at-risk patient groups.

Analyses of clinical data utilised the Clinical Record Interactive Search (CRIS) resource at the South London and Maudsley NHS Foundation Trust, a large mental healthcare provider in south London, affiliated to King's College london. CRIS has been described in detail in D7.1. All analyses investigating associations between social media exposures and occurrences recorded in mental healthcare involve investigation of temporal relationships (e.g. between a period of higher-than-normal stigma and adverse events recorded during or shortly after that period) and there are no direct data linkages at an individual level between healthcare and social media information resources.

2 Demonstration study 1 – Social media and medication choices

2.1 Background

Social media have transformed the way information is filtered relating to medication and treatment, symptom recognition and even choice of physician. Being able to relate personal experiences to a wide audience has made gathering knowledge vital to health and medical care instantly accessible through the Internet. Even health professionals have created online communities to consult with peers (i.e. Doximity; https://www.doximity.com/). Undoubtedly, patients feel more enabled and clinicians are more confident in their practice but how does online exchange and uncertain credibility of information affect the mental healthcare choices of particular patient groups?

2.2 Aims and objectives

The main aims of this study are to identify social media preferences, dislikes and rumours about certain medications in mental healthcare and how these relate to outcomes derived from the clinical record. Its objective will be to describe the temporal relationship between online rumours and general sentiment expressed about specific medications and occurrences (such as comments around treatment adherence) in the clinical record.

2.2.1 Specific aims

The particular aims of this demonstration study will be to:

1) Determine and compare the frequency with which specific medications are mentioned in social media, and the context in which these mentions occur.
2) Establish attitudes towards pre-specified medications in social media, associated potential rumours, and the temporal relationship between this sentiment and occurrences in the clinical record concerning medication use, cessation of use and perceived adherence.

2.3 Annotation process

2.3.1 Corpus selection

Tweets were archived from a Twitter garden hose feed licensed by the University of Sheffield, starting in mid-2009. These comprise a random 10% sampling of all tweets (Kergl et al, 2014) and are kept in daily or hourly Lempel–Ziv–Oberhumer (LZO) files. The files are stored in a Hadoop cluster using the Hadoop Distributed File System (HDFS) architecture. The files themselves comprise line-break, separated twitter JavaScript Object Notation (JSON) with one record per tweet; the records include not only the tweet text but also all metadata (e.g. timestamp, number of users who re-tweeted or favoured it, and occasionally geo-location of tweet) and a copy of the user's profile. To search the tweets for given sets of terms, we avoid de-serialising all JSON to match text and instead perform fast Aho-Corasick matching (Aho and Corasick, 1975) per record on an eight-node Hadoop cluster, while file searches are distributed. This gives a refined subset of all records that contain potential matches. These records are then JSON de-serialised and matching terms are searched for in just the tweet text field. This process is performed in Python, again distributed over the cluster. The resulting data is a monolithic file of line-break separated Twitter JSON, which can be loaded directly into other tools, e.g. GATE TwitIE (Bontcheva et al, 2013).

2.3.2 Search terms

A gazetteer of medications used in mental healthcare has been created comprising 30 generic names and associated brand names. This was developed in 3 phases: i) a list was composed of the most commonly referenced medications in the mental healthcare clinical record by number of mentions and number of unique patient records within which they were documented – 18 most common medications were selected; ii) by inspecting the number of individual drug references by year, from 2009 to 2014, we were able to establish which medications had seen the most increase in mentions in the 5 year period – 7 medications were selected on this basis; (iii) after consultation with a senior pharmacist, the 5 newest psychotropic medications were additionally selected, irrespective of their mention in the clinical record. Table 1 shows the selected generic medications and their corresponding brand names.

Table 1 Generic medications and respective brand names

Generic	Brand
clozapine	Clozaril, FazaClo, Versacloz, Clopine, Zaponex
olanzapine	Zyprexa, Zypadhera, Lanzek
methadone	Symoron, Dolophine, Amidone, Methadose, Physeptone, Heptadon
risperidone	Risperdal
citalopram	Celexa, Cipramil
diazepam	Valium, Diastat, Diastat AcuDial, Zetran
zopiclone	Imovane, Zimovane
promethazine	Phenergan, Promethegan, Romergan, Fargan, Farganesse, Prothiazine, Avomine, Atosil, Receptozine, Lergigan, Sominex
valproate	Epilim, Episenta, Epival, Convulex
quetiapine	Seroquel
lorazepam	Ativan
lithium	Eskalith, Lithobid, Cibalith S
aripiprazole	Abilify
mirtazapine	Avanza, Axit, Mirtaz, Mirtazon, Remeron, Zispin
fluoxetine	Prozac, Sarafem
sertraline	Zoloft, Lustral
venlafaxine	Effexor
haloperidol	Haldol
amisulpride	Amazeo, Amipride, Amival, Solian, Soltus, Sulpitac, Sulprix
paliperidone	Invega
buprenorphine	Subutex, Butrans, Buprenex
donepezil	Aricept
memantine	Axura, Akatinol, Namenda, Ebixa, Abixa, Memox
rivastigmine	Exelon
galantamine	Nivalin, Razadyne, Reminyl, Lycoremine
lurasidone	Latuda
brexpiprazole	OPC-34712, OCP34712, OPC 34712
pimavanserin	ACP-103, ACP 103, ACP103, Nuplazid
vortioxetine	Brintellix, Trintellix
cariprazine	RGH-188, RGH188, RGH 188

Red – medications most commonly mentioned on the mental health record
Green – medications with the most rapid increase in mentions on the mental health record
Blue – most recently introduced mental health medication

2.3.3 Methodology

The annotation was performed in three parts. In part 1, two annotators manually annotated a proportion of the extracted tweets based on whether they were:

- relevant (e.g. ‘docs upped my meds now n i feel like a zombie .. wonders who else is on the combination of #pregabalin and #fluoxetine ?? ..’),
- relevant and including a link to information (e.g. ‘Scandal of NHS refusing care to 100s of elderly dementia sufferers & then fighting against compensation payout: http://tinyurl.com/r56tjd’)
- advertisement (e.g. ‘Xanax, Oxycontin, Valium, Vicodin, the best online pharmacy on the net! retweet this!! http://supplymedd.com’)
- non-relevant (e.g. ‘lithium by nirvanaaaaaaa soooooo badass!!’)
- non-English (e.g. ‘@CarstenMoehrke Nee, eher mit sowas hier: http://www.rxlist.com/aricept-drug.htm’)
- unclear (e.g. ‘2 tickets, pls RT @EdenLake #filmdreamcast "F_*k Prozac": RDowneyJr, MRourke, AdmWest, TWaits, GGershon, @dannymasterson, HKeitel, BKingsley’)

An inter-annotator agreement analysis using the Kappa statistic was performed to determine consistency among the two annotators.

In part 2, a collective resolution of the disagreements from part 1 was completed to reach 100% agreement.

In Part 3, one annotator completed additional coding for each drug.

To develop an automatic application for identifying advertisements in the corpus, a natural language processing (NLP) approach was taken. This involved parsing a series of rules selected to determine if the semantic meaning of the text was a reference to an advertisement or not. These rules were developed from notes made during the annotation process and after reviewing a subset of the tweets already annotated as advertisements. Linguistic patterns that indicated an advertisement were determined (http + discount, buy, online, best price, next day delivery, cheap, no|without prescription|rx, compare prices, save money, overnight delivery, Viagra, adpharm, for sale, lowest price, purchase, free delivery, shipping, uk pharmacy), which were then used to create the identification rules, which we then implemented using the Python

programming language. The entire corpus of annotations was then used as a ‘gold standard’ and the application was run over the complete dataset.

In order to compare temporal trends in medication mentions on Twitter and the clinical record, we performed a two-fold normalisation of the data. Firstly, there had occasionally been technical issues resulting in less than 10% of all tweets being captured each month. To control for the effect this may have had on the true number of medication mentions in Twitter, we divided the number of retrieved tweets by the number of total tweets captured for each month. Secondly, since data were measured on different scales for Twitter and CRIS, we normalised values between 0 and 1 (representing the maximum and minimum frequencies within the observation period) to allow comparisons on a common scale. Data were then overlaid to generate a series of graphs showing the relative timing of medication mentions in Twitter and the clinical record.

2.3.4 Results

The total number of tweets extracted for each medication is shown in table 2.

Table 2 Total number of tweets retrieved by medication

Drug name	**Number of tweets**
lithium	256,888
mirtazapine	243,734
diazepam	92,544
fluoxetine	56,506
lorazepam	23,403
promethazine	19,591
sertraline	18,095
methadone	14,215
citalopram	14,095
venlafaxine	13,546
olanzapine	9,910
quetiapine	8,461
aripiprazole	6,354
rivastigmine	6,619
amisulpride	5,888
risperidone	4,833
haloperidol	3,302
donepezil	2,308
zopiclone	2,191
clozapine	2,087
memantine	1,841
buprenorphine	1,817
valproate	1,158
paliperidone	1,084
galantamine	565
lurasidone	337
pimavanserin	73
vortioxetine	65
cariprazine	55
brexpiprazole	12
Total	811,577

Table 3 shows the double-annotated and total-annotated number of tweets and the distribution of the annotation codes by medication in the retrieved dataset.

Table 3 Number of total and double annotations and frequency of annotation codes by medication

Drug name	Double Annotations	Total Annotations	Relevant tweet %	Relevant – Link %	Advertisement %	Not relevant %	Non-English %	Unclear %
amisulpride	50	332	1.2%	3.6%	2.1%	1.5%	90.1%	1.5%
aripiprazole	50	347	22.8%	52.4%	19.9%	0.6%	1.2%	3.2%
brexpiprazole	2	12	8.3%	91.7%	0.0%	0.0%	0.0%	0.0%
buprenorphine	50	342	17.3%	55.6%	3.2%	0.0%	23.4%	0.6%
cariprazine	5	55	1.8%	98.2%	0.0%	0.0%	0.0%	0.0%
citalopram	50	349	18.6%	40.1%	35.2%	1.7%	4.0%	0.3%
clozapine	21	317	12.9%	51.7%	28.7%	2.8%	3.8%	0.0%
diazepam	50	350	45.4%	14.6%	18.3%	0.0%	21.4%	0.3%
donepezil	50	345	8.4%	52.8%	36.2%	0.0%	2.0%	0.6%
fluoxetine	50	348	48.9%	16.4%	7.8%	0.3%	25.9%	0.9%
galantamine	11	308	4.9%	24.0%	69.2%	0.0%	1.9%	0.0%
haloperidol	50	346	30.9%	22.5%	6.9%	0.3%	38.2%	1.2%
lithium	50	350	4.0%	1.4%	0.3%	88.0%	2.9%	3.4%
lorazepam	50	349	33.5%	20.6%	39.5%	0.0%	5.4%	0.9%
lurasidone	11	300	36.7%	51.3%	0.0%	1.0%	11.0%	0.0%
memantine	50	345	4.3%	37.7%	29.3%	7.0%	21.7%	0.0%
methadone	50	349	57.3%	38.7%	1.7%	0.3%	1.7%	0.3%
mirtazapine	50	350	0.3%	1.4%	0.3%	0.3%	96.9%	0.9%
olanzapine	50	350	7.1%	60.0%	29.4%	0.0%	3.4%	0.0%
paliperidone	31	322	5.9%	46.3%	23.9%	0.6%	20.8%	2.5%
pimavanserin	10	73	27.4%	71.2%	0.0%	1.4%	0.0%	0.0%
promethazine	50	350	77.7%	11.7%	7.1%	2.3%	1.1%	0.0%
quetiapine	50	350	31.4%	46.0%	12.3%	2.3%	6.0%	2.0%
risperidone	50	349	20.3%	57.9%	14.0%	1.7%	6.0%	0.0%
rivastigmine	50	349	0.3%	9.2%	9.7%	74.5%	4.3%	2.0%
sertraline	50	349	41.8%	31.5%	16.9%	2.0%	6.0%	1.7%
valproate	16	314	22.3%	70.7%	2.2%	1.0%	3.8%	0.0%
venlafaxine	50	348	15.5%	51.7%	28.4%	0.0%	3.7%	0.6%
vortioxetine	0	65	6.2%	53.8%	0.0%	38.5%	1.5%	0.0%
zopiclone	50	342	48.2%	6.4%	36.8%	1.8%	6.4%	0.3%
Total	1157	9055						

The Kappa statistic (0.973, 95% CI: 0.96, 0.98) revealed excellent agreement between the two annotators (Landis and Koch, 1977).

The NLP algorithm for detecting Twitter advertisements related to medications was developed from notes made during the annotation process and the review of a subset

of 300 tweets annotated as advertisements. The rules created to identify the linguistic patterns indicating a positive reference to an advertisement were then tested on all 9,011 annotated tweets (gold standard set) using the Python programming language. The development of the GATE application was successful in identifying true instances of an advertisement in the tweets with a precision score (positive predictive value) of 0.90 and a recall score (sensitivity) of 0.92. The application was then deployed over a dataset of 811,296 tweets – 67,420 were identified as true instances of an advertisement. The application will shortly be run over the complete dataset and become available on a public platform.

Appendix 1 shows the series of graphs representing the temporal relationship between medication mentions in Twitter and the clinical record (CRIS). There were no mentions of brexpiprazole, cariprazine, pimavanserin or vortioxetine in CRIS. Analysis for lithium has not been possible due to the increased noise created by irrelevant discussions on Twitter concerning use of lithium in batteries rather than its use as a medication.

Tasks Completed for case study 1:

1) Historical data extraction from Twitter and CRIS for all 30 generic medications and their corresponding brand names

2) Data annotation for Twitter

3) Development of NLP application to detect medication-related advertisements in Twitter

4) Analysis of temporal relationship between medication mentions in Twitter and CRIS

3 Demonstration study 2 – Social media and 'legal highs'

3.1 Background

The growing prevalence of novel psychoactive substances (NPS), commonly referred to as 'legal highs', and the rapid rate with which they appear, places healthcare providers at a great disadvantage. These substances are marketed through hundreds of unregulated online shops and clinicians are often unaware of recently-appearing compounds. Furthermore, the 'branding' of these drugs and the actual composition of the substance render effects are difficult to predict both by the user and by the healthcare professional (Advisory Council on the Misuse of Drugs, 2011), which increases the risk of adverse consequences. There is thus a need to investigate the impact of rumour and misinformation about these agents and, with one new NPS on average appearing on the drug market every week, it is becoming increasingly urgent to monitor emergent substances and establish new diffusion trends.

3.2 Aims and objectives

The main objectives of this study are to monitor the emergence of novel psychoactive substances in social media and the controversies surrounding them and to identify if and how promptly they appear in the mental health clinical record.

3.2.1 Specific aims

The particular aims of this demonstration study are to:

1) Determine the incidence of references to novel psychoactive substances in the clinical record and social media.
2) Establish the time lag between the emergence of a novel psychoactive substance in social media and its appearance in the clinical record.
3) Describe the characteristics of mental health records in which NPS appear – for example, by service context, diagnosis or demographic profile.

3.3 Annotation process

3.3.1 Corpus selection

The selection of corpora was completed from both Twitter (see Chapter 2, section 2.3.1) and electronic health records from the South London and Maudsley Case Register using the Clinical Records Interactive Search (CRIS) system (http://www.slam.nhs.uk/about/core-facilities/cris). Extraction of the data from the clinical records was carried out using the natural language processing software called TextHunter (Jackson et al, 2014), which also provided a manual annotation environment. Regular expressions were used to enter the search terms of interest in order to account for most common spelling variations and mistakes (e.g. the term "miao* miao*" would capture both "miao miao" and "miaow miaow"). Sentences containing terms matched by the regular expressions, defined above, were extracted from the clinical record.

3.3.2 Search terms

Following consultation with a substance use specialist at the National Addiction Centre, King's College London, (www.kcl.ac.uk/ioppn/depts/addictions/index.aspx), we shortlisted 17 legal highs for exploration. A list of related terms commonly associated with these substances has been produced for searching social media and the clinical record (Table 4). A preliminary search of these terms through the clinical record system revealed mephedrone to be by far the most commonly referenced NPS. Reference to other NPS was of insufficient frequency and further research into these substances was considered impractical. Therefore, subsequent data extraction and annotation of tweets and the clinical record were restricted to mephedrone only.

Table 4 Legal high terms for data extraction

Legal highs	**Related terms**
Spice	spice silver, spice gold, spice diamond, yucatan fire, fake weed, devil's weed, clockwork orange, black mamba
Methoxetamine	m-ket, MEX, Kmax, Special M, legal ketamine, roflcoptr, mxe, mket, mexy, mexxy
DMT	dimitri, ayahuasca, dimethyltryptamine
AMT	2-(1h-indol-3-yl)-1-methyl-ethylamine, indopan, AMT freebase, alpha-methyltryptamine
Benzo Fury	white pearl, benzo fury, 6-APDB, 6-APB, 5-APDB, 5-APB, APB
BZP (piperazine)	smileys, party pills, legal x, legal e, happy pills, bzp, benzylpiperazine
Mephedrone	4-mmc, kitty cat, white magic, miaow miaow, meph, meow meow, m-smack, m-cat
2-DPMP	vanilla sky, purple wave, ivory wave, desoxypipradrol, D2PM, 2-diphenylmethylpyrrolidine.
Salvia divinorum	mexican magic mint, holy sage, eclipse, Salvinorin A
Kanna	sceletium tortuosum, mesembrine
4-AcO-Met	4-acetoxy-met, metacetin
Morning glory	Pearly gates
2C-B, 2C-T-7	Nexus
Naphyrone	NRG
MDAI	
MDPV	
Bromodragonfly	

3.3.3 Methodology

The annotation was performed in two parts. In part 1, two annotators manually annotated a portion of the extracted tweets based on whether they were:

- a true instance of mephedrone reference (e.g. '@missmegafun I am in wigan off my face on wkd, steroids, viagra and m-cat')
- a false instance of mephedrone reference (e.g. 'no kitty cat waiting for me when i got home. i have no idea where he is. i hope he's having fun.').
- unclear, if classification could not be made with certainty.

Inter-annotator agreement analysis using the Kappa statistic was performed to determine consistency between the two annotators.

In part 2, a collective resolution of the disagreements from the first round of annotation was implemented to reach 100% agreement.

To develop an automatic application for identifying genuine mentions of mephedrone in the remaining tweets, a natural language processing (NLP) approach was taken. This involved applying an algorithm that was able to determine if the semantic meaning of the text was a reference to mephedrone or not. The algorithm was developed using a subset of the tweets already annotated. These tweets were analysed and the linguistic patterns that indicated a true reference to mephedrone were determined, which were then used to create identification rules implemented on General Architecture for Text Engineering software (GATE; Cunningham et al, 2011). GATE also supported the rapid deployment of these applications over the larger set of tweets retrieved. Rules were tested over another 'gold standard' subset of tweets already annotated.

In the clinical record, sentences containing mephedrone and its related terms were annotated by a single annotator according to whether the context was :

- a positive occurrence of mephedrone use (e.g. patient reported using mephedrone on a daily basis)

- a negative occurrence of mephedrone use (e.g. patient denied the use of mephedrone)

- an occurrence of the term mephedrone not pertaining to use (e.g. patient was given information on mephedrone / patient was arrested on possession of mephedrone)

These categories were labelled 'positive', 'negative' and 'unknown', respectively. A second round of annotations was then undertaken on the positive category to identify whether the patients were currently using mephedrone, had taken it at some point in the past, or if it was unclear from the context as to when mephedrone was taken.

For this case study, we also collected data from an additional two online sources. We used the Google Trends (Google, 2012) interface to search for 'mephedrone – the drug' and calculate the relative number of times mephedrone was entered as a keyword in Google search. In Wikipedia, we collected and analysed page view statistics (Wikipedia, 2015a) for the English Wikipedia and the page 'mephedrone' (Wikipedia, 2015b). After processing, a report was generated with regards to the number of visits on a daily basis for the target entry-page. In order to compare temporal trends in mephedrone mentions on Twitter, Google Trends, Wikipedia and the clinical record, we performed a two-fold normalisation of the data. Firstly, there had occasionally been technical issues resulting in less than 10% of all tweets being captured each month. To control for the effect this may have had on the true number of mephedrone mentions in Twitter, we divided the number of positive mephedrone tweets by the number of total tweets captured for each month. Secondly, since data were measured on different scales for Twitter, Google Trends, Wikipedia and CRIS, we normalised values between 0 and 1 (representing the maximum and minimum frequencies within the observation period) to allow comparisons on a common scale. Data were then overlaid to generate a graph showing the relative timing of references to mephedrone in the clinical record, mephedrone mentions in Twitter, mephedrone-related searches in Google and visits in Wikipedia.

3.3.4 Results

The mephedrone-related query produced 145,578 tweets of which the first 5,000 were double-annotated (available: https://figshare.com/articles/Mephedrone_annotations_for_Twitter/1613832). An inter-annotator agreement analysis using the Kappa statistic was performed to

determine consistency between the two annotators. This was found to be Kappa=0.861 (p <.0.001), 95% CI (0.846, 0.877) (Table 5). This is a high value showing a very good level of agreement (Landis and Koch, 1977).

Table 5 Inter-annotator agreement on mephedrone coding

Annotator 1 / **Annotator 2**	**Positive**	**Negative**	**Unclear**	**Total**
Positive	836	6	17	859
Negative	42	3,609	192	3,843
Unclear	2	22	274	298
Total	880	3,637	483	5,000

Nonetheless, 100% agreement was reached after collective resolution of disagreements. The final agreed annotations are as follows: 903 positive, 3,932 negative and 165 unknown. Table 6 shows the distribution of the 3 annotation codes by individual mephedrone-related terms in the annotated tweets as well as in the complete data set.

Table 6 Frequency of 3 annotation codes by individual search term

Code / **Term**	**Positive**	**Negative**	**Unclear**	**Total annotated***	**All tweets***
mephedrone	99.7%	0.3%	0.0%	693	5,873
meow meow	10.5%	80.3%	9.3%	1,693	74,931
miaow miaow	45.1%	47.1%	7.8%	51	692
4-mmc	100.0%	0.0%	0.0%	83	640
meph	10.3%	89.7%	0.0%	39	608
m-cat	84.6%	12.8%	2.6%	39	511
kitty cat	0.0%	99.9%	0.1%	2,326	60,145
white magic	0.0%	100.0%	0.0%	174	3,455
m-smack	0.0%	100.0%	0.0%	1	6
Total*				5,099	146,855

*more than one term may be present in an individual tweet

An NLP algorithm was developed through the use of 2,400 annotated tweets (training set). The rules created to identify the linguistic patterns indicating a positive reference to mephedrone were then tested on another 2,400 annotated tweets (gold standard set) using GATE. The development of the GATE application was successful in identifying true instances of mephedrone in the tweets with a precision score (positive predictive value) of 0.988 and a recall score (sensitivity) of 0.896. The application was then deployed over the complete dataset of 145,578 tweets retrieved between 2009 and 2014 – 7,044 were identified as true instances of mephedrone (available: http://dx.doi.org/10.5281/zenodo.35376).

In the clinical record, 2,799 sentences containing mephedrone or related terms (Table 7) were retrieved.

Table 7 Frequency of mephedrone-related terms in clinical record

Term	**Frequency**
mephedrone	2,707
meow meow	75
miao miao	17
Total	2,799

Of these, 2578 were annotated as a positive occurrence of the drug (Table 8).

Table 8 Frequency of mephedrone annotation codes in clinical record

Code	**Frequency**
Positive	2,578
Negative	43
Unknown	178
Total	2,799

All 2,578 positive annotations were subsequently re-annotated to code current or past use (Table 9).

Table 9 Frequency of present and past mephedrone use in positive annotations

Code	**Frequency**
Present	2,187
Past	376
Unclear	15
Total	2,578

Appendix 2 shows the graph representing the temporal relationship between mephedrone mentions on Twitter, Google Trends, Wikipedia and the clinical record (CRIS). A scientific manuscript describing these results and their implication for public mental health monitoring has recently been submitted for peer-reviewed publication.

Tasks completed for case study 2:

1) Historical data extraction from Twitter, Google Trends, Wikipedia and CRIS
2) Data annotation for Twitter and CRIS
3) Development of NLP application to detect mephedrone references in Twitter
4) Analysis of temporal relationship between mephedrone mentions in different data sources

4 Demonstration study 3 – Mental health stigma

4.1 Background

In summary, many mental health disorders are associated with stigma – a sign of discredit, which sets someone apart from others. Despite awareness campaigns and educational initiatives, mental illness continues to receive negative attention, primarily because of fear and prejudice. Social media risk playing a significant role in diffusing inaccurate portrayals of mental illness, in the form of rumours and wider misinformation, and are still powerful instruments for the perpetuation of stereotypes and discrimination against mental health disorders. Failure to identify and deal with this stigma – societal or self-directed – may hinder prospects of recovery and rehabilitation.

4.2 Aims and objectives

The main aim of this study will be to identify how mental health stigma arises in social media, the role rumours (as identified through stigmatising expressions) play in propagating these attitudes and how it is reflected in the clinical record.

4.2.1 Specific aims

1) Determine the incidence of references to mental health stigma in social media
2) Explore how stigmatising chatter (rumours) affect online conversations
3) Establish whether patterns in this environmental context affect the clinical presentation of people who may identify with the diagnosis and/or behaviour that is being stigmatised.

4.3 Annotation process

4.3.1 Corpus selection

The corpus selection for the mental health disorders was completed from Twitter (see Chapter 2, section 2.3.1). For the sub-study, tweets associated with the Germanwings plane crash were collected as described in D2.4. We sampled the tweets associated

with Andreas Lubitz, the co-pilot of the flight, within the timeframe between 24th and 30th March 2015. The co-pilot was rumoured to have been diagnosed with depression.

4.3.2 Search terms

A gazetteer was created comprising 10 mental health disorders and their associated terms as well as a set of mental-health/stigma related hashtags (Table 10). Each line refers to one search and tweets were retrieved for each one separately. The search terms *depress*, mental* and psych* were used to collect tweets for the Germanwings sub-study.

Table 10 Search terms and related keywords for disorders/stigma search

Disorders	**Keywords**
Attention deficit disorder	attention deficit, attentiondeficit, adhd, #add
Bipolar disorder	bipolar*, manic depress*, manicdepress*, #biploar
Psychosis	psychos*, psychot*
Schizophrenia	schizophren*, schizoaffective, schizo affective, #schizo*
Depression	depress*
Obsessive-compulsive disorder	obsessive compulsive, obsessivecompulsive, ocd
Autism	*autism*
Alzheimer's disease	alzheimer*
Dementia	Dementia
Anxiety	*anxiety*, #gad
Mental health/ stigma	#mentalhealth*, #mentalillness, #endstigma, #stigma, #whatstigma, #mhstigma, #stigmahurts

4.3.3 Methodology

1) Mental health disorders

Annotation was performed in three parts. In part 1, two annotators manually annotated a portion of the extracted tweets for search based on whether they were:

- relevant (e.g. 'Schizophrenia beats being alone')

- relevant and included a link to information (e.g. Scandal of NHS refusing care to 100s of elderly dementia sufferers & then fighting against compensation payout: http://tinyurl.com/r56tjd')
- non-relevant (e.g. internetz back on =D i swear its schizophrenic :P).
- unclear, if classification could not be made with certainty
- non-English (e.g. Acabei de Ler...A Mulher do Viajante do Tempo...Meus Olhos estão inchados de tanto chorar...e me bateu depressão)

Inter-annotator agreement analysis using the Kappa statistic was performed to determine consistency between the two annotators.

In part 2, a collective resolution of the disagreements from part 1 was completed to reach 100% agreement.

In part 3, one annotator manually coded additional tweets for each search based on initial classification and then recoded all annotated tweets (n.b. mental health hash tags produced 189 tweets, which were all annotated) for each search based on whether they were:

- personal experience (e.g. @5leaf I also was an avid bug, insect, butterfly, & snake/reptile catcher when I was a child w/autism. I really liked the fireflies)
- opinion (e.g. Can you control #panic attacks without expensive prescription drugs? Learn more about ALL NATURAL #anxiety relief. http://bit.ly/cONrl)
- unclear (e.g. @roppay ?????????????ADHD???????????????)

The distribution of the stigma-related hashtags in the corpus (#endstigma, #whatstigma, mentalillness*, #mentalhealth, #stigmahurts, #mhstigma, #stigma) was also ascertained.

2) Germanwings

Annotation was performed in two parts. In part 1, two annotators manually annotated a portion of the extracted tweets based on whether they were:

- Stigmatising/rumorous (e.g. ‘Time to introduce checks of pilot's psyche not just before, but regularly during their career #GermanWingsCrash #4U9525’)
- anti-stigmatising (e.g. ‘PSA: People with mental illness (inc. depression) much more likely to be victims of violence than perpetrators #Germanwings #badreporting’)
- neutral (e.g. ‘The investigation into the mental health of the Germanwings disaster pilot prompted @HolyroodTom to write this: https://t.co/dTa3dWl4ge 2/4’)
- unclear (e.g. ‘Funny how the narrative about the Germanwings pilot is being constructed around mental-illness/depression. Ever heard of a depressed Muslim?’)

Inter-annotator agreement analysis using the Kappa statistic was performed to determine consistency among the two annotators.

Due the low frequency of stigma-related tweets and the fact that the ‘stigma’ keyword was associated with anti-stigmatising tweets 30% of the time, an NLP application was developed to identify tweets indicating anti-stigma. This involved applying an algorithm that was able to determine if the semantic meaning of the text was a reference to anti-stigma or not. The algorithm was developed using a subset of the tweets already annotated. These tweets were analysed and the linguistic patterns that indicated a true reference to anti-stigma were determined, which were then used to create identification rules implemented on General Architecture for Text Engineering software (GATE; Cunningham et al, 2011). GATE also supported the rapid deployment of these applications over the larger set of tweets retrieved. Rules were tested over another ‘gold standard’ subset of tweets already annotated.

In order to compare temporal trends in disorder mentions in Twitter and the clinical record, we performed a two-fold normalisation of the data. Firstly, there had

occasionally been technical issues resulting in less than 10% of all tweets being captured each month. To control for the effect this may have had on the true number of disorder/stigma mentions in Twitter, we divided the number of retrieved tweets by the number of total tweets captured for each month. Secondly, since data were measured on different scales for Twitter and CRIS, we normalised values between 0 and 1 (representing the maximum and minimum frequencies within the observation period) to allow comparisons on a common scale. Data were then overlaid to generate a series of graphs showing the relative timing of disorder/stigma mentions in Twitter and the clinical record.

4.3.4 Results

1) Mental health disorders

Table 11 shows the total number of tweets by search group and in order of frequency.

Table 11 Total number of tweets retrieved by search group

Search group	**Number of tweets**
Depression	7,298,900
Bipolar disorder	2,058,961
Anxiety disorder	1,339,470
Autism	836,642
Psychosis	522,137
Alzheimer's disease	464,814
Attention-deficit disorder	444,972
Obsessive-compulsive disorder	320,391
Dementia	161,074
Schizophrenia	136,989
Mental-health / stigma	31,357
Total	13,615,707

Table 12 shows the distribution of stigma-related hashtags in the disorder/stigma corpus.

Table 12 Frequency of stigma-related hashtags

Hashtags	**Number of tweets**
#mentalhealth	12,693
#mentalillness	8,560
#stigma	4,536
#endstigma	1,283
#whatstigma	741
#mhstigma	29
#stigmahurts	2
Total	27,844

Double annotations were completed for 200 tweets in each group besides 100 and 189 in attention-deficit disorder and mental health/stigma, respectively. There was excellent agreement between annotators (Landis and Koch, 1977) with a Kappa statistic of 0.96 (95% CI 0.95, 0.97)

Additional annotations were carried out by a single annotator to reach 500 in each group (189 in mental health/stigma) and all annotated tweets were recoded based on the new classification. Table 13 shows the distribution of the annotation codes by search group.

Table 13 Frequency of annotation codes by search group

Codes **Terms**	**Relevant**			**Relevant-link**			**Total**			**Non-relev**	**Non-Eng**
	P	O	U	P	O	U	P	O	U		
Obsessive-compulsive disorder	56.8%	21.2%	2.6%	6.2%	6.0%	0.0%	63.0%	27.2%	2.6%	4.6%	2.6%
Anxiety disorder	49.2%	13.8%	4.0%	0.0%	26.0%	0.0%	49.2%	39.8%	4.0%	7.0%	0.0%
Depression	32.6%	8.8%	1.6%	1.0%	5.8%	0.0%	33.6%	14.6%	1.6%	36.2%	14.0%
Attention-deficit disorder	24.4%	14.4%	1.4%	0.0%	51.6%	0.0%	24.4%	66.0%	1.4%	4.0%	4.2%
Bipolar disorder	17.0%	13.6%	0.8%	0.0%	23.4%	0.0%	17.0%	37.0%	0.8%	20.6%	24.6%
Psychosis	15.6%	24.6%	1.8%	0.0%	7.6%	0.0%	15.6%	32.2%	1.8%	43.4%	7.0%
Alzheimer's disease	14.0%	13.0%	0.6%	0.0%	57.0%	0.0%	14.0%	70.0%	0.6%	2.8%	12.6%
Schizophrenia	12.6%	32.2%	2.6%	1.4%	29.0%	0.0%	14.0%	61.2%	2.6%	17.0%	5.2%
Dementia	10.8%	18.8%	0.6%	0.0%	59.2%	0.0%	10.8%	78.0%	0.6%	9.4%	1.2%
Autism	10.6%	20.8%	0.2%	0.0%	51.0%	0.0%	10.6%	71.8%	0.2%	15.0%	2.4%
Mental health/stigma	4.2%	23.8%	0.0%	2.1%	67.2%	0.0%	6.3%	91.0%	0.0%	0.0%	2.6%

Appendix 3 shows a series of graphs representing the temporal relationship between mental health disorder mentions in Twitter and the clinical record (CRIS).

2) Germanwings

The Germanwings-related Twitter query produced 20,713 tweets of which 2,000 were double-annotated with a very good inter-annotator agreement: K= 0.787 (95% CI 0.76, 0.81). Following arbitration of disagreements, the final annotations were as follows: 84 stigma/rumorous, 693 anti-stigma, 1,078 neutral and 145 unclear.

The NLP algorithm was developed through the use of 1,000 annotated tweets (training set). The rules created to identify the linguistic patterns indicating a positive reference

to anti-stigma were then tested on another 1,000 annotated tweets (gold standard set) using GATE. The development of the GATE application was successful in identifying true instances of anti-stigma in the tweets with a precision score (positive predictive value) of 0.98 and a recall score (sensitivity) of 0.31. The application was then deployed over the complete dataset of 20,713 tweets and 1,400 were identified as true instances of anti-stigma related to the Germanwings story.

Tasks completed in case study 3:

1) Historical data collection from Twitter on 10 mental health disorders and stigma related hashtags

2) Data annotation for Twitter

3) Completion of sub-study relevant to news story (Germanwings) surrounding mental health stigma/ rumorous conversations

4) Development of NLP application to detect anti-stigma (in response to stigmatising/rumorous conversations) in Twitter

5) Analysis of temporal relationship between mental health disorder mentions in Twitter and CRIS

5 Demonstration study 4 – Self-harm and suicide

5.1 Background

In summary, self-harm has increasingly been the focus of research and clinical exploration, seen as a behaviour transcending clinical barriers, most commonly observed in patient groups but also with a high prevalence in certain demographic groups in community samples, such as young adults (Walsh, 2006; Welch, 2004). Suicide is second only to accidental death as the leading cause of mortality in young men across the world (Pitman et al 2012).

International media has attracted scrutiny in relation to a possible role in influencing self-harm and suicidal behaviours through highly publicised suicides of famous people (Niederkrotenthaler et al, 2010) and the internet has received increasing attention in recent years. With the majority of adolescents accessing online sources daily (Lenhart, 2010), it comes as no surprise that social media have received considerable attention for their possible role in contributing to self-harm and self-inflicted mortality by glamourising and at times promoting these behaviours. The potential risk arising from unsupervised contact, with vast information and exposure to upsetting messages, particularly for young people already engaged in self-harming and suicidal behaviours, is very high.

5.2 Aims and objectives

The main objective of this study will be to describe online ‘chatter’ around themes of self-harm and suicide including exploration of rumours surrounding suicide deaths of famous individuals and potential relationships with the clinical presentations of vulnerable patient groups.

5.2.1 Specific aims

1) Determine the frequency with which self-harm and suicide-related terms occur in social media.
2) Explore the nature of rumours around highly-publicised suicides.

3) Establish whether social media chatter on suicide/self-harm is temporally related to this behaviour in clinical populations vulnerable to these outcomes.

5.3 Annotation process

5.3.1 Corpus selection

The corpus selection from Twitter, for the self-harm/suicide case study is described in Chapter 2, section 2.3.1. A corpus comprising posts from reddit was selected for rumour annotation. We decided on two highly publicised deaths involving Kurt Cobain and Robin Williams and related posts on reddit were initially accessed using its API (https://www.reddit.com/dev/api). The collection was performed using the Python Reddit Api Wrapper (PRAW) (https://praw.readthedocs.org/en/stable/).

5.3.2 Search terms

For Twitter, a gazetteer was created comprising the following search terms: selfharm*, self harm*, suicid*, #cutting, #selfinjury, #secretsociety123, #selfhate, #blades, #harm, #OD and #overdose. For reddit, the names ‘Kurt Cobain’ and ‘Robin Williams’ plus the keyword ‘suicide’ were used to search the website.

5.3.3 Methodology

1) Twitter

Annotation was performed in two parts. In part 1, one annotator manually annotated a portion of the extracted tweets based on whether they were:

- relevant (e.g. ‘Catch PTSD early get help please before you committ suicide or kill someone! #Health Care REform’)
- relevant and including a link to information (e.g. ‘Another 911 GZ Vet gone - Tehama County deputy coroner an apparent suicide-was called to Ground Zero to identify bodies http://bit.ly/xLnn8’)
- non-relevant (e.g. ‘wish i lived in san diego ! viva comic con ! wouldnt mind seeing a suicide girl dressed as wolverine !’)

- non-English (e.g. '[blogonet.fr] Le prochain iPhone, la cause d"un suicide? http://bit.ly/ZitEW')

In part 2, the relevant and relevant-link to information tweets were re-annotated based on whether they reflected:

- personal experience or opinion
- objective or subjective perspective
- personal or non-personal attitude

In order to compare temporal trends in self-harm and suicide mentions in Twitter and the clinical record, we performed a two-fold normalisation of the data. Firstly, there had occasionally been technical issues resulting in less than 10% of all tweets being captured each month. To control for the effect this may have had on the true number of self-harm and suicide mentions in Twitter, we divided the number of retrieved tweets by the number of total tweets captured for each month. Secondly, since data were measured on different scales for the two data sources, we normalised values between 0 and 1 (representing the maximum and minimum frequencies within the observation period) to allow comparisons on a common scale. Data were then overlaid to generate 2 graphs showing the relative timing of self-harm and suicide mentions in Twitter and the clinical record.

2) reddit

Following the keyword search in reddit, 5 conversation threads were identified:

1) Conversation 1 - Robin Williams did not commit suicide (https://www.reddit.com/r/conspiracy/comments/2dlx9o/robin_williams_did_not_commit_suicide/)

2) Conversation 2 - 'Serious Money Troubles' caused Robin Williams to commit suicide after divorces "from first wife Valerie Velardi in 1988, and from second wife, Marsha Garces in 2008…gutted his bank account" (https://www.reddit.com/r/MensRights/comments/2dcdg7/serious_money_troubles_caused_robin_williams_to/)

3) Conversation 3 - Former Seattle police chief on Kurt Cobain's death: "I would reopen this investigation." [x-post from /r/news] (https://www.reddit.com/r/UnresolvedMysteries/comments/3bg9zq/former_seattle_police_chief_on_kurt_cobains_death/)

4) Conversation 4 - What nobody's saying: Robin Williams "suicide" may have been accidental death by auto-erotic asphyxiation (https://www.reddit.com/r/conspiracy/comments/2de6b3/what_nobodys_saying_robin_williams_suicide_may/)

5) Conversation 5 - I still think Robin Williams died of something unnatural, although I hope I'm wrong... (https://www.reddit.com/r/conspiracy/comments/2lmslc/i_still_think_robin_williams_died_of_something/)

For each of the five different threads, we collected the complete conversations, which included a source post that initiated the rumourous conversation and the subsequent responding posts that can be structured in the form of a tree. All posts were annotated using the scheme developed - for analysing conversation around rumours in social media - and described by UWAR in D2.4. In keeping with this annotation scheme, one annotator coded the type of support, certainty and evidentiality for the support post and the response type, certainty and evidentiality for the replying posts (direct and deep replies). The four annotation features were coded through individual micro-tasks as per the disaggregated system employed by UWAR. For the replying posts, certainty and evidentiality were not annotated in the case of comments or irrelevant posts. The features of the annotation scheme as described in D2.4 are summarised in Table 14.

Table 14 Codes in annotation scheme

SUPPORT POST	**REPLYING POSTS**
Type of support Supporting / Denying / Underspecified	**Response type (x2 for deep replies)** Agreed / Disagreed / Appeal for more information / Comment / Irrelevant
Certainty Certain / Somewhat Certain / Uncertain	**Certainty** Certain / Somewhat Certain / Uncertain
Evidentiality First-hand experience / URL pointing to evidence / Quotation of person or organisation / Attachment of picture / Quotation of unverified source / Employment of reasoning / No evidence	**Evidentiality** First-hand experience / URL pointing to evidence / Quotation of person or organisation / Attachment of picture / Quotation of unverified source / Employment of reasoning / No evidence

5.3.4 Results

1) Twitter

The distribution of the self-harm/suicide search terms is shown in Table 15.

Table15 Total number of tweets retrieved by search term

Search terms	**Number of tweets**
Suicide	4,030,565
Self-harm	164,247
Total*	4, 194,812

Table 16 shows the distribution of stigma-related hashtags in the disorder/stigma corpus.

Table 16 Frequency of stigma-related hashtags

Hashtags	**Number of tweets**
#OD	16,873
#overdose	14,980
#cutting	5,711
#blades	3,847
#selfhate	1,157
#harm	1,097
#selfinjury	330
#secretsociety123	4
Total	43,999

One annotator coded 500 tweets in two parts. In the first annotation round, there were 139 relevant tweets, 147 relevant- link to information tweets, 112 non-relevant and 102 non-English. Table 17 shows the number of annotation codes after re-coding of 286 relevant and relevant-link to information tweets.

Table 17 Frequency of annotation code groupings for relevant and relevant-link tweets

Annotation code 1	**Annotation code 2**	**Annotation code 3**	**Number of tweets**
Personal Experience	Subjective	Personal	59
Personal Experience	Subjective	Non-personal	0
Opinion	Subjective	Personal	0
Opinion	Subjective	Non-personal	67
Personal Experience	Objective	Personal	3
Personal Experience	Objective	Non-personal	0
Opinion	Objective	Personal	0
Opinion	Objective	Non-personal	151
Unclear			6
Total			286

Appendix 4 shows 2 graphs representing the temporal relationship between self-harm and suicide mentions in Twitter and the clinical record (CRIS).

2) reddit

One annotator performed the coding of 425 posts related to the 5 conversation threads. Table 18 shows the number of support and replying posts annotated for each conversation.

Table 18 Number of direct and deep replies associated with each conversation thread

	Conversation 1	**Conversation 2**	**Conversation 3**	**Conversation 4**	**Conversation 5**
Direct replies	7	21	28	15	10
Deep replies	0	105	206	22	11

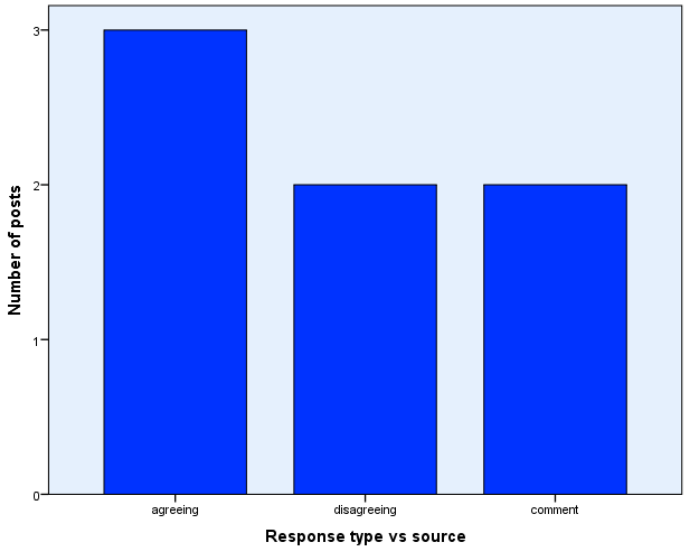
Table 19 shows the distribution of annotations for all support posts.

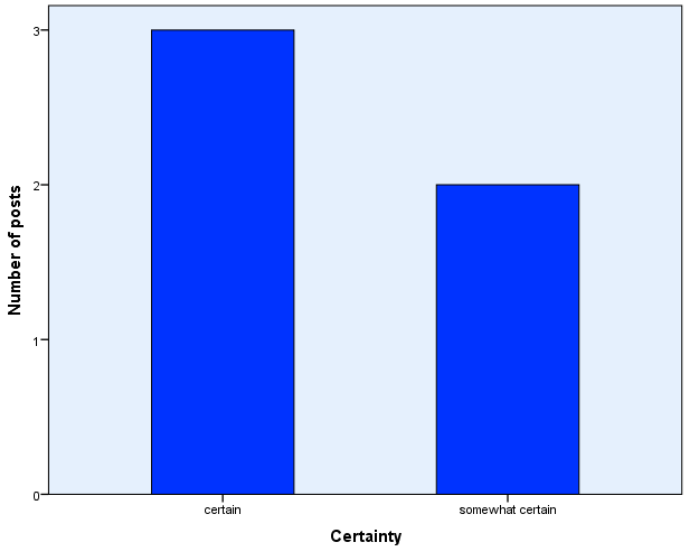
Table 19 Frequency of annotation codes for support posts

	Conversation 1	**Conversation 2**	**Conversation 3**	**Conversation 4**	**Conversation 5**
Support type	Supporting	Supporting	Supporting	Supporting	Supporting
Certainty	Certain	Certain	Certain	Somewhat certain	Somewhat certain
Evidentiality	None	None	Quoting verifiable source	None	None

The annotations for the direct replies for conversations are visually represented in Figures 1-5 and annotations for the deep replies for conversations 2-5 are represented in Figures 6-9.

Figure 1 Distribution of annotations for direct replies – conversation 1





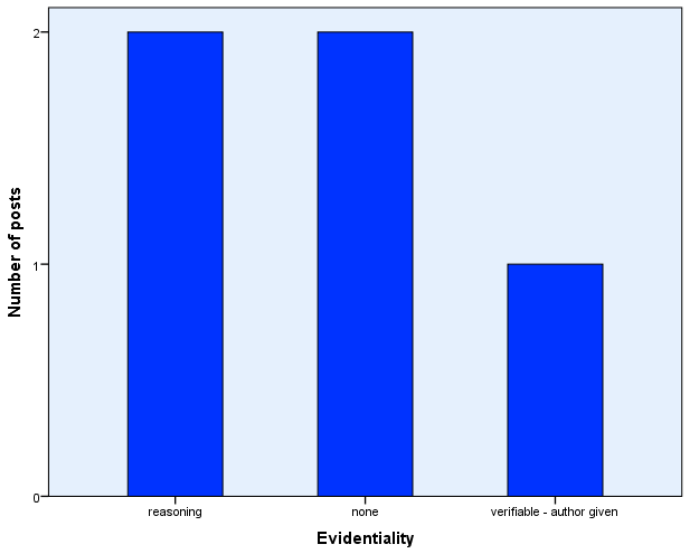
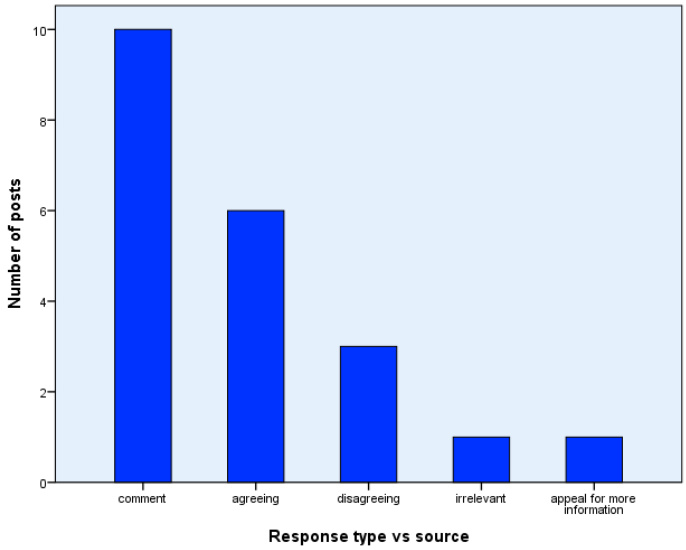
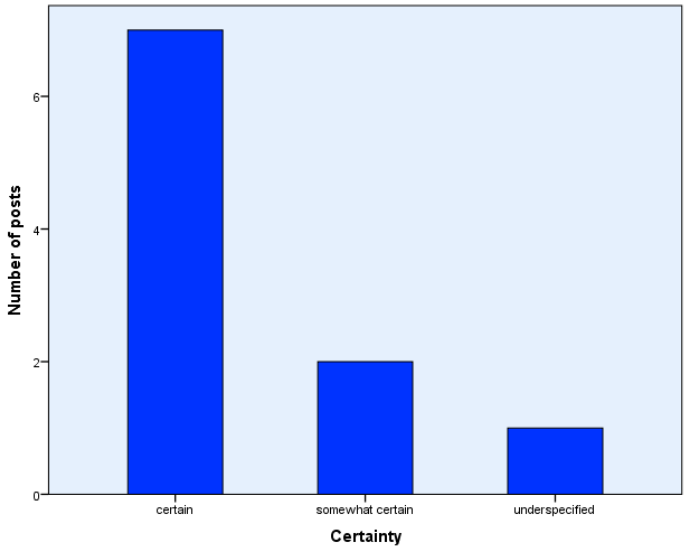


Figure 2 Distribution of annotations for direct replies – conversation 2





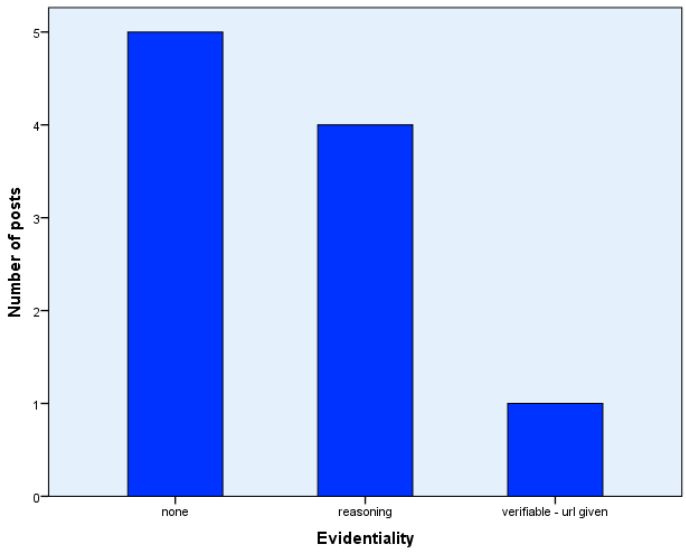
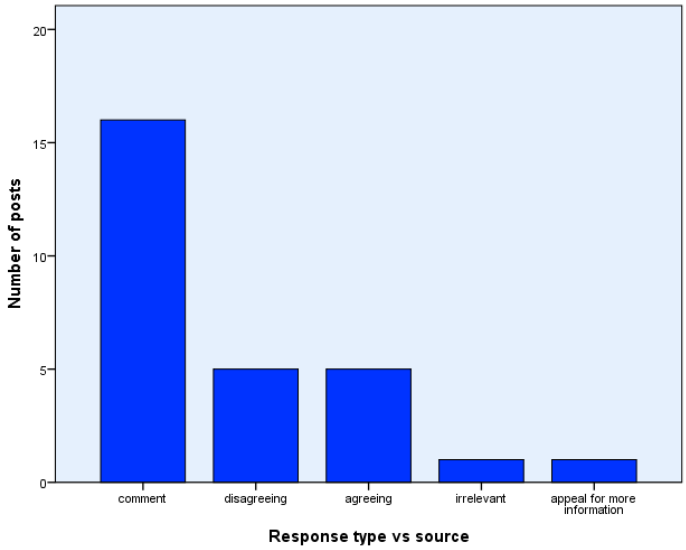
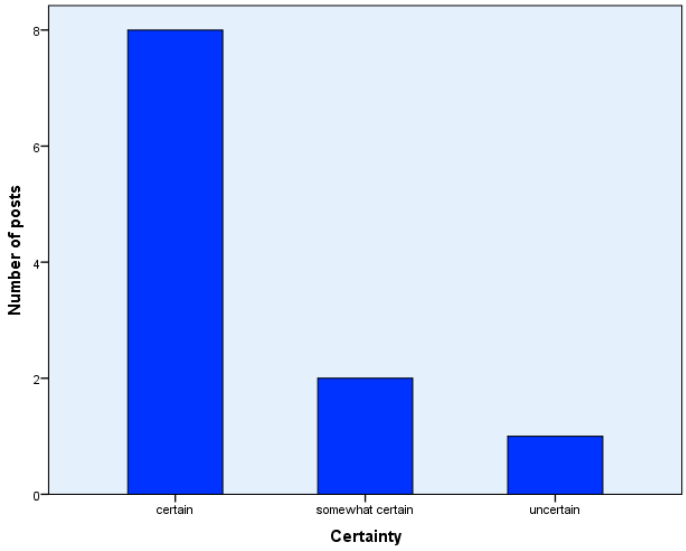


Figure 3 Distribution of annotations for direct replies – conversation 3





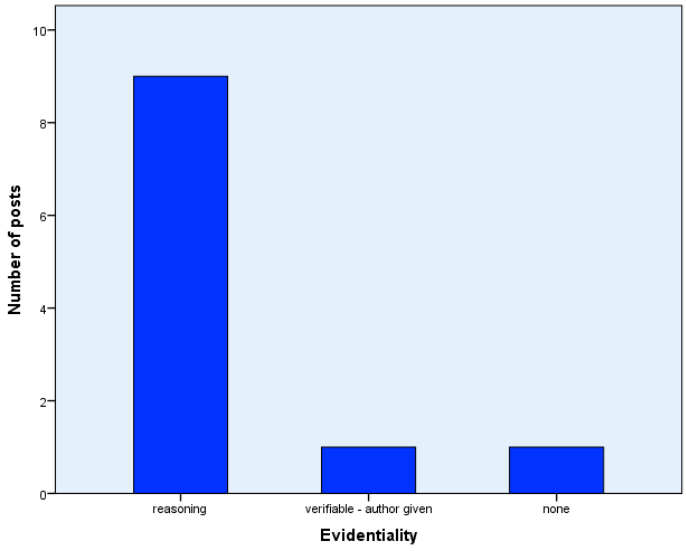
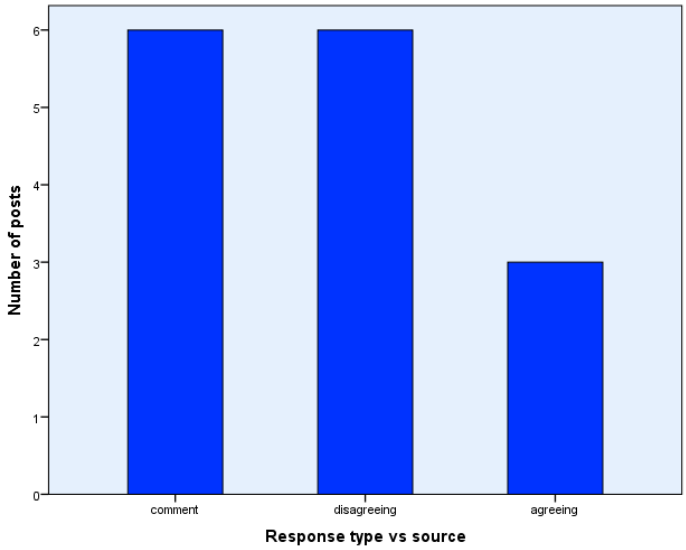
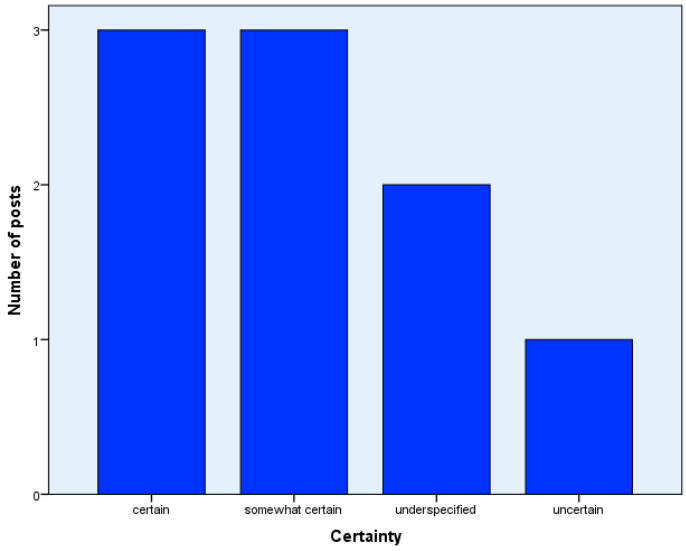


Figure 4 Distribution of annotations for direct replies – conversation 4





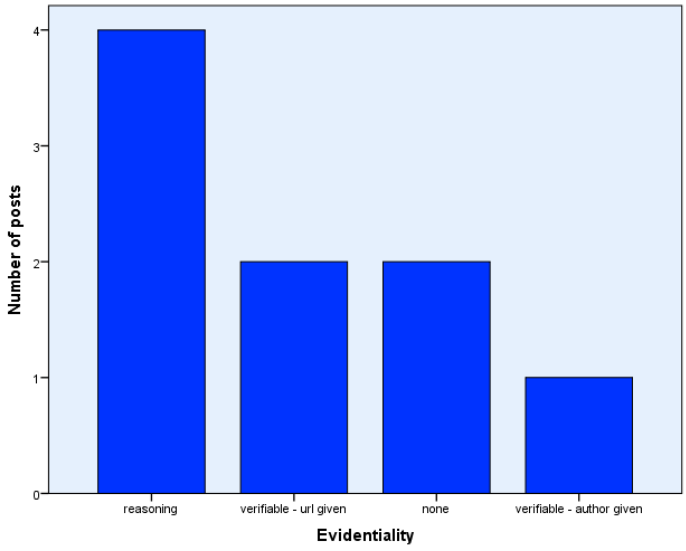
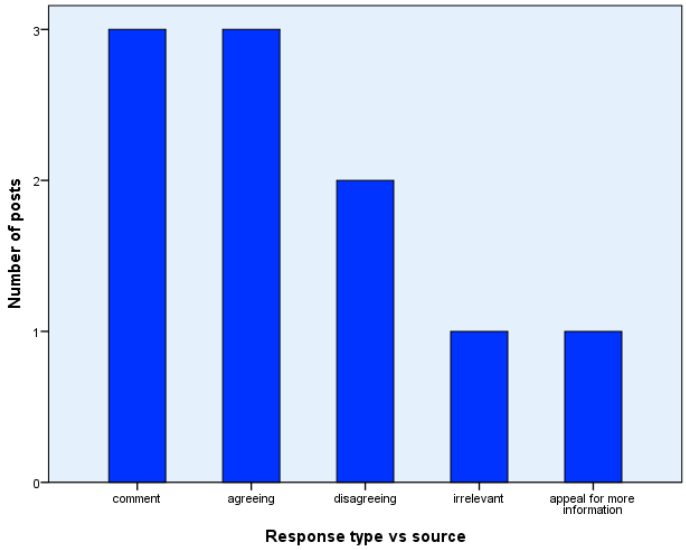
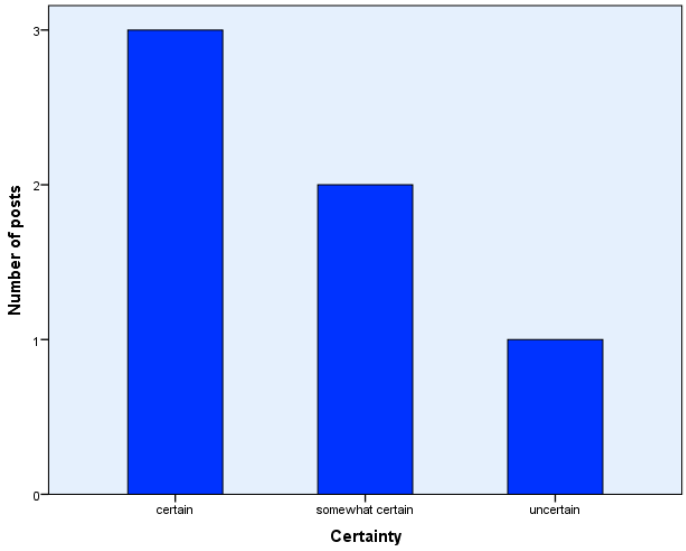


Figure 5 Distribution of annotations for direct replies – conversation 5





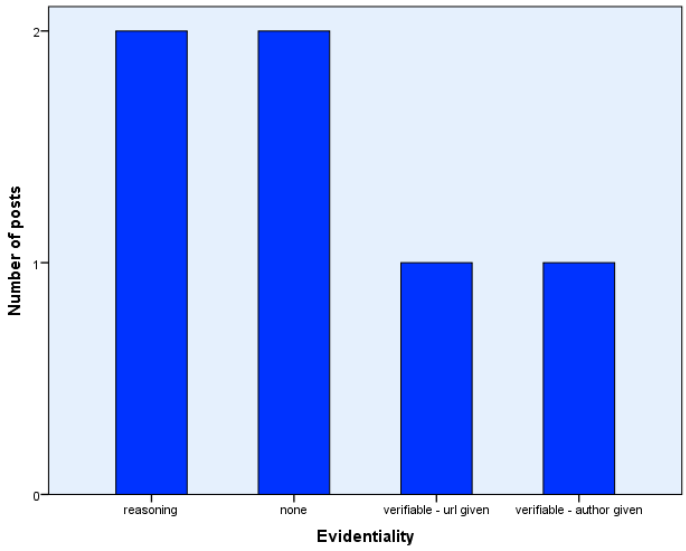
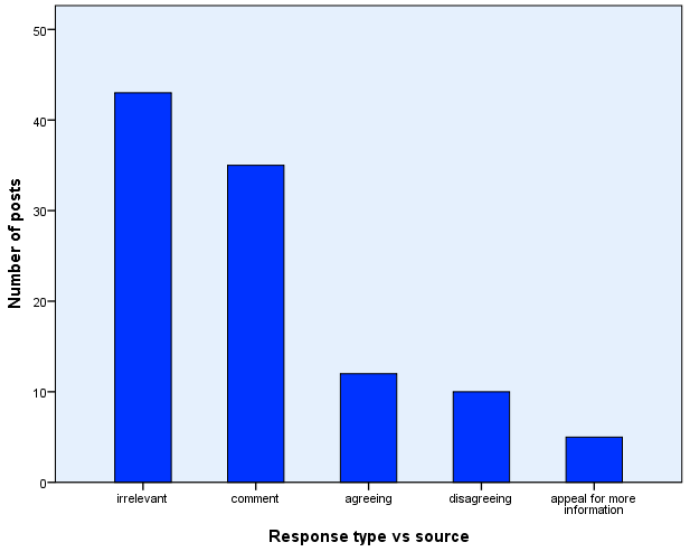
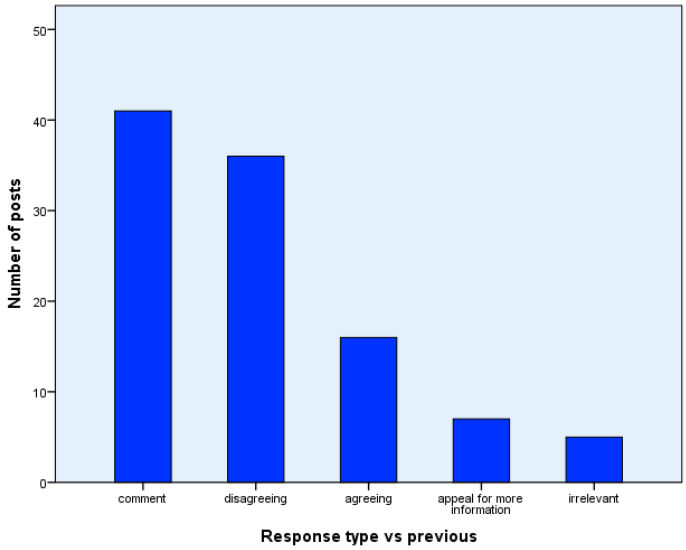
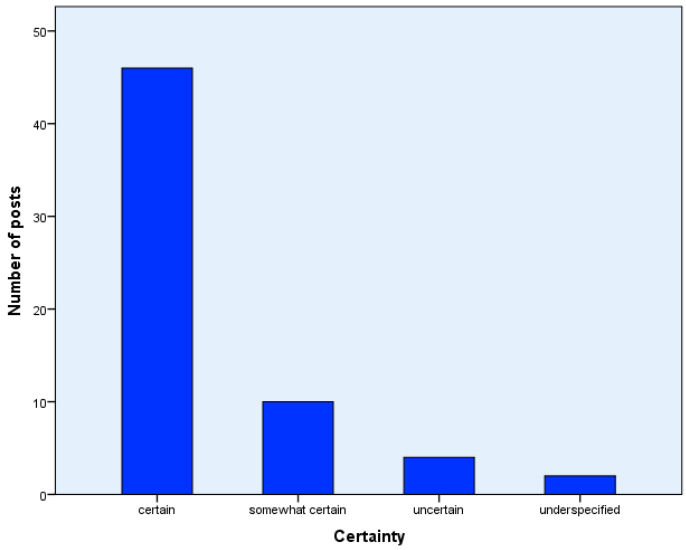


Figure 6 Distribution of annotations for deep replies – conversation 2







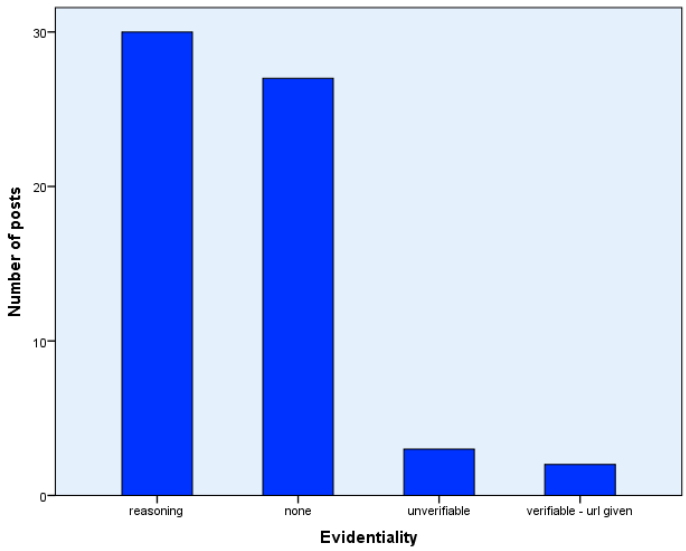
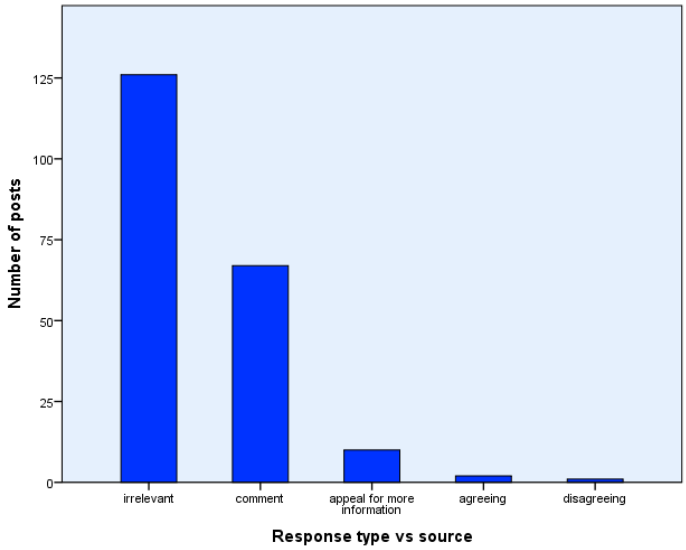
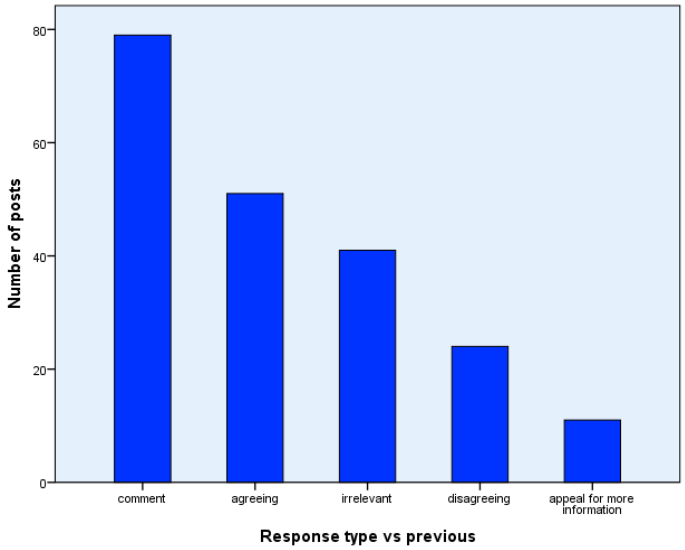
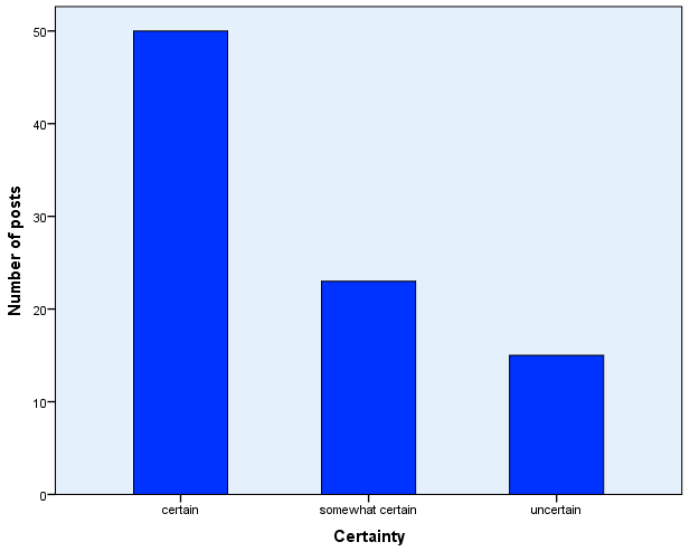

30
20
10
0
Number of posts
reasoning
none
unverifiable
verifiable - url given
Evidentiality

Figure 7 Distribution of annotations for deep replies – conversation 3







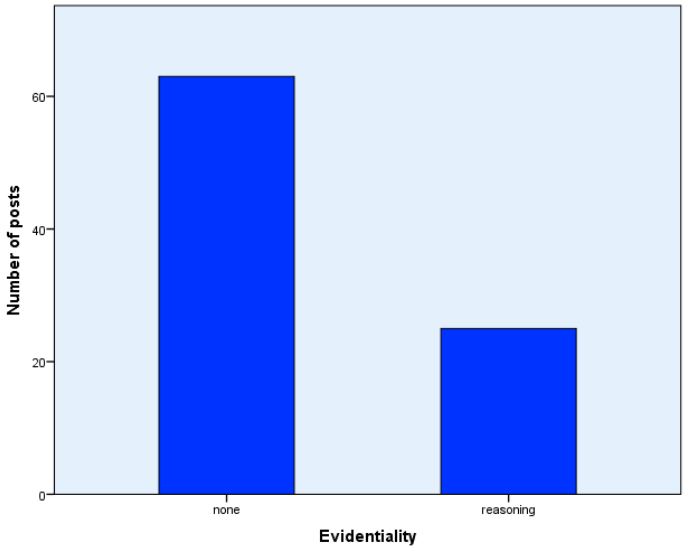
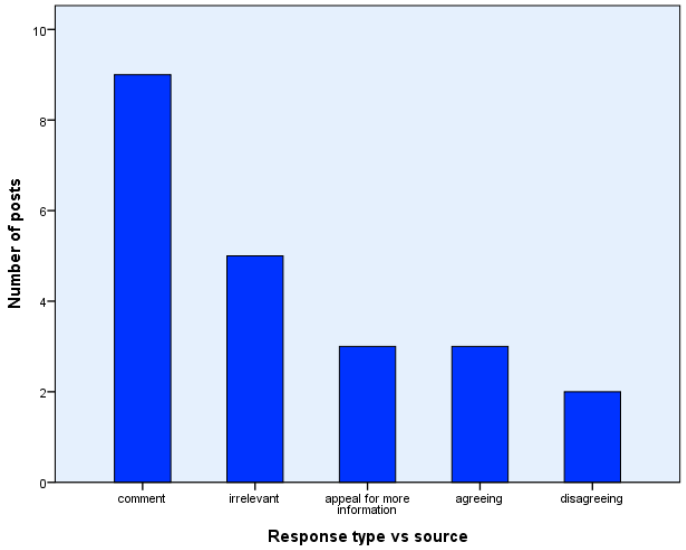
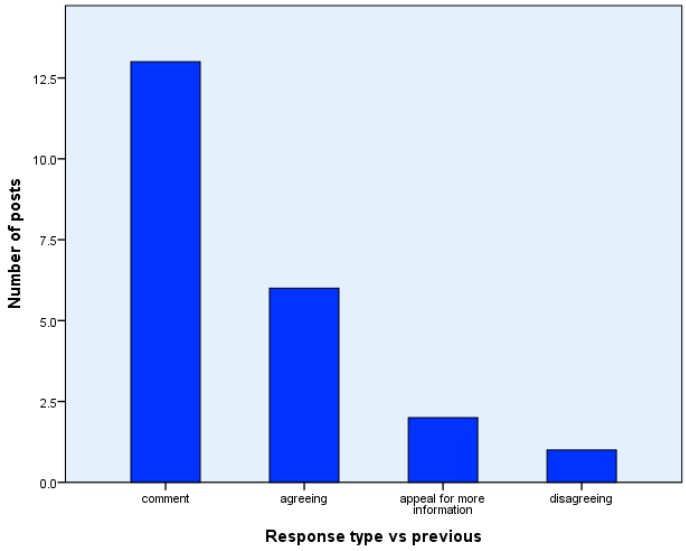
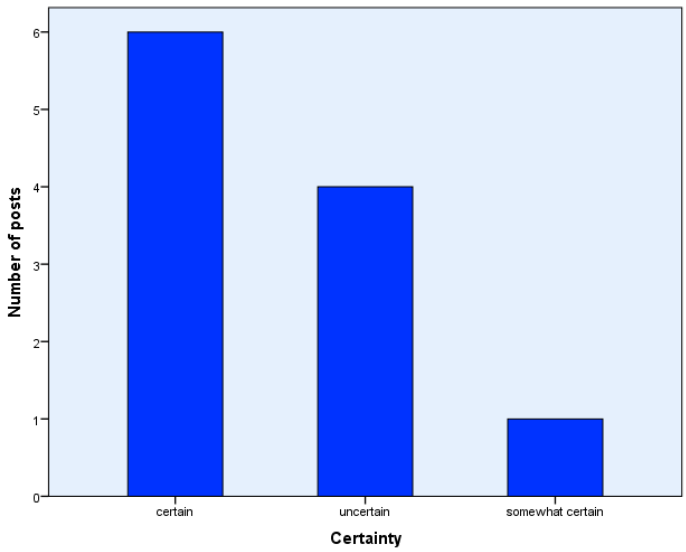

Number of posts
60
40
20
0
none
reasoning
Evidentiality

Figure 8 Distribution of annotations for deep replies – conversation 4







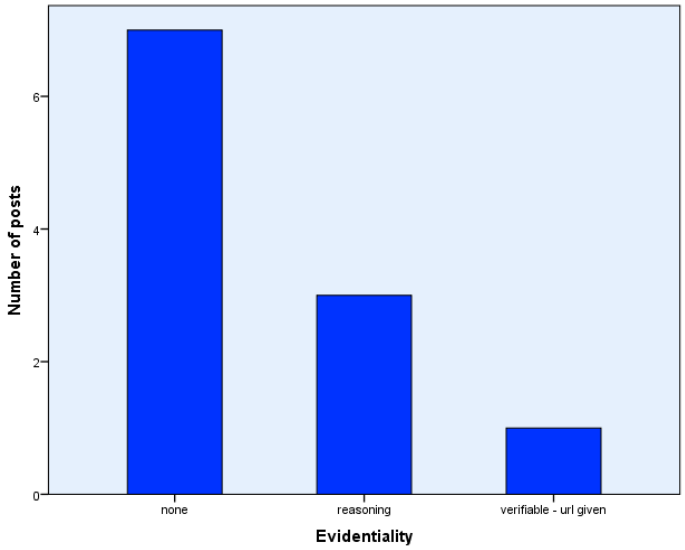
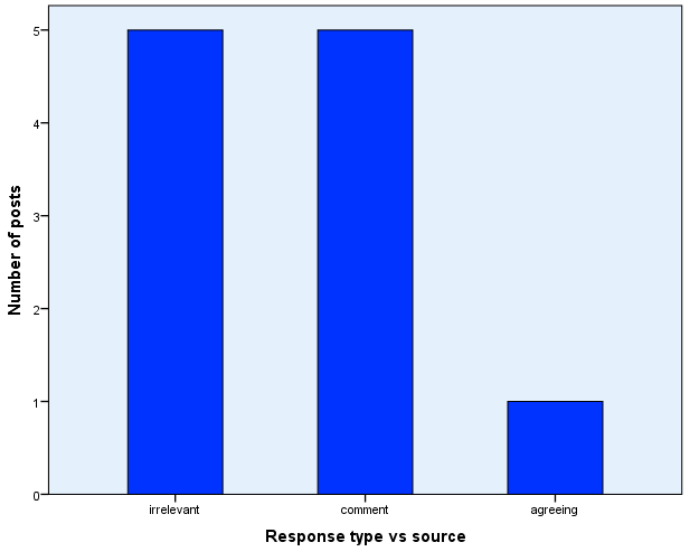
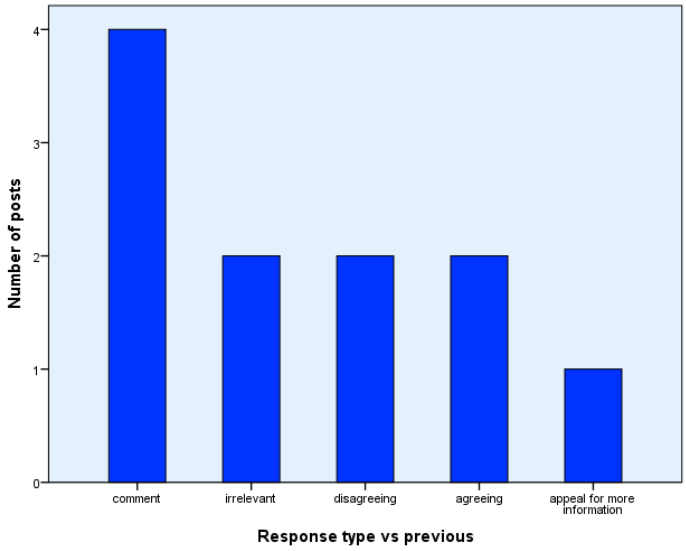
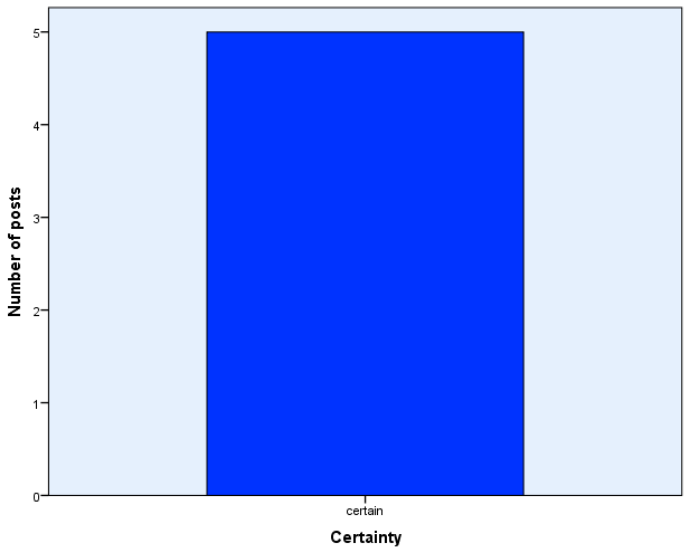
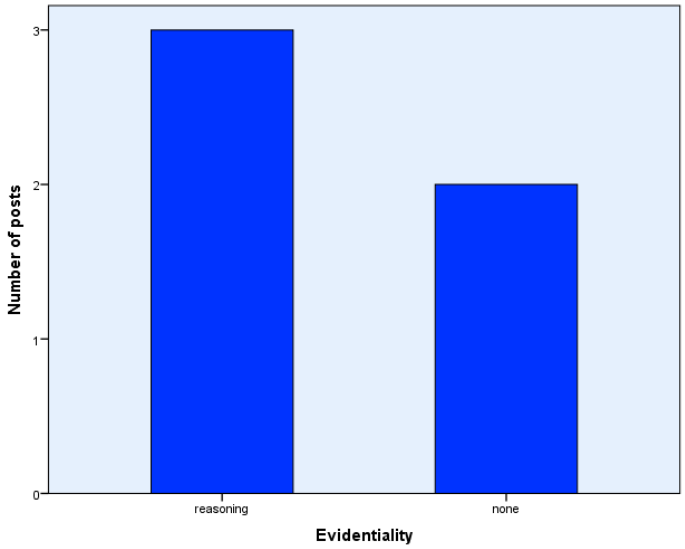

Number of posts
6
4
2
0
none
reasoning
verifiable - url given
Evidentiality

Figure 9 Distribution of annotations for deep replies – conversation 5









Tasks completed for case study 4:

1) Historical data collection from Twitter on self-harm and suicide related keywords and hashtags
2) Preliminary data annotation for Twitter
3) Completion of sub-study relevant to rumorous conversations in reddit with regards to highly-publicised suicides
4) Analysis of temporal relationship between self-harm and suicide mentions in Twitter and CRIS

6 Steps to D7.3 for M36

6.1 Medication choices

1) Completion of data extraction from Google Trends, Wikipedia and reddit
2) Analysis of temporal relationship between medication mentions in Twitter, Google Trends, Wikipedia and CRIS
3) Detection of sentiment towards medications in Twitter and reddit
4) Integration of case study specifics in WP5 PHEME visual dashboard
5) On-going collection of uncapped medication-related keyword stream through the Twitter Streaming API

6.2 Mephedrone

1) Integration of case study specifics in WP5 PHEME visual dashboard
2) On-going going collection of uncapped mephedrone-related keyword stream through the Twitter Streaming API

6.3 Mental health stigma

1) Completion of data extraction from Google Trends, Wikipedia and reddit
2) Analysis of temporal relationship between mental health disorder mentions in Twitter, Google Trends, Wikipedia and CRIS
3) Integration of case study specifics in WP5 PHEME visual dashboard
4) On-going collection of uncapped mental health disorders and stigma related keyword stream through the Twitter Streaming API

6.4 Self-harm and suicide

1) Completion of data extraction from Google Trends, Wikipedia and reddit
2) Analysis of temporal relationship between self-harm and suicide mentions in Twitter, Google Trends, Wikipedia and CRIS
3) Integration of case study specifics in WP5 PHEME visual dashboard
4) On-going collection of uncapped self-harm and suicide related keyword stream through the Twitter Streaming API

6.5 Overall on-going / future work

1) Keywords related to each case study's search specification have already been sent to WP5 for integration into the PHEME visual dashboard.
2) As discussed in the annexe to D7.1, steps have been taken to collect information from social media sources other than Twitter. Besides the work being developed in reddit, WP9 have been collecting RSS data from the available forums listed in the annexe. The next step is to explore the utility of these forum data and decide on whether meaningful analysis is possible.

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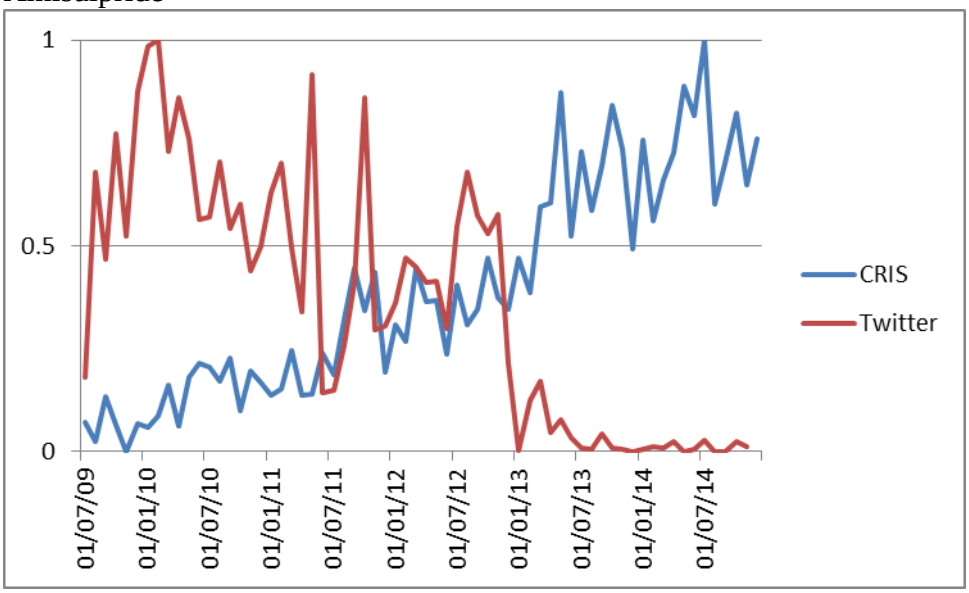
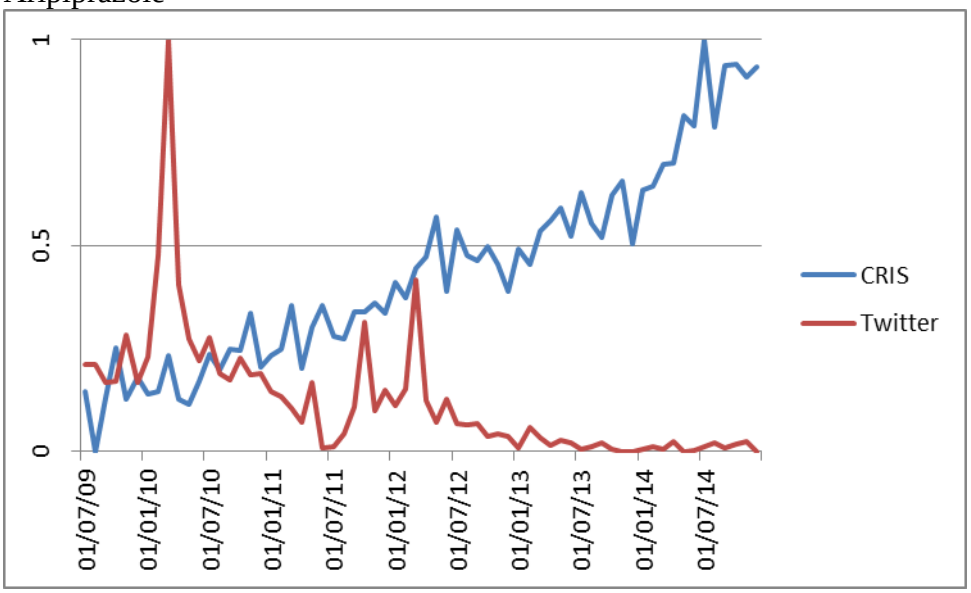
Appendix 1 – Medication temporal graphs

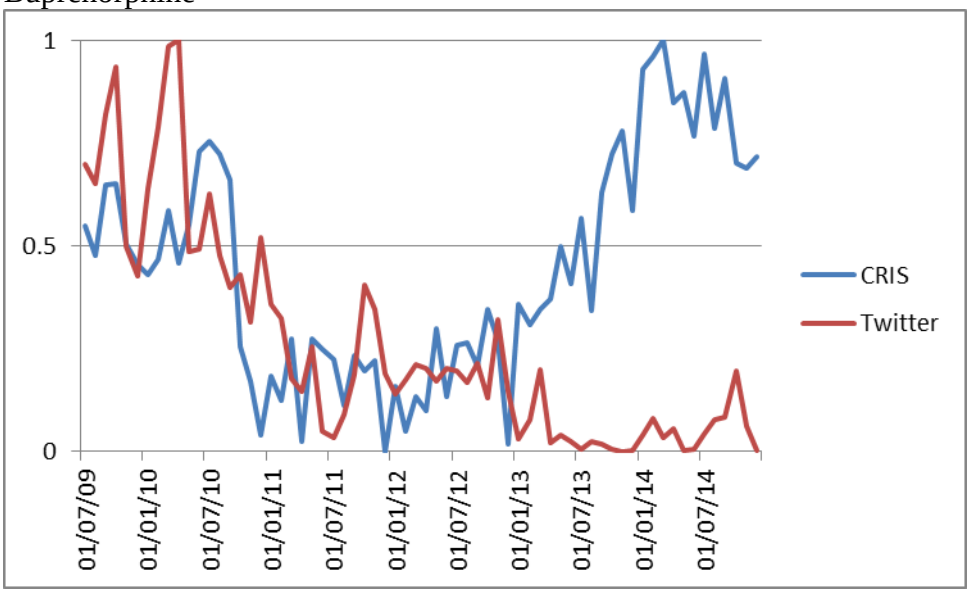
Amisulpride



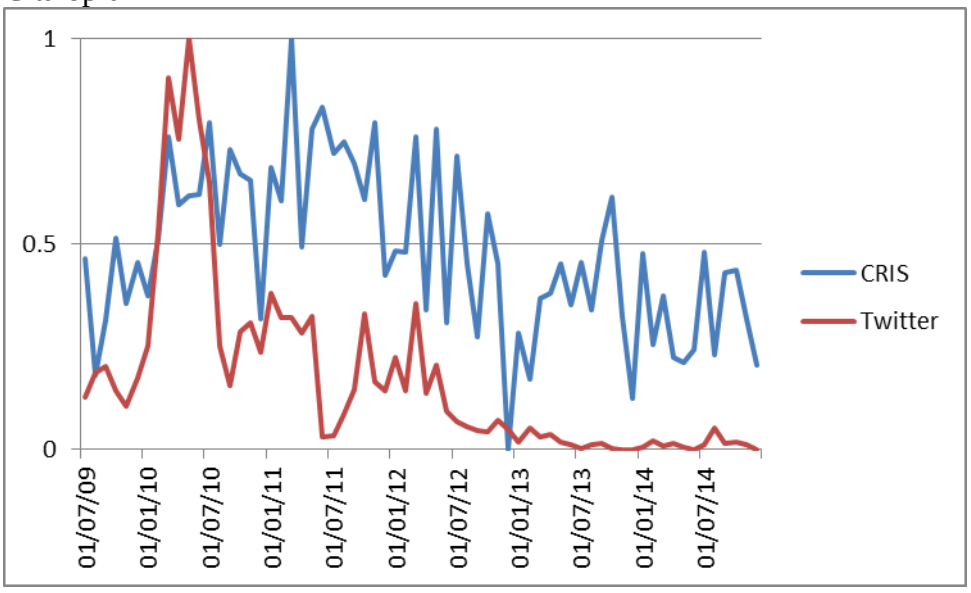
Aripiprazole



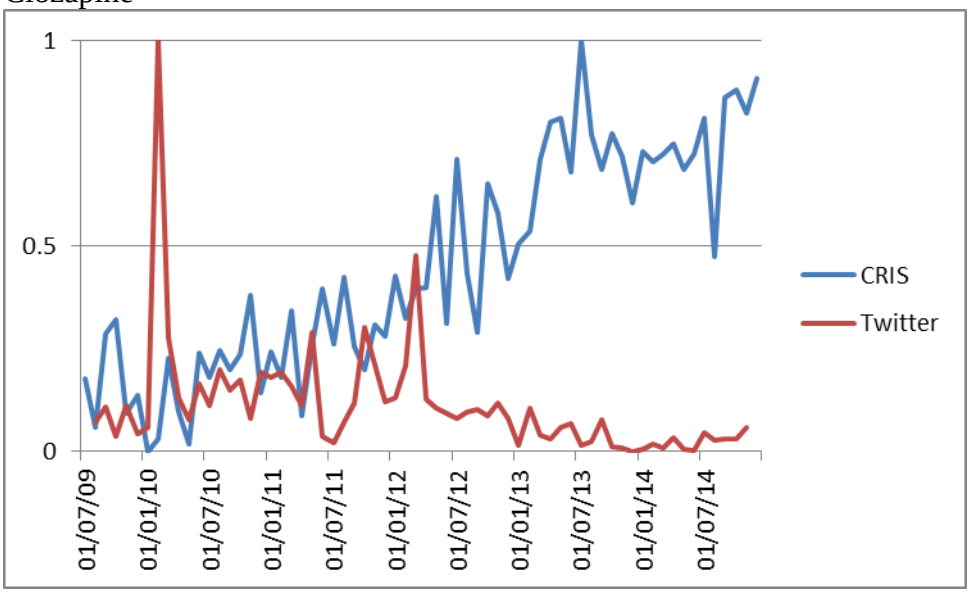
Buprenorphine



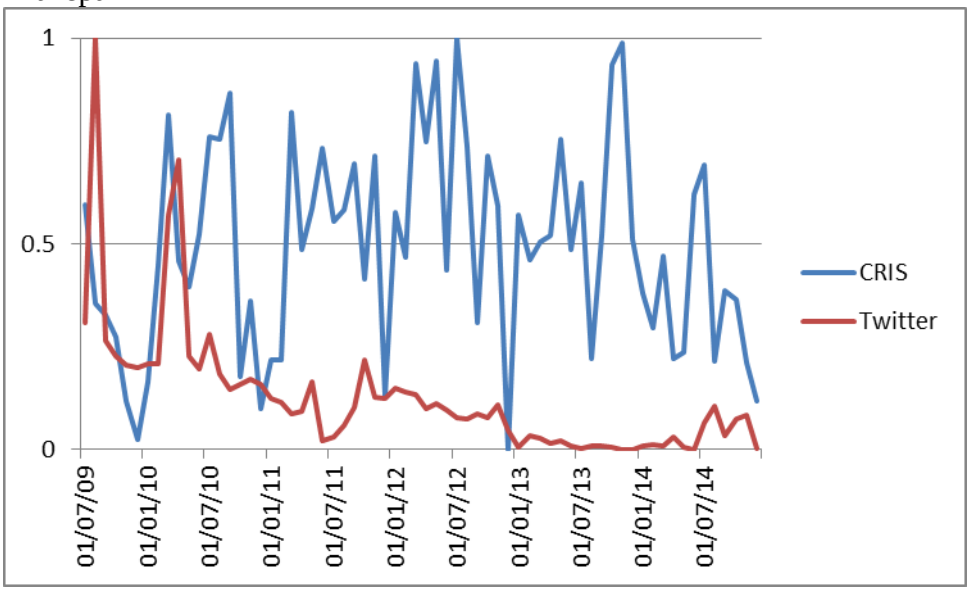
Citalopram



Clozapine



Diazepam



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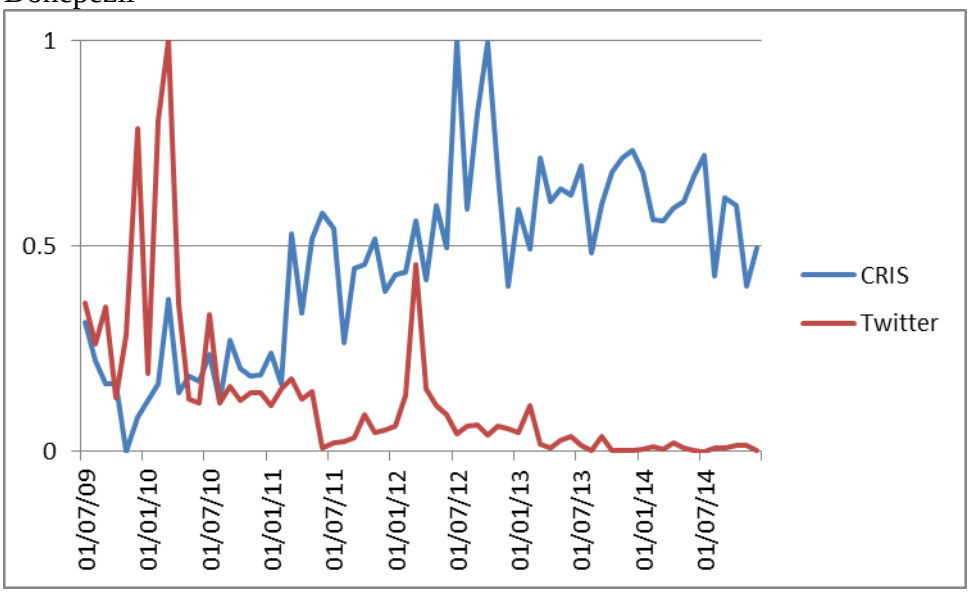
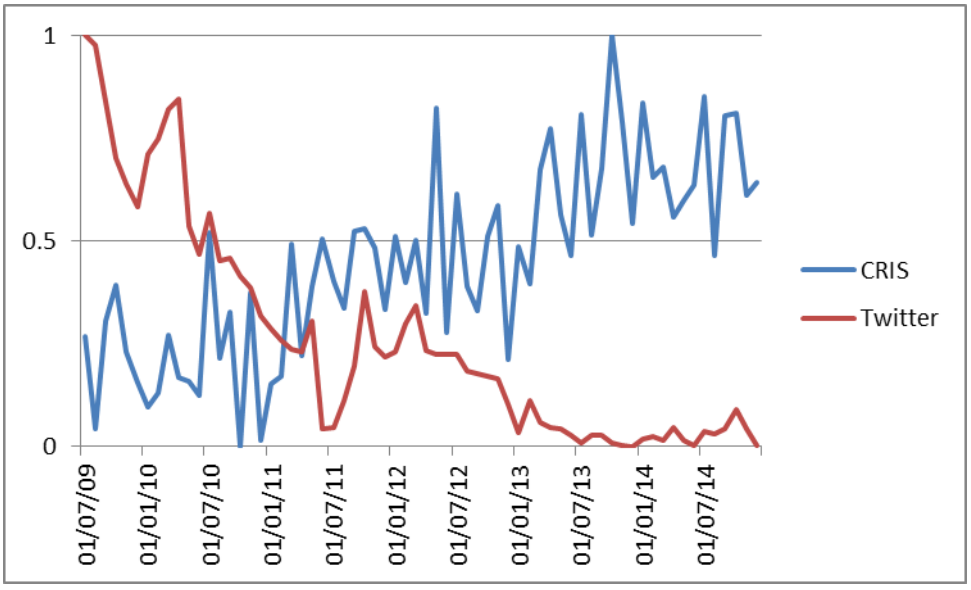
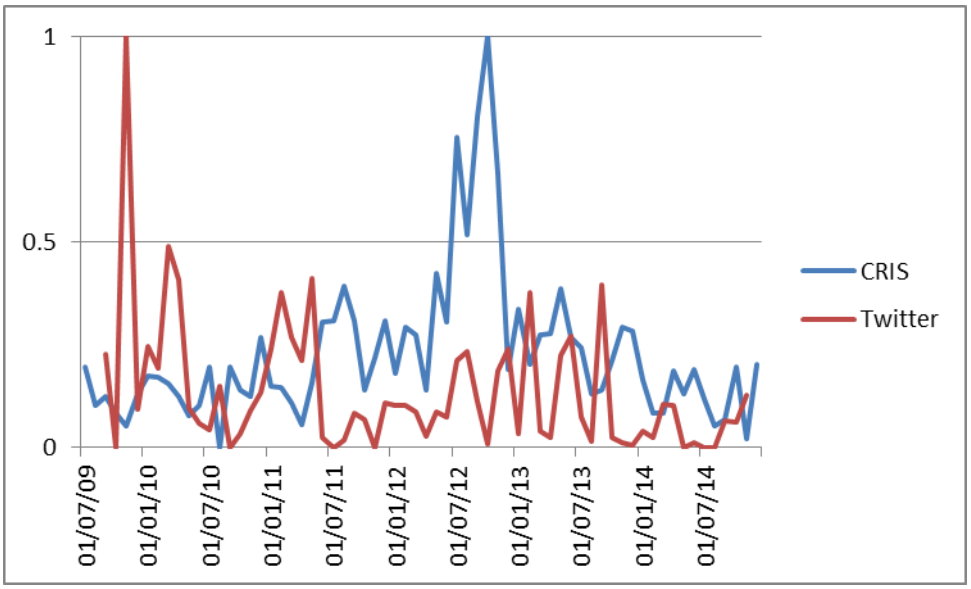


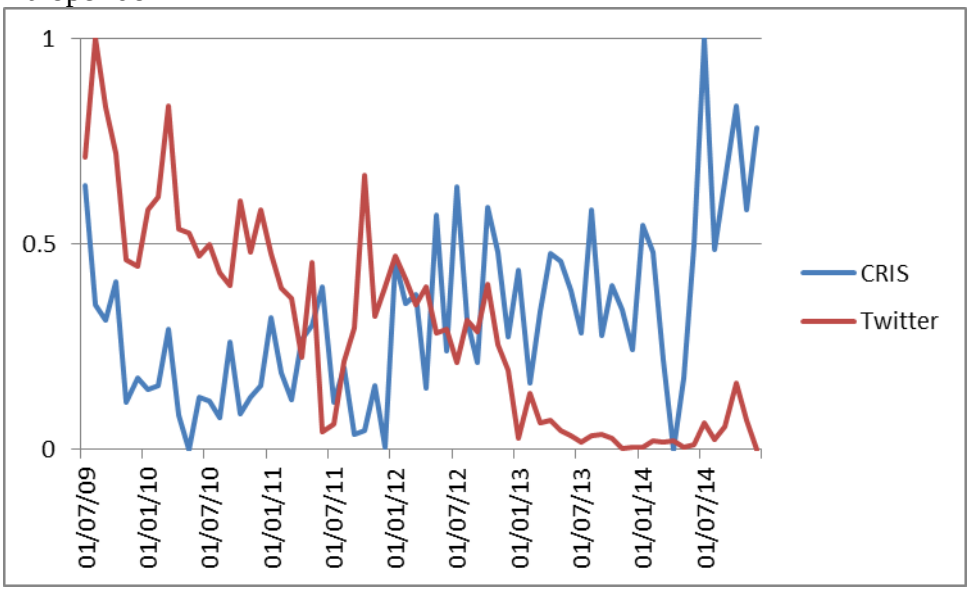
Fluoxetine



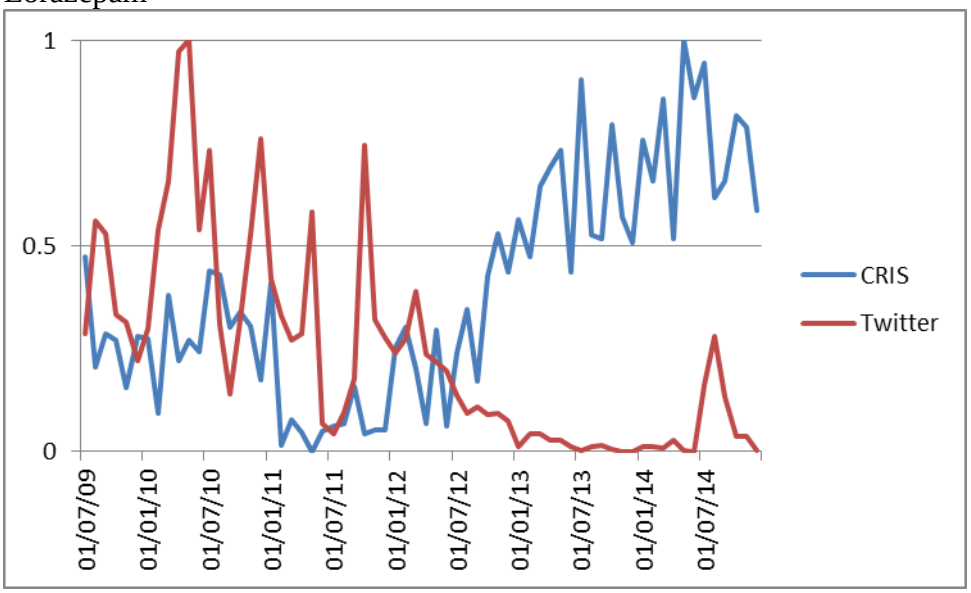
Galantamine



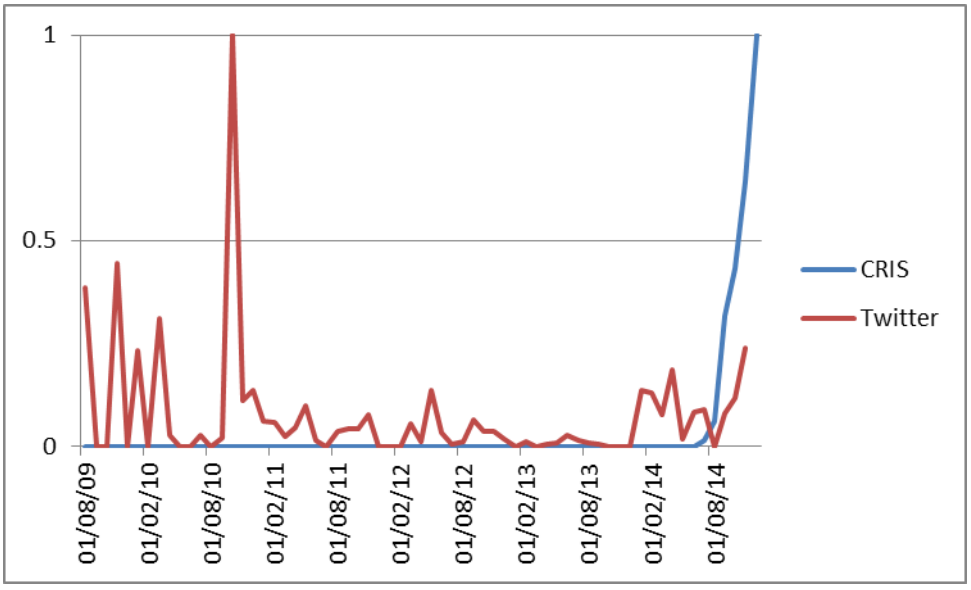
Haloperidol



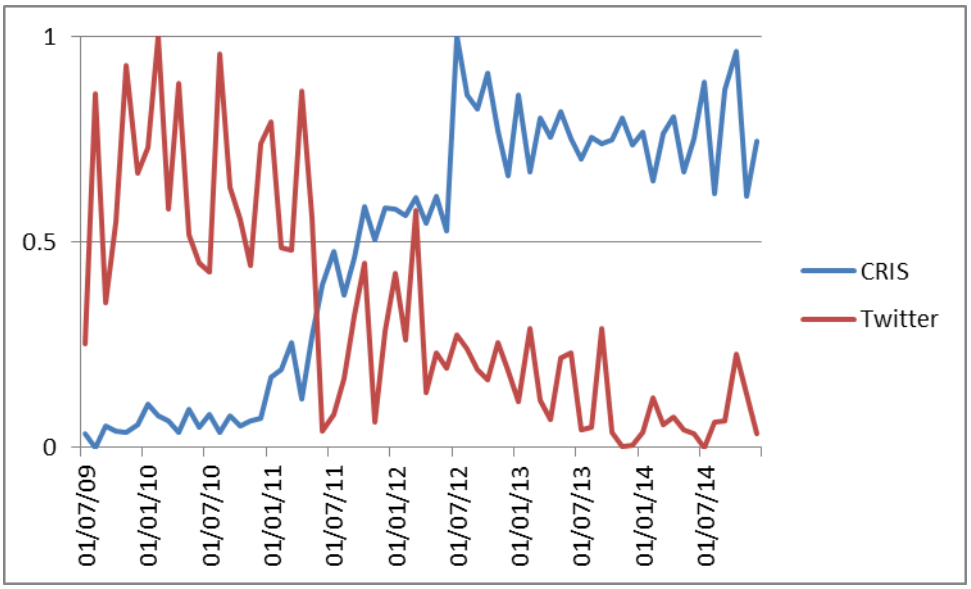
Lorazepam



Lurasidone



Memantine



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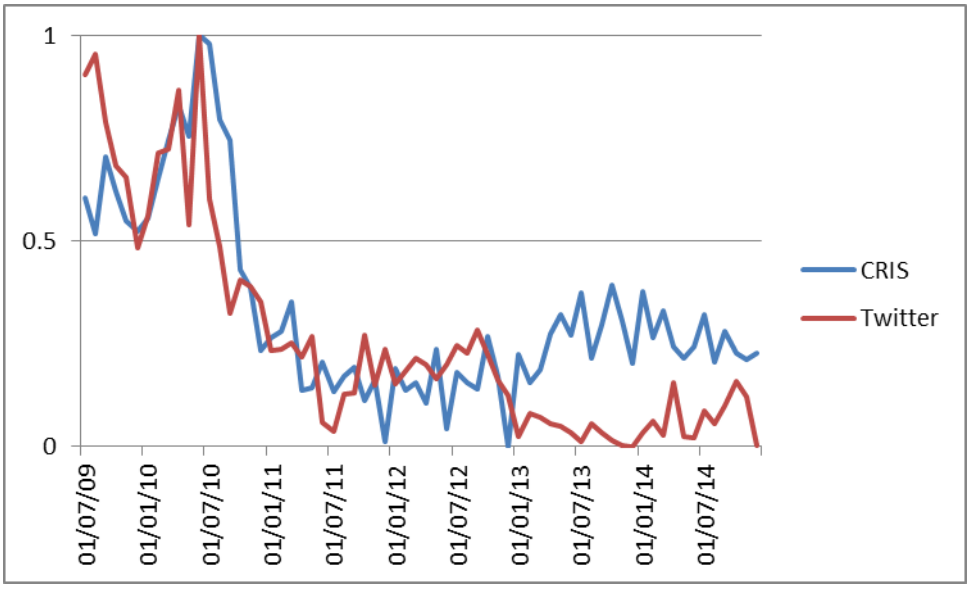

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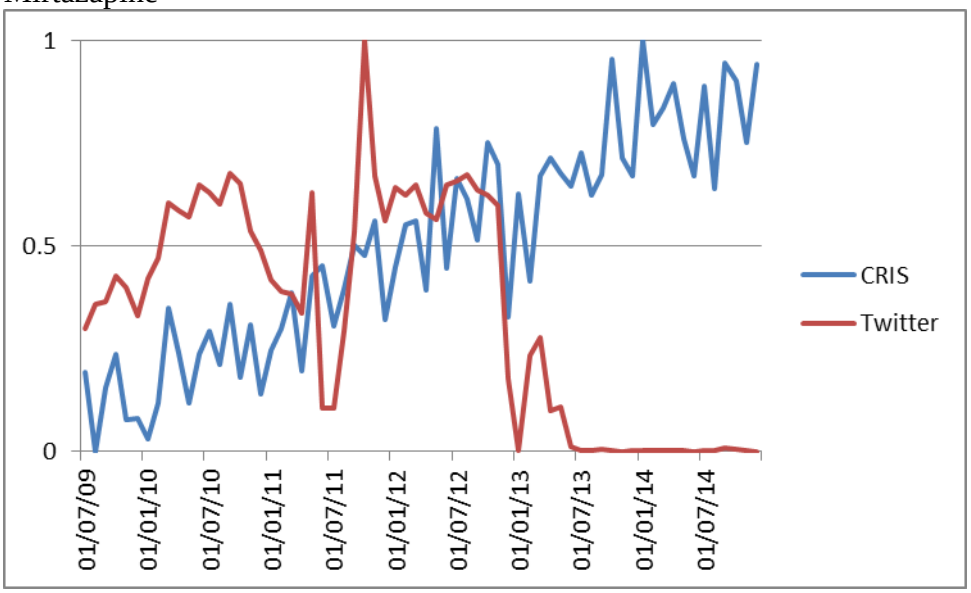

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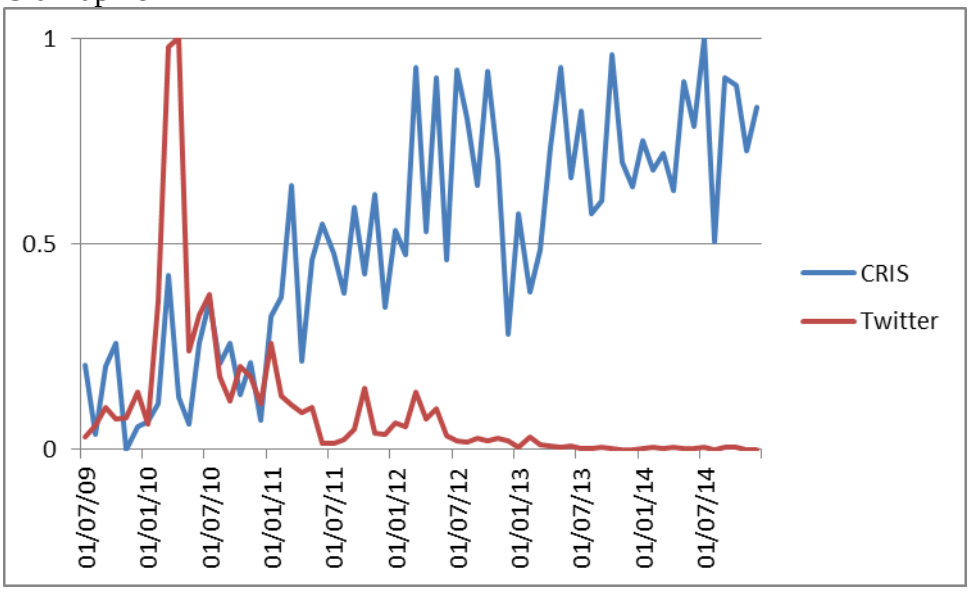
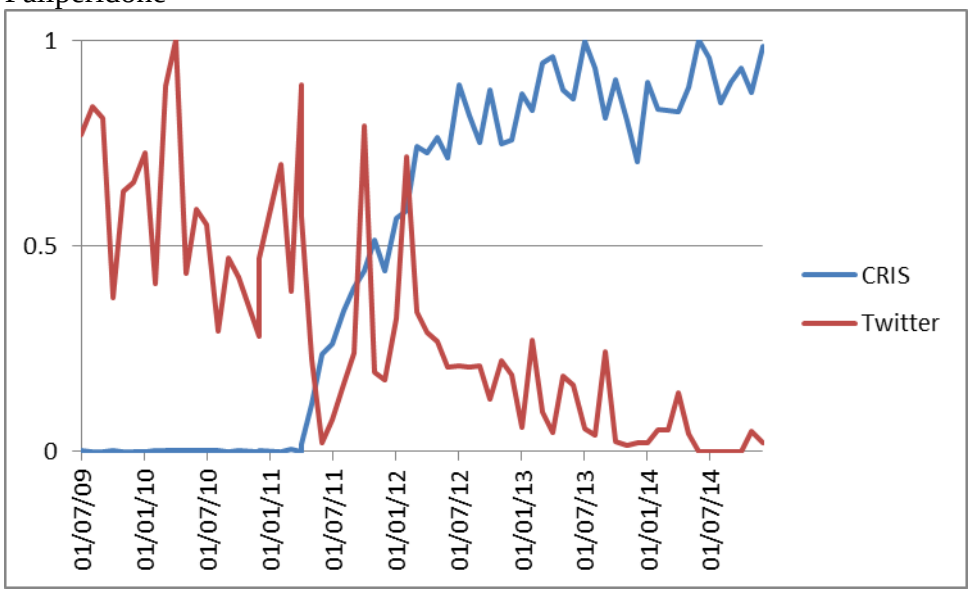


Paliperidone



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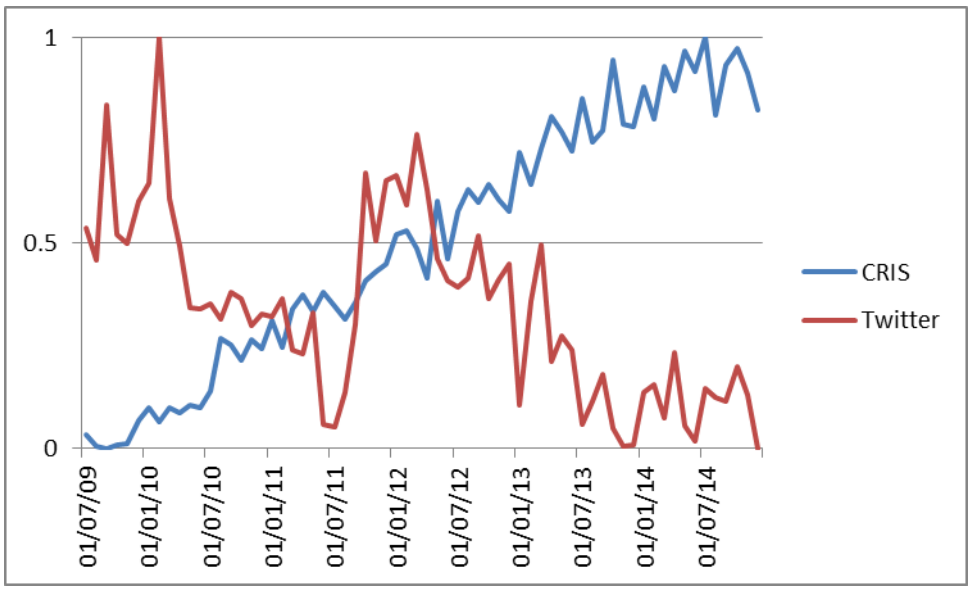

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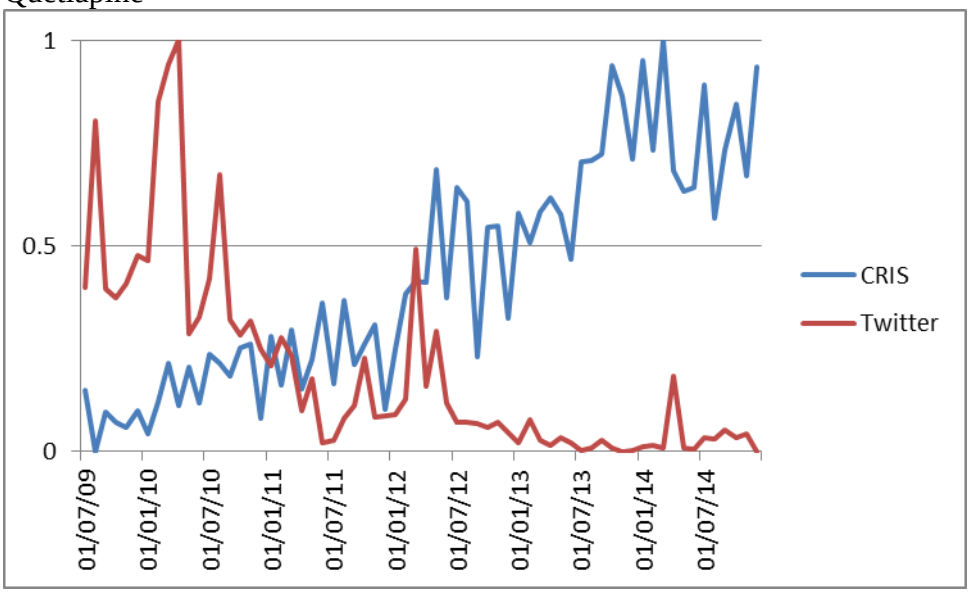
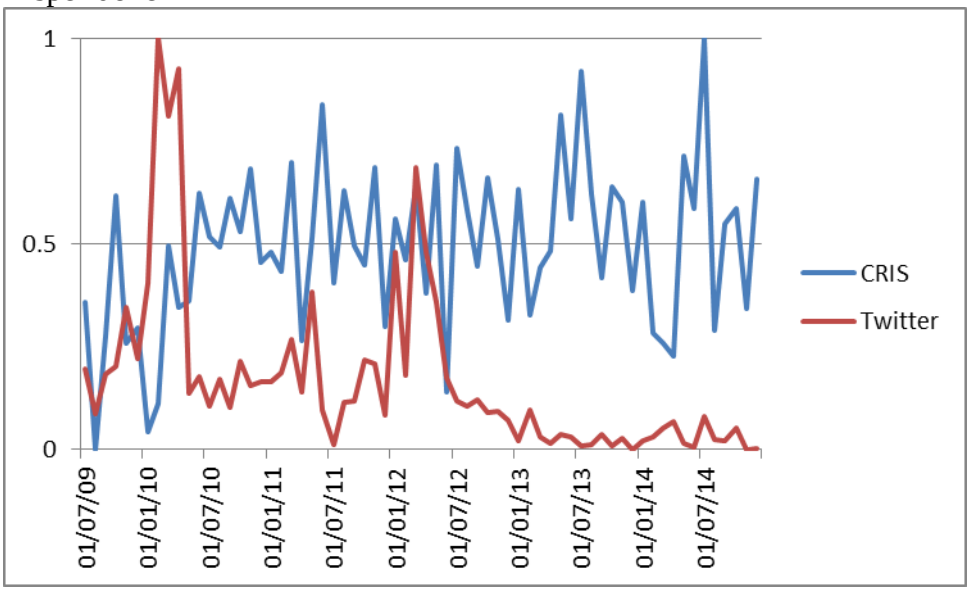
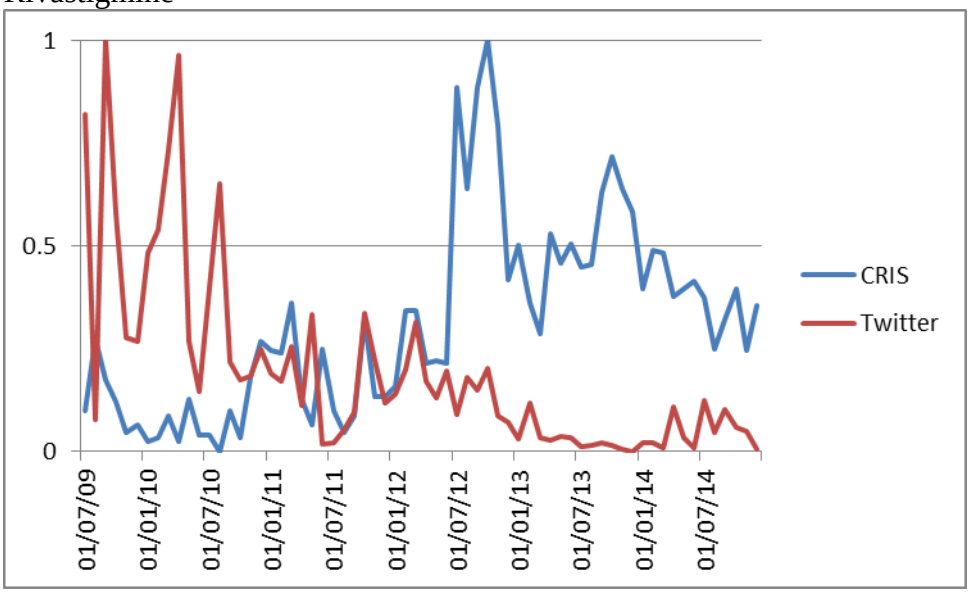


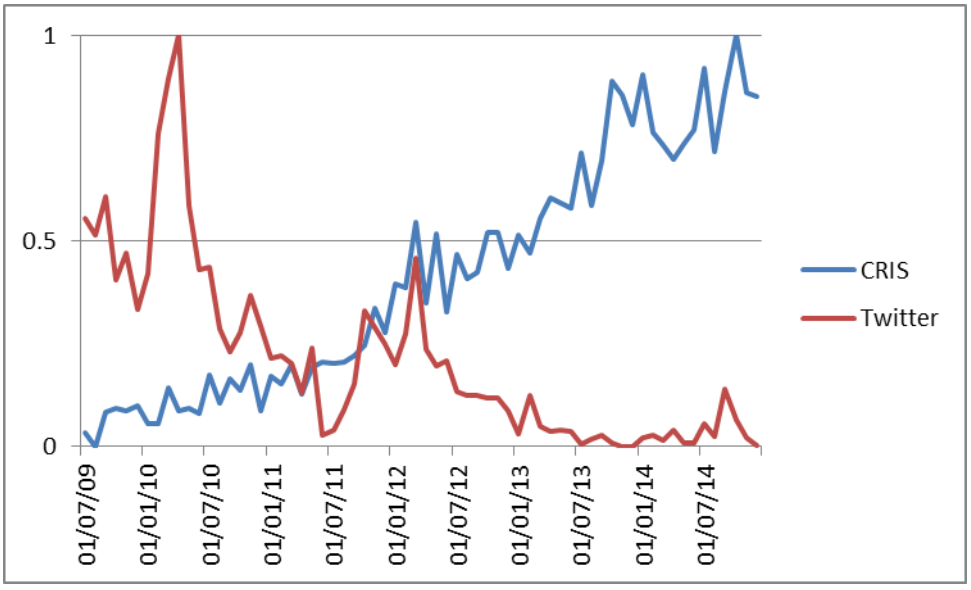
Risperidone



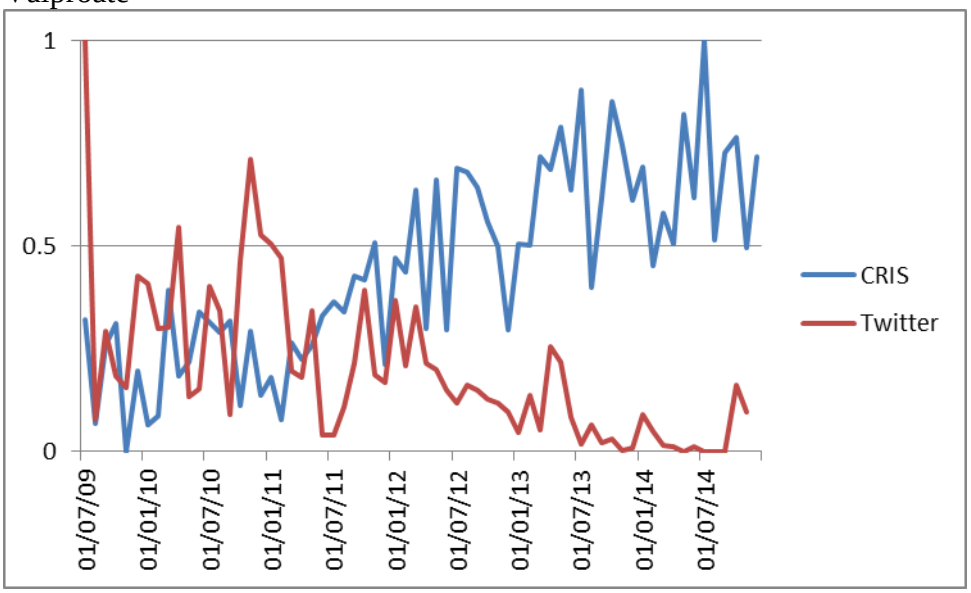
Rivastigmine



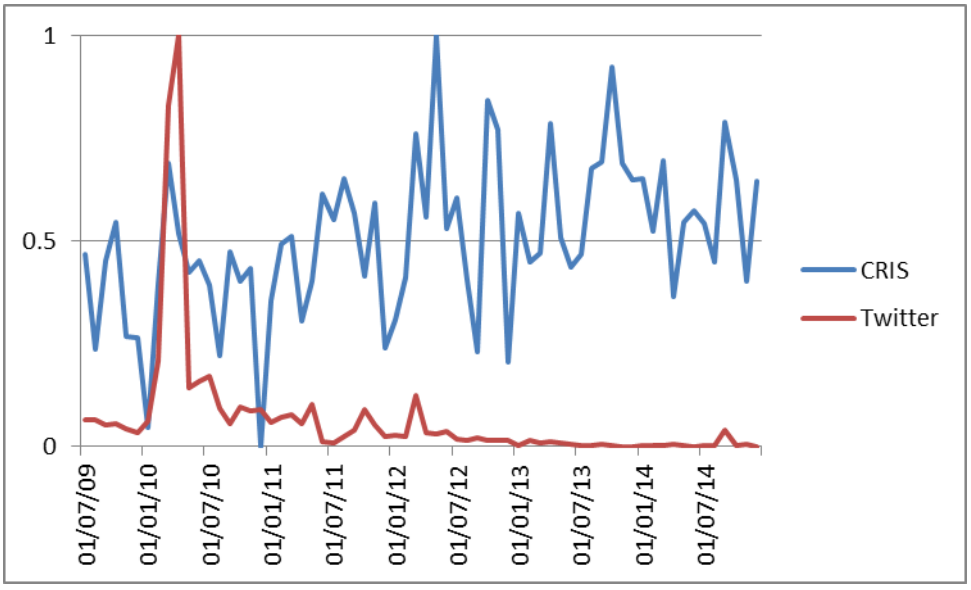
Sertraline



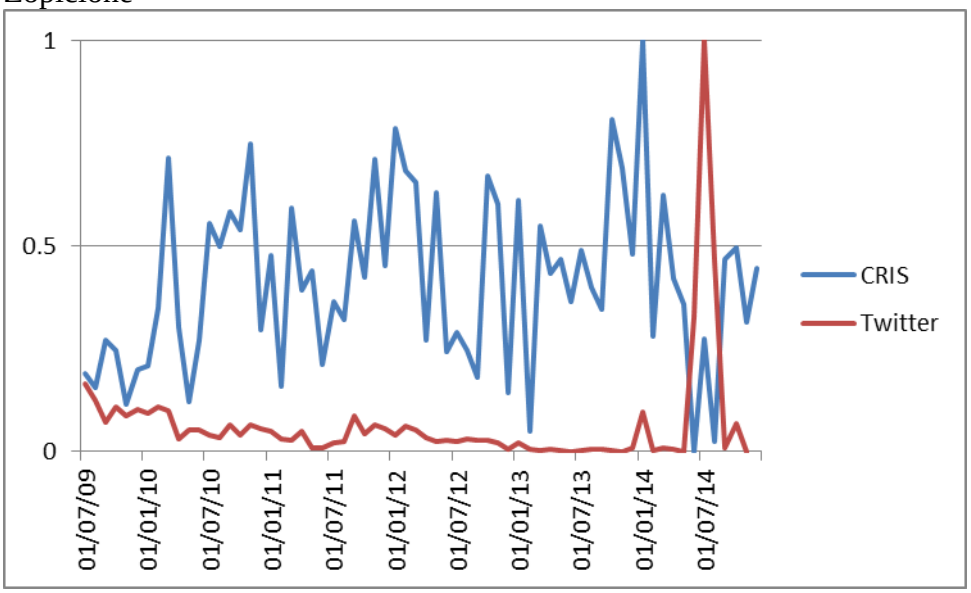
Valproate



Venlafaxine

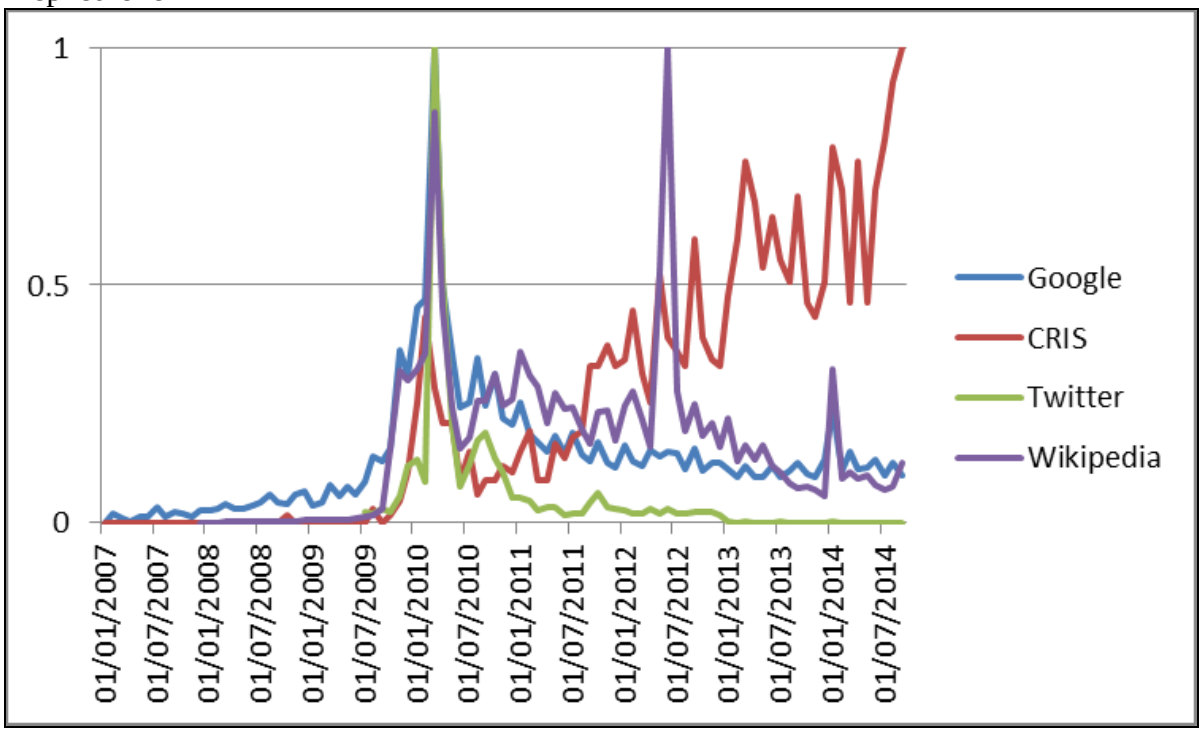


Zopiclone


1
0.5
0
01/07/09
01/01/10
01/07/10
01/01/11
01/07/11
01/01/12
01/07/12
01/01/13
01/07/13
01/01/14
01/07/14
CRIS
Twitter

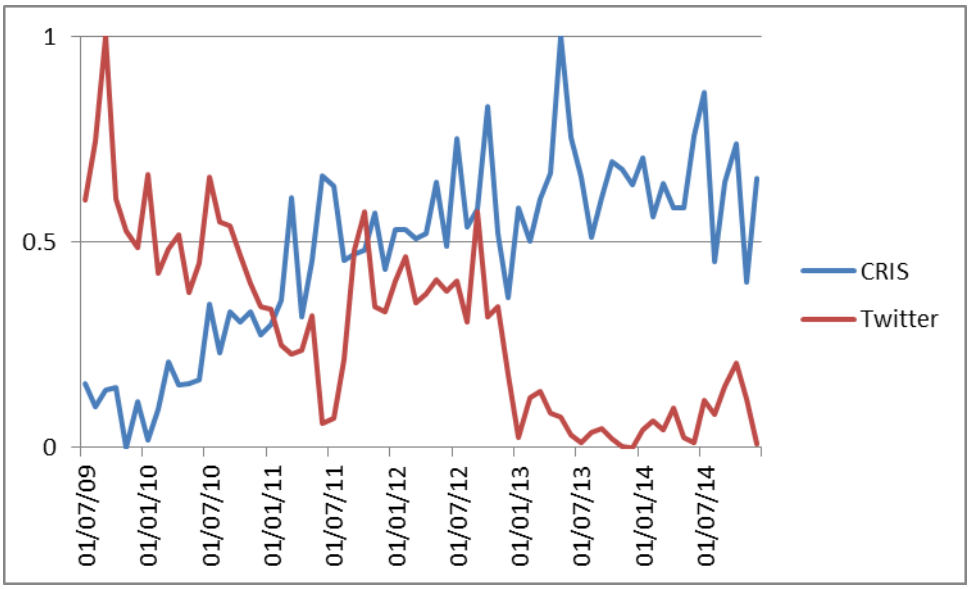
Appendix 2 – Mephedrone temporal graph

Mephedrone

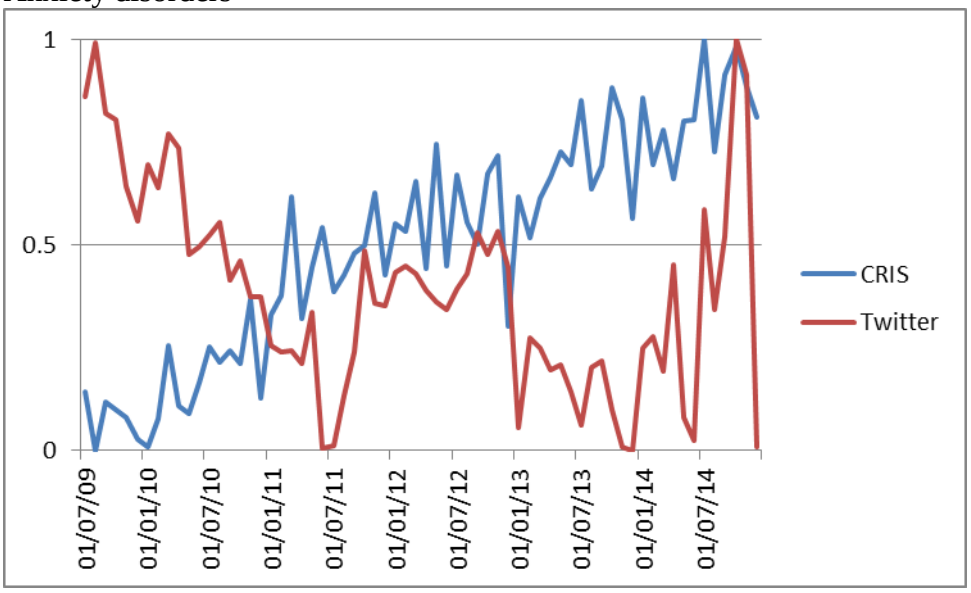


Appendix 3 – Mental disorders temporal graphs

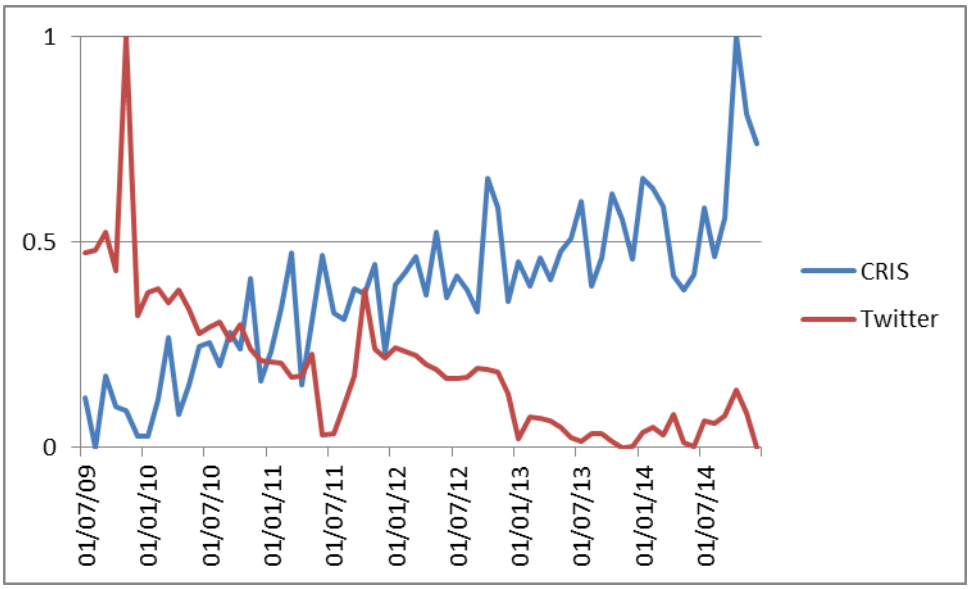
Alzheimer's disease



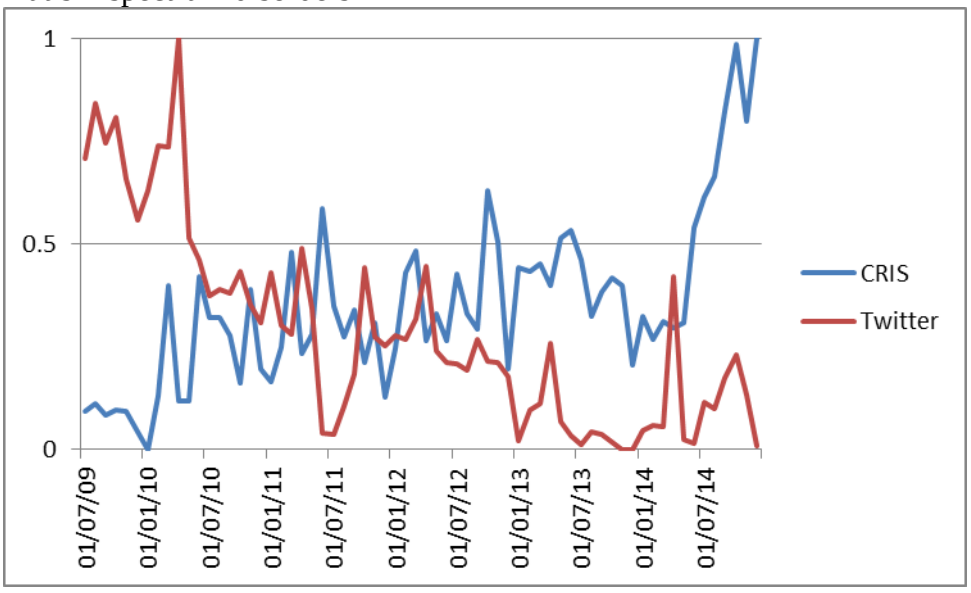
Anxiety disorders



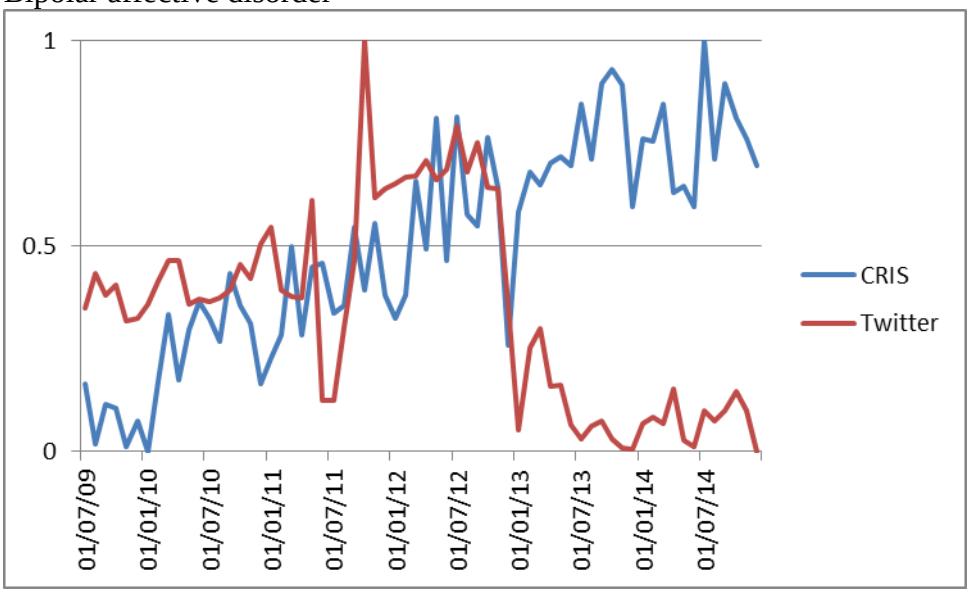
Attention-deficit disorder



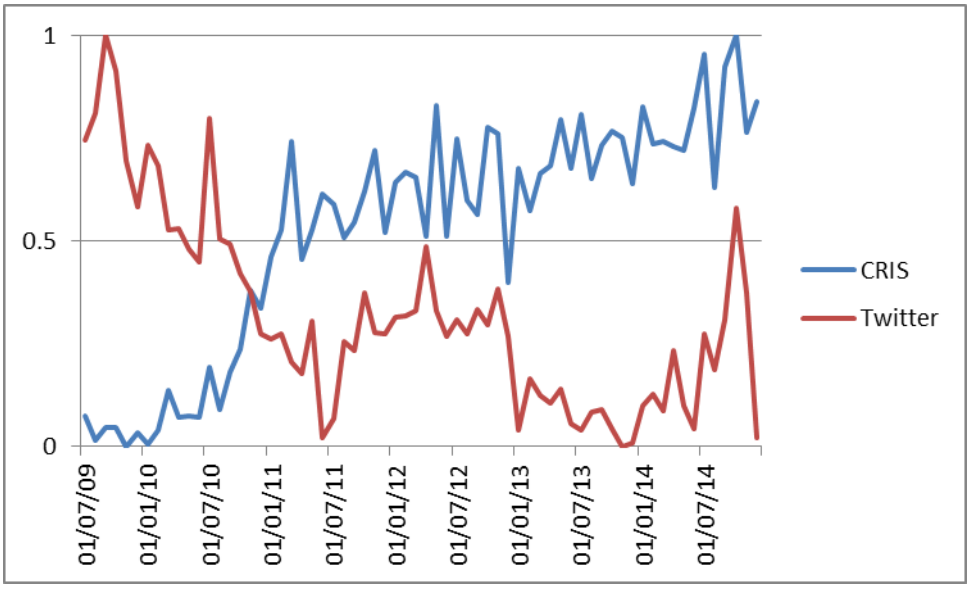
Autism-spectrum disorders



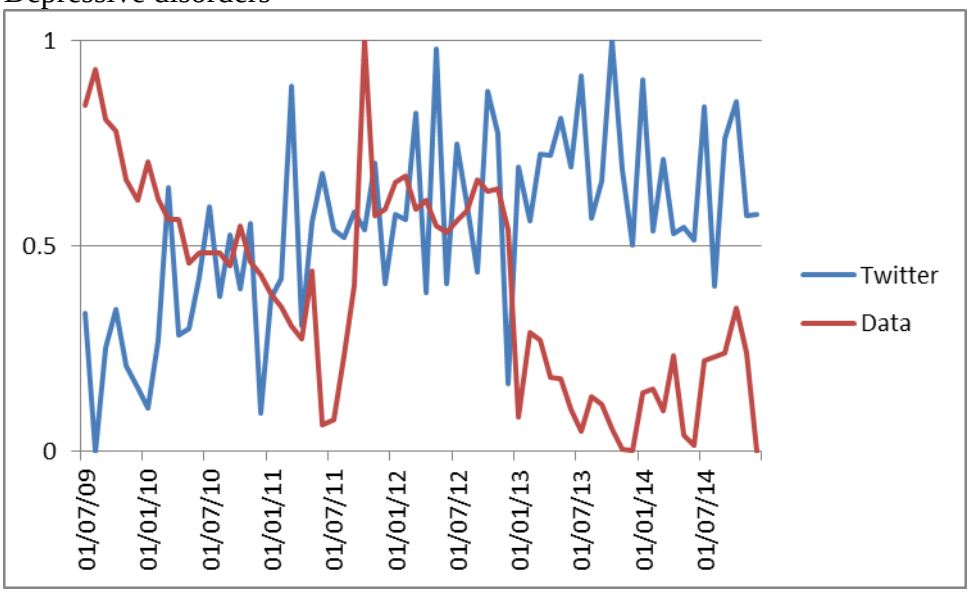
Bipolar affective disorder



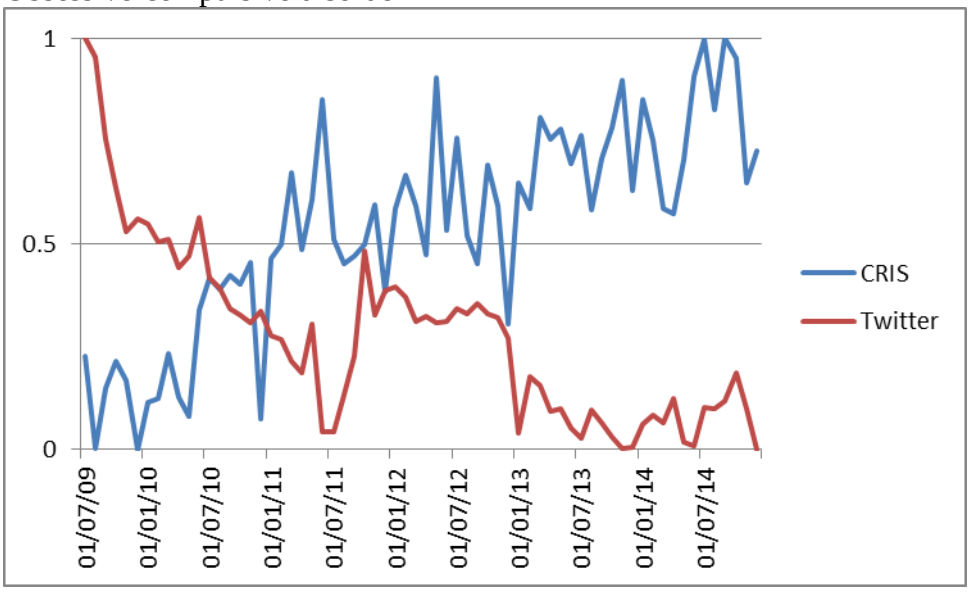
Dementia



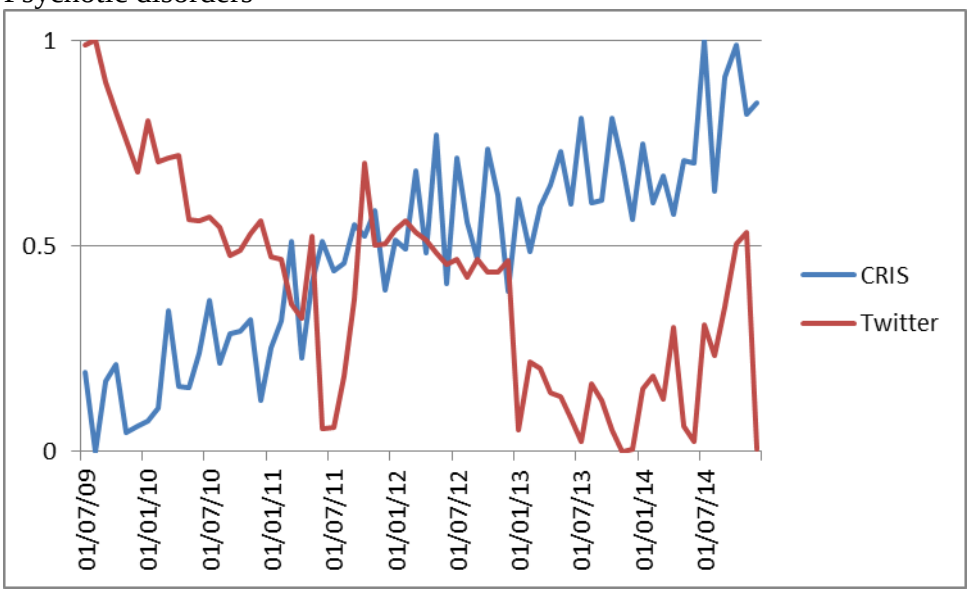
Depressive disorders



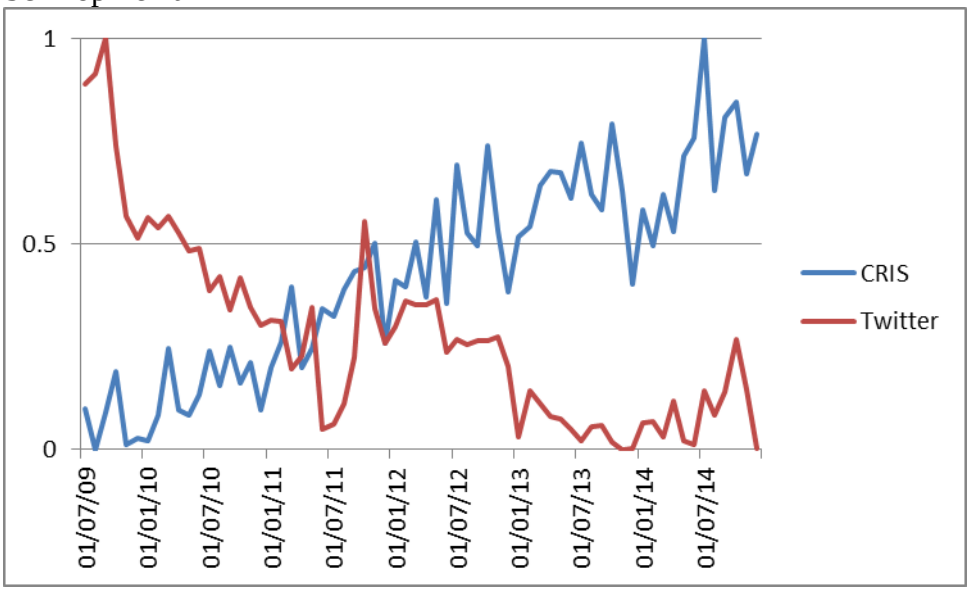
Obsessive-compulsive disorder



Psychotic disorders

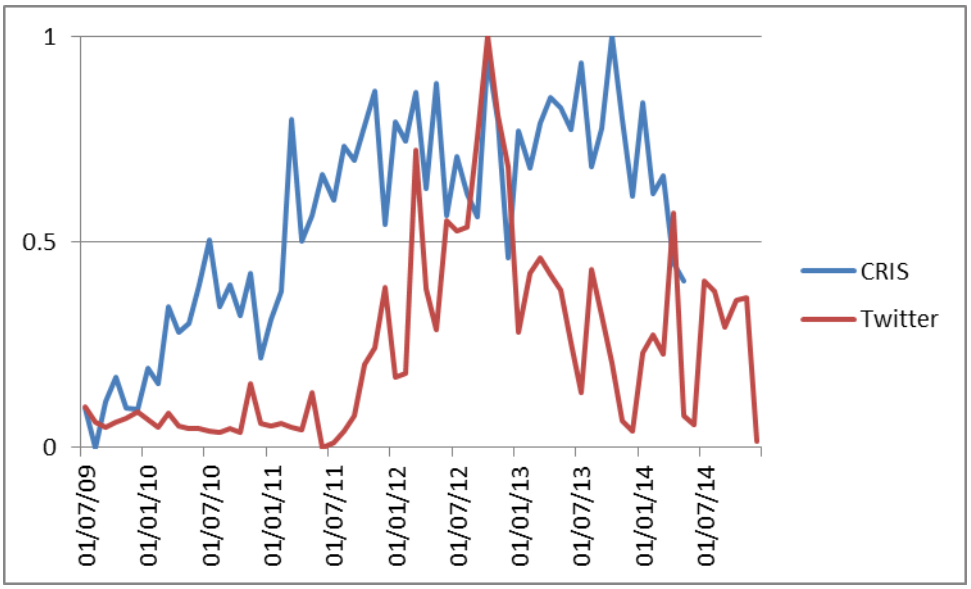


Schizophrenia

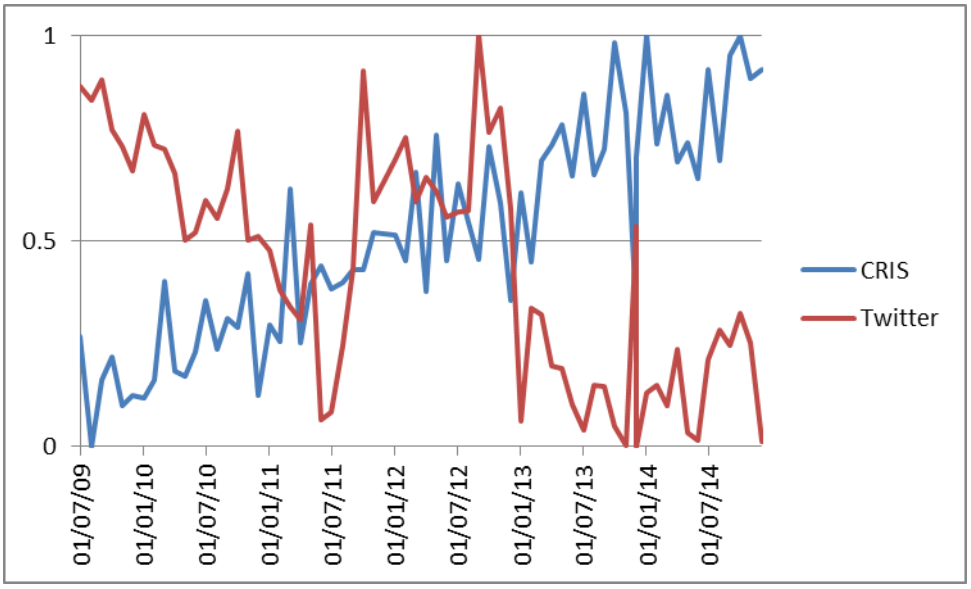


Appendix 4 – Self-harm and suicide temporal graphs

Self-harm



Suicide



Appendix 5 – Medication annotations

aripiprazole	Information - Link	Side effects of Abilify Discmelt http://t.co/1ER9JiOc
aripiprazole	Relevant tweet	lmao the abilify commericial i just listened to was a major fail it just listed all the different ways the could possibly kill you lmao
aripiprazole	Information - Link	RT @ninyxexojyso: weaning off abilify lamictal http://t.co/gsDfN26o
aripiprazole	Relevant tweet	woah. that animated abilify commercial? finally looked it up. directed by director of space jam and roger rabbit.
aripiprazole	Relevant tweet	This abilify commercial had a disclaimer that said "actual portrayal". Obviously. No, i'm imagining this reinactment...
aripiprazole	Relevant tweet	Has anyone seen the girl in the jeans, on the Abilify commercial? Whoa!! Lol
aripiprazole	Relevant tweet	abilify should give me the power to fly. false. advertising.
aripiprazole	Relevant tweet	@drdrew is there any reseach on zolofot and abilify?
aripiprazole	Information - Link	Abilify More Drug_side_effects Is It Ok To Combine Energy Drinks ...: Is it ok to combine energy drinks and abilif... http://bit.ly/8UVbjP
aripiprazole	Unclear	viagra abilify http://t.co/CcMfXxNJ
aripiprazole	Relevant tweet	jodie foster as nell carter in the abilify ad.
aripiprazole	Relevant tweet	@LizJostes rest. I have medications for the vertigo and I have to stop the abilify
aripiprazole	Relevant tweet	The commercial for the drug Abilify has so many side effects listed by the announces that is honestly is just comical.
aripiprazole	Relevant tweet	I hope it wasn't abilify and not even sure what that is but heard it before.
aripiprazole	Relevant tweet	@FATAL_KISS_XOXO #abilify bothering me
aripiprazole	Advertisement	Buy ABILIFY Without Prescription Buy ABILIFY Cheap no rx cod: BUY ABILIFY ONLINE! ORDER ABILIFY - Click HERE! Bonu... http://bit.ly/bE4KTC
aripiprazole	Information - Link	Bontril Pravachol Abilify Tiazac.: Tiazac On this Page Treatment & Uses Safety Information Before Using Treating O... http://bit.ly/cLB4ii
aripiprazole	Advertisement	Abilify 10mg. Discount code: 894283 -> http://t.co/yrlykL21
aripiprazole	Information - Link	Cymbalta, Abilify interactions for a Female aged 57 W/ Depression, Depression - major - eHealthMe http://tinyurl.com/yh6k59f
aripiprazole	Advertisement	Buying Aripiprazole generic when available - overnight delivery of Aripiprazole 20mg generic drug http://t.co/y5ghRMam
aripiprazole	Information - Link	Abilify, Depakene, Tegretol, Akineton, Halcion, Acetaminophen interactions for a Female aged 35 W/ Schizophren http://tinyurl.com/ykbwlkx
aripiprazole	Information - Link	Abilify, Nutropin interactions for a Female aged 6 W/ Depression - eHealthMe http://tinyurl.com/yf48vjb
aripiprazole	Information - Link	Abilify borderline personality disorder - Forums http://bit.ly/aFu4ov #borderline
aripiprazole	Advertisement	http://twurl.nl/s87v1h depakote, dilacor er, methocarbamol, loperamide, pro-banthine, abilify, meds (9876 views)
aripiprazole	Advertisement	http://twurl.nl/3evw72 zyrtec-d, effexor, aripiprazole, seroquel, silagra, diovan hct, cheap (7689 views)

aripiprazole	Advertisement	http://twurl.nl/3evw72 starlix, abilify, torsemide, cytotec, compazine, glyburide(glibenclamide)-metformin, online (8226 views)
aripiprazole	Advertisement	http://twurl.nl/i88msv naprelan, detrol, esmolol hydrochloride, abilify, e-mycin, afeditab er, meds (3173 visits)
aripiprazole	Information - Link	Uses, Side effects of Abilify http://t.co/EbGTAYmx aripiprazole bipolar schizophrenia antipsychotic
aripiprazole	Information - Link	Side effects of Abilify Discmelt http://t.co/9atbDjRv
aripiprazole	Information - Link	Weight gain on Abilify and Remeron? http://bit.ly/9Bp62d
aripiprazole	Information - Link	Possible medication switch (from zyprexa zydis to abilify discmelt)? http://bit.ly/92OxJV
aripiprazole	Advertisement	Buy Abilify for fall discounts. Only today! BEST OFFER SUPER PRICES -Best Place To Compare Prices http://t.co/BvuWkjKi
aripiprazole	Information - Link	abilify viagra interaction http://t.co/wq1OQwxY
aripiprazole	Information - Link	I take Cymbalta with Paxil and Abilify. Is it safe to be on all three at once? http://bit.ly/bftinw
aripiprazole	Information - Link	I am 6wks pregnant I am on Topamax & Abilify. What is the risk to my baby? should I go off my meds? http://bit.ly/9jqfHd
aripiprazole	Information - Link	Abilify causes Death? http://bit.ly/9TVsJo
aripiprazole	Information - Link	RT @vucukypotiza: abilify cialis interaction http://t.co/ctnJoZYp
aripiprazole	Information - Link	Does anything work like abilify without the weight gain? http://bit.ly/cg0UYb
aripiprazole	Information - Link	My docter wants me to take the drug Abilify. I am scared to take it! Can anybbody tell me about it? http://bit.ly/9wtfA8
aripiprazole	Information - Link	Is anyone on Abilify for depression? Does it help? http://bit.ly/9qmjbG
aripiprazole	Information - Link	Abilify (questioning another trial)? http://bit.ly/9Qza03
aripiprazole	Unclear	Abilify
aripiprazole	Information - Link	#SideEffects of Abilify Discmelt. An Orally disintegrating #antipsychotic. http://t.co/1LCbC3ge #drug
aripiprazole	Information - Link	Has anyone taken Abilify?how much better/worse did you feel? http://bit.ly/97OHso
aripiprazole	Information - Link	While taking Abilify, did it cause make you dizzy or feel nausea? http://bit.ly/cHvvm3
aripiprazole	Information - Link	Does stop taking Abilify stop the side effects it has? http://bit.ly/dsVgHa
aripiprazole	Information - Link	Is it okay to take Sleep MD with Abilify and Effexor XR ? http://bit.ly/cOqfhe
aripiprazole	Information - Link	Periodic Limb Movement Disorder - Abilfy (Aripiprazole)? http://bit.ly/d7rmYA
aripiprazole	Information - Link	Valproate Sodium, Ritalin La, Abilify interactions for a F aged 37 W/ Bipolar Disorder, ADHD - eHealthMe.com http://tinyurl.com/yhdy7dn
aripiprazole	Information - Link	I want to get off lithobid and stay on abilify, do you guys think my psychiatrist will make that decision? http://bit.ly/b1mwgz
aripiprazole	Information - Link	How long does Abilify take to take effect? http://bit.ly/aPs9l6

aripiprazole	Advertisement	Buy Abilify online! http://bit.ly/d7jhyA
aripiprazole	Information - Link	I heard that u can snort abilify? effects please MY FRIENDS RETARDED? http://bit.ly/9YmRTC
aripiprazole	Information - Link	Klonopin, prozac, abilify, etc, do they work together? http://bit.ly/aVjroI
aripiprazole	Information - Link	Im bipolar. im on meds (topamax and abilify). has anyone here been happier off meds then on them? http://bit.ly/bwcYot
aripiprazole	Information - Link	Side effects of abilify? http://bit.ly/9xlqCO
aripiprazole	Information - Link	Did abilify increase your appetite? http://bit.ly/96nViO
aripiprazole	Information - Link	Need Abilify and don't have the money? http://bit.ly/ctXmRQ
aripiprazole	Information - Link	I am taking abilify and want to lose weight? http://bit.ly/bkc11s
aripiprazole	Information - Link	What is the difference between Zyprexa, Abilify, and Geodon? http://bit.ly/9LT8UY
aripiprazole	Information - Link	Has anyone been on Effexor XR, Abilify, Wellbutrin and Klonopin at the same time? http://bit.ly/cgufqK
aripiprazole	Information - Link	Cna I take motrin with zoloft-100mg and abilify-10mg? http://bit.ly/9f3U4Z
aripiprazole	Information - Link	Anybody on Abilify? http://bit.ly/cCIyPS
aripiprazole	Information - Link	Is Anyone on ABILIFY for OCD? http://bit.ly/dCNkKS
aripiprazole	Information - Link	Im bipolar. im on meds (topamax and abilify). has anyone here been happier off meds then on them? http://bit.ly/dhTocl
aripiprazole	Advertisement	Order Abilify No Prescription Online. Discount code: 490554 -> http://t.co/jayIyh42
aripiprazole	Information - Link	Abilify bipolar ii http://wapojub.t35.com/abilify-bipolar-ii.html #mediarelations #interiordesigner
aripiprazole	Information - Link	Abilify and drooling http://nahodun.t35.com/abilify-and-drooling.html #housing
aripiprazole	Advertisement	http://www.tigblog.org/group/norxshop/post/1929941 Abilify|Aripiprazole|Arizol|
aripiprazole	Relevant tweet	@kat_eyz1969 @watchout4snakes Does the elavil make you sleepy? All I want to do is sleep. The abilify caused to me to get diabetes.
aripiprazole	Relevant tweet	Taking 2 more Abilify today. So 6mg total. Not much, but not as directed. It's given sometimes "as needed" anyway though, and I need it.
aripiprazole	Advertisement	RT @rawudalabim: levitra interactions abilify over the counter viagra boots http://t.co/HC3EcYaW selling viagra south africa
aripiprazole	Information - Link	New blog post: Without Rx Access, Can People Manage To Pay For Abilify? http://bit.ly/cdOjt7
aripiprazole	Information - Link	Can I drink if I take Abilify, Lamictal, Paxil and Clonopin? http://bit.ly/btTdwM
aripiprazole	Information - Link	: Abilify http://HealthOrganisation.net/abilify/
aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Relevant tweet	Anyone find it weird that Abilify (an anti-depressant) has a warning that it may cause depression or suicide?

aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Advertisement	abilify adverse reactions List Of Recommended Online Pharmacies: => Online Pharmacy 1 (FDA Approved medicati http://t.co/o6Oa4F5W
aripiprazole	Advertisement	abilify and kids List Of Recommended Online Pharmacies: => Online Pharmacy 1 (FDA Approved medications) (Pyp http://t.co/OYxw9D4B
aripiprazole	Advertisement	new abilify commercial List Of Recommended Online Pharmacies: => Online Pharmacy 1 (FDA Approved medications http://t.co/JgwNfSWO
aripiprazole	Advertisement	#aripiprazole: Buy Cotrimoxazole Bactrim - Abusing abilify! at http://buycotrimoxazole.com/l/30410/ab69
aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Advertisement	Buy Abilify online! >>> http://tinyurl.com/35sjpae
aripiprazole	Not Relevant	Abilify has created a new game of Uno on the RS Games server. Why not join her?
aripiprazole	Relevant tweet	Contact your doctor if you die after taking Abilify.
aripiprazole	Information - Link	Use and Side effects of Aripiprazole http://t.co/RgvmjtIV
aripiprazole	Relevant tweet	That #abilify depression commerical is just cute. depression is not cute its a bastard
aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Relevant tweet	@jude Meds more specifically targeted. I'm on Abilify and Sertraline, and neither is specific I think.
aripiprazole	Advertisement	Buy Abilify Online - satisfaction guaranteed >>> http://bit.ly/demYcc <<<
aripiprazole	Information - Link	Another "excellent" article - Aripiprazole (Abilify) in Child & Adolescent Psychiatry http://bit.ly/CACAP-aripiprazole
aripiprazole	Relevant tweet	Umm yeah Danielle #rhonj needs to add Abilify to whatever meds she on. This broad is nuts
aripiprazole	Unclear	societies president abilify
aripiprazole	Relevant tweet	I have one week until my next appointment and I only have one extra Abilify 2mg left before they're all portioned out. I need 5mg badly.
aripiprazole	Advertisement	Buy Abilify Online without prescription - Best Prices >>> http://bit.ly/demYcc <<<
aripiprazole	Relevant tweet	You've ever taken Abilify? Ever taken Abilify on WEED?
aripiprazole	Relevant tweet	does anyone know anything about trazadone or abilify?
aripiprazole	Relevant tweet	Well I'm finished at the doctors. Abilify & Wellbutrin stayed the same. Trazadone went up to 200mg. I hate medicine
aripiprazole	Advertisement	why is #abilify so expensive => http://buyvalacyclovir.net/l/40610/wh1 http://bit.ly/blzwrK
aripiprazole	Information - Link	How many antidepressants did you try until you found one that works?: So far I have tried Lexapro +abilify, then C..... http://bit.ly/aqFoDm
aripiprazole	Information - Link	I was just prescribed Abilify and Remeron by a Military Psychiatrist, are those grounds for a medical chapter? http://bit.ly/cfbajt

aripiprazole	Relevant tweet	My dog is in a deep depression:(so I told her to take so abilify bitch!
aripiprazole	Relevant tweet	@nefertari1967 I'd probably start with Seroquel or risperidone for anger and bipolar anxiety from mania. Abilify is best long term though.
aripiprazole	Relevant tweet	@sayno2pharma Thanks for passing this on to your followers. I've been shouting about the dangers of #Abilify for seven years.
aripiprazole	Information - Link	Just saw an ad for the Rx 'Abilify'. I find the name hilarious. http://bit.ly/beQYk6
aripiprazole	Relevant tweet	@anxiouskaley It went alright. Nothing changed actually. I just got more Abilify samples. Pdoc still is concerned about lab results.
aripiprazole	Advertisement	DrKragtenbah: can you legally buy Abilify 15mg 90 pills online visa electron accepted... http://t.co/1Nc4lodS (via @cuturl)
aripiprazole	Relevant tweet	global, abilify medication, temperature
aripiprazole	Advertisement	FREE Abilify $50.00 Coupon (for depression) http://bit.ly/b7lsMW (#abilify #coupon #depression) http://bit.ly/aCw4ai
aripiprazole	Information - Link	How Is Abilify Used In Treating Schizophrenia, Bipolar Disorder …: Abilify (aripiprazole) is a prescription antips... http://bit.ly/aLZ5Hc
aripiprazole	Unclear	united, abilify cost, depend
aripiprazole	Relevant tweet	Nigga said get me some Abilify. DEAD.
aripiprazole	Information - Link	Use and Side effects of Abilify Discmelt http://t.co/vDNILaD0
aripiprazole	Advertisement	Buy Abilify for fall discounts. Only today! BEST OFFER SUPER PRICES -Best Place To Compare Prices http://t.co/4IvIHMQh
aripiprazole	Information - Link	abilify borderline personality disorder - Visit site: http://bit.ly/a4fHO4
aripiprazole	Unclear	forward, abilify cost, extinctions
aripiprazole	Information - Link	RT @catvoncat: I love Abilify commercials. "This drug may kill you or make you kill yourself. Try it! It's awesome!"
aripiprazole	Unclear	medium, abilify, place
aripiprazole	Information - Link	common side effects of abilify herbal - Article: http://bit.ly/a4fHO4

Appendix 6 – Mephedrone annotations

positive	RT @alanatcroydon: Do we risk getting #Mephedrone issue out of proportion? How does the number of deaths/illnesses stack up against thos ...
negative	ekeke meowmoo 4eva! @eLisLisLissa: @irenicus07 with a moo moo here~ and a meow meow there~ here moo there meow~everywhere hv meow moo~~~ :D
unclear	Any meow''ers that go meow meow?
positive	Available Mephedrone for sale. http://goo.gl/fb/lDyLg
negative	Indonesia has a thousand of kind vodoo, its call Magic (black magic or white magic)...to get easy succes, rich or even to get a bf...
negative	Lmaoo! RT @y0_Gerilyn: Meow meow meow meow
positive	Many mephedrone alternatives just as risky, warn experts http://bit.ly/aZuwqH #science
positive	Mephedrone-like ''legal high'' set to be banned: Government drug advisers are expected to recommend banning another ... http://bit.ly/bG0my1
negative	Thanks Spell fuckin Check! RT @JBCaliBred: RT @CeETRoN I really like ya kitty cat...and if you let me touch (cont) http://tl.gd/ok539
negative	kitty cat http://twitpic.com/232wht
negative	@JustinnBieber_ Meow meow :)
negative	@TheFabulousOne ...What if it''s a gun that looks like a kitty cat?
positive	Da Sticky Icky News: For sell : MDPV,Mephedrone,Bk-MBD... http://dastickyicky.com/index.php/2010/06/for-sell-mdpvmephedronebk-mbdbbkmdma-2/
negative	Kitty Cat Rides a Tortoise http://bit.ly/aNaeCu
negative	Meow meow guk guk !! http://tweetphoto.com/28209900
negative	Meow meow meow meow. Meow meow meow meow. Meow meow meow moew meow meow meow. /cc @a_picazo @vitty10
negative	Meow...Meow Meow. http://twitpic.com/1y9q53
positive	Mephedrone and other research chemicals avaliable . Contact for more information if interested .: We provide the h... http://bit.ly/9QpSfQ
negative	RT @Lororo: LOVEORDEATH vol.11 / 2010.6.20 (SUN) / ???THREE / tombo(??) / URBAN??? / ???????? / ?????????? / the kitty cat swinger''s club
negative	Soooo this still @iLove_DARIENNE kitty cat, iwant ya''l ta knoe im tight, right & good fa ya eye sight ! #thatIsALL !

negative	im a sad kitty cat
positive	mephedrone and other research chemicals for sale http://goo.gl/fb/dqUDo
positive	mephyrone,4-MMC, 4MMC,: We are premium supplier of 4-MMC/Mephedrone. 99.9% pure 4-MMC and other h... http://bit.ly/dBHvAq at USMarketDB.com
unclear	meow meow meow meow meow meow meow meow.
negative	@Uyieeeboo @definesally @dkim729 excuse me wheres my invite.... a shi shi me meow meow
negative	RT @paleday: Can I dance in these new boots? Who cares, you will be! Paleday @ 229 tonight. Miaow miaow!!!!
unclear	meow meow meow.. meow meow, meooooow!... ;o)
negative	@Avatarpress Stewie is a Flame Point Himalayan kitty cat.
negative	@TsFoxyFun i miss my meow meow see my background pic
negative	@drowninginkids Hey, you''re not alone! Kitty cat is adorable!
negative	@xoklap This Kitty cat gets to be re-united with her bugggg on december 16th xxxxxxx
negative	- #ChristianBeadles :"A KITTY CAT!.....pur pur" bahaha!
negative	1AEON NEW black tee with golden Kitty Cat - Size women''s L by 1AEON http://bit.ly/bnlXRQ
negative	I''m lookin for a cutie, with a big old ghetto booty, I really like your kitty cat, an...: http://chatter.com/a/2dcvi
negative	MEOW MEOW MEOW MEOW MEOW OH MY GOD #idol
negative	MEOW MEOW meow: http://bit.ly/16mht3 http://bit.ly/6su2XR http://bit.ly/BLNTl http://bit.ly/aIBkzE http://i.imgur.com/CWbP.jpg #catspam
positive	RT @PlantChemistUK: 10g of mephedrone plant food could be yours absolutely free. RT for a chance to win!
negative	i want a kitty cat.....
negative	meow meow O.O meow meow O.O *gasps* RUN AWAY!!!
negative	meow meow meow meow''d augh this cat /punches him in the tail
negative	Having meditated on that I will then snuggle each kitty cat, curl up with a good movie or book and go to bed. Sending love to all
negative	Kabooka. Sleep, can''t find it. Need a back scratch. Kitty cat. Not cat scratch fever. Batch of cookies. Tookie, bookie, snookie. Pickles.
negative	Lick that kitty cat until she purrs *meow*
negative	Meow Meow, pat it out!

negative	Peppermint kitty cat tea by the fire :) http://twitpic.com/35n72w
positive	Police in County Tyrone seize 1.7kg of mephedrone with an estimated street value of £51,000. http://bbc.in/bKhZ2K
negative	Witchcraft Secret Manual. 75% - Great Sales!: Spells, White Magic for Love and Money. Help with banners an... http://tinyurl.com/2dl8cdo
negative	http://www.fanfiction.net/s/6458747/9/ meow meow meow
negative	meow meow - wonder how the #demo2010 is going
negative	=\ ohhh meow meow RT @pittizzy Uh, @titsdewtrannys 0__o RT @bigbspoilers: Enzo: "I''m going to shave my pubes"
negative	Hanging out with my meow meow kitty cat LULU, he is a lover not a hater!!!!
unclear	Meow meow
negative	meow meow meow. i might have fractured my finger woo woo -.- home time though :D
unclear	@strangebru meow meow!
unclear	After a speech by the saboteur, say "Don''t mess with the meow meow." I submitted a Big Brother sabotage idea on...http://soc.li/iTRazSJ
positive	Grade 1 Mephedrone for sale: We offer top-quality mephedrone Plant Food at great prices with free next-day Reco... http://bit.ly/aIF6WG
unclear	Meow Meow !
negative	@puppyhand the meow meow''s done nothing!!!
unclear	@Castellanos23: meow meow
negative	@Raizen__ hahaha nope, she is reserved by my buddy Naomi aka Asymptote :D im sticking with kitty cat kat
negative	Gonna jump into bed with ma kitty cat (: night
negative	Wrapping presents wrapping presents meow meow meow.
negative	cat. I''m a kitty cat. and I dance dance dance and I dance dance dance.
negative	@katewalsh Are you a cat lady or a kitty cat?
positive	Dimethocaine,Mephedrone,Ethcathinone,Naphyrone,Buphedrone, etc for Salesss: we sell high quality Mephedrone (buy m... http://bit.ly/bkhJtZ
positive	HIGH LABORATORY GRADE(99.8) MEPHEDRONE,MDMA,POLYHEDRON FOR SALE.....: We sell high laboratory grade (99.8%) mephed... http://bit.ly/cUuzx0

negative	Littlest Pet Shop Orange White Raised Paw Kitty Cat 52 http://bit.ly/b5wzyS
negative	@3D_mdash_ meow meow;) we outtt mamitaaa
negative	@BrownEyedGal_ox hahhahhahahaa It won''t let me go on....I forgot the pass! ROFL LMFAO! yes! And remeber the "I''m a kitty cat vid?? Lmao
negative	@ClaireWalker_HS Hi meow meow
unclear	@daniekanasiro meow meow meow meow meow de le mel! (8)
negative	Can I touch your kitty cat.
negative	Catch me in the drop. With a SnapBack. Hoes on my dick. Gimme kitty cat
negative	I really need to find a kitty cat that likes Social Distortion. Ball just hides under the bed. What a baby. It''s not even that loud, Ball!
negative	I want a kitty cat to my self. I''d stroke it every time. And you know, do whatever. ;)
negative	I''ve favourited a YouTube video -- Meow Meow True HD http://youtu.be/7AxNvXNk5iE?a
unclear	Meow meow
unclear	Meow, me-ow meow. Meow, me-ow meow. Meow...meow meow; meow...meow meow. #thanksapantloadcaseylalonde
positive	Mephedrone, methylone, ketamine and other research chemicals for sale (New York): We are premium supplier of 4-M... http://bit.ly/gCPRtF
negative	Mmmmm papa mmm papa meow meow! #oldies
negative	North American Pet Products Classic Kitty Cat Furniture #49110 | Most Popular
negative	OWL & KITTY CAT Original Art greeting cards http://bit.ly/aPpHgr #etsy
negative	RT #streetstyle #news MEOW MEOW// [JAK & JIL BLOG - Canada] http://bit.ly/e1zmG2
negative	Rest in peace kitty cat!
negative	White Magic – Rio Rhythmics Latin Dance Academy – Christmas Party 2009 http://goo.gl/fb/YdzM6
negative	You need to grab her from the back. Lay her down flat. Kiss that kitty cat. Yea bet she like that.
negative	kitty cat, pretty cat
negative	RT @buffffy: OMFG I see Kitty cat song in my fed!!! :D
negative	@AlexisDelChiaro Hey- we have a new kitty cat- 7 weeks! Any idea for a name? She is dark gray, almost black.
positive	@GreatDismal some further info on "meow meow", courtesy of erowid: http://tinyurl.com/yjcwtan

positive	@Headphones91 LMAO?? wtf is meow meow? NAH G. The only drug I do is GALAXYBUBBLE. You best be bringing that with you on sat. Or else-> BEEF
unclear	@ItsTeamLautner meow meow meow meow meow meow
negative	@MarissaMagic I really like your kitty cat and if you let me touch her I know you''re not a bluffer I''ll take you to go see usher
negative	@MelMel13 @kimbieblue my mom bought a rocking chair today. She also looked at a possible NEW kitty cat.
positive	@Punnit @Vanilly he took some meow meow and wanted a pussy! Haha... I should write the headlines for the daily star
unclear	@_S1mone Jokkerbroque! Hoe is het met je kitty cat? Beter? Harley is weer helemaal ok gelukkig
unclear	@___Sparkle kitty cat.
negative	@dontforgetchaos That is one cute kitty cat!
negative	@elyshafly alah whatever la but like funny uh. both doraemon n hello kitty cat right then why like doraemon?
negative	@ewyatt_atl Coco was watching it earlier. She didn''t care for the kitty cat half time performance though, lol.
negative	@jazzydacat thank you! meow meow meow hope all is well in the UK, purrrrrr
negative	@jbieberlover19 awwwwww baby jag. went meow meow sooo adorable!!!
negative	@kittiekaidonia *meow meow purr grrrr purr meow* (translation) i miss you sis!!
unclear	@kyohina Meow Meow mEoW~~~~~~~~~~~~
negative	@meowmaolove I know how to go le! thanks alot meow meow
negative	@mirko_cat - meow meow meow meow meow #cat
negative	@puckingaround ooc: grraawwr. *kitty cat paw*
negative	@ransBieb crazed lil kitty cat!!! How ya doin??
unclear	@sammietodd NM AYE schoolisthemostboringthingofmylife KITTY CAT ILOVEYOU!
negative	@sluttykitty i wont!! run!! lol morning kitty cat :) forgot to ask! do you have the pics we made? xx
negative	@sora2522 thanks kitty cat!
negative	A 7-foot tall humanoid mutatated creature raping a kitty cat against a wall. I haven''t seen that before.
positive	BBC News - Mephedrone may be banned, chief drug adviser indicates http://ow.ly/1qtTJn #Mcat #MeowMeow #Drugs
negative	Checkit out tha funny kitty cat :) http://s-a.cc/pLG38

Appendix 7 - Mental health stigma / Germanwings annotations

Schizophrenia	Non-relevant	Non-relevant		The sun is being a bit schizophrenic today. Make up your mind please (and stay!)
Schizophrenia	Relevant	Relevant	Opinion	A Charity Pantomime in aid of paranoid schizophrenics and homosexuals descended into chaos yes2day when someone shouted, "he''s behind you!"
Schizophrenia	Relevant	Relevant	Opinion	RT @FunnyJoker: A Pantomime in aid of paranoid schizophrenics & homosexuals descended in2 chaos ystrday when sum1 shouted, "he''s behind U!"
Schizophrenia	Relevant	Relevant	Opinion	Now reading The Center Cannot Hold by Elyn Saks #schizophrenia
Schizophrenia	Relevant	Relevant	Opinion	My bus has an ad for schizophrenic clinical trials on it. Nice targeted marketing.
Schizophrenia	Relevant	Relevant	Unclear	So we pretty much knocked depression, schizophrenia, and bipolarity off my list!
Schizophrenia	Relevant	Relevant	Personal experience	why do i feel like someone''s following me? Twitter not good if you''re a paranoid schizophrenic
Schizophrenia	Relevant	Relevant	Opinion	Schizophrenia beats being alone.
Schizophrenia	Relevant	Relevant	Personal experience	"I''m not schizophrenic, just very busy."
Schizophrenia	Link to information - relevant	Link to information	Opinion	Fascinating case study of the complete reversal of schizophrenia with a low-carb diet. http://su.pr/1E3k8u
Schizophrenia	Relevant	Relevant	Opinion	Schizophrenia beats being alone.
Schizophrenia	Link to information - relevant	Link to information	Opinion	rt @DrEades Fascinating case study of the complete reversal of schizophrenia with a low-carb diet. http://su.pr/1E3k8u
Schizophrenia	Non-relevant	Non-relevant		@schizophrenic aauahuahuahauahuahauhauahauha...
Schizophrenia	Link to information - relevant	Link to information	Opinion	Wow. Amazing. RT @DrEades: Fascinating case study of the complete reversal of schizophrenia with a low-carb diet. http://su.pr/1E3k8u
Schizophrenia	Relevant	Relevant	Opinion	Schizophrenia beats being alone.
Schizophrenia	Relevant	Relevant	Opinion	RT @Martha_D_M Schizophrenia beats being alone
Schizophrenia	Relevant	Relevant	Personal experience	@Iv_Moony yay!! im glab im not the only one with schizophrenia!! i mean.....who cant upload his pic!!!!!
Schizophrenia	Relevant	Relevant	Opinion	Schizophrenia beats being alone.
Schizophrenia	Non-relevant	Non-English		@schizophrenic aii nem me fala tava muitoa fim de ir affffffffffffffffff
Schizophrenia	Relevant	Relevant	Opinion	Schizophrenia beats being alone.
Schizophrenia	Relevant	Relevant	Opinion	RT @CecyTxGaL: Why is it that when we talk to God we''re said to be praying, but when God talks to us we''re schizophrenic? ~ Lily Tomlin ...
Schizophrenia	Link to information - relevant	Link to information	Opinion	RT @sarcastic_f NYT: Capgras Syndrome, a form of misidentification delusion seen in schizophrenia, dementia, brain injury http://tr.im/w60R

Schizophrenia	Relevant	Relevant	Opinion	alan ball + schizophrenic ex of acquaintance + possible std of said acquaintance = no sex
Schizophrenia	Relevant	Relevant	Personal experience	Roses are red, violets are blue, I''m schizophrenic, and so am I.
Schizophrenia	Non-relevant	Non-relevant		@SchizophreniCat I love that show! Season 2, eps 1-6 are SO CLIFFHANGERISH, it''s terrible. *follow*
Schizophrenia	Relevant	Relevant	Opinion	Can''t call it schizophrenia-but what can you call split brain syndrome? Working in BB Vista at the same time as Desire2Learn. Info overload.
Schizophrenia	Relevant	Relevant	Opinion	#nevertrust a god who allows the exploitation of women, lets innocents die, or allows children to be born with AIDS/bipolar/schizophrenia.

Neutral	@BILD reports #4U9525 co-pilot was treated for serious depression, declared not ready to fly inbtw bcs of that and that @lufthansa was aware
Anti-stigma	Shoddy journalism. Suffering from depression does not automatically make someone a guaranteed mass murderer. http://t.co/6Uv2xpaIP3
Neutral	|REPLAY| Broadcast 1818. #germanwings #depression #katch #meerkat @RuudRensink http://t.co/LzoFFVGvfy
Unclear	funny how this Germanwings pilot "hid mental illness" he's a terrorist as far as i'm concerned. But the media won't that cause he's white.
Anti-stigma	Can we just stop talking about Lubitz's depression? Being a mass murderer is not a symptom of depression #Germanwings #stopthestigma
Unclear	Ah! He was just depressed. #Germanwings http://t.co/2CgqFjkJ9l
Neutral	Unable to comprehend the Copilots actions on the #Germanwings why oh why? Do airlines psychoanalyze their staff and pilots?
Neutral	Should Pilots Taking Antidepressants Be Allowed To Fly? http://t.co/Iqv1ZkNvCv by @DrSteveStahl #MondayBlogs #GermanWings
Neutral	Hey @BBCNews @guardian - how about redirecting all that crass raking to deepening understanding of #mentalhealth, instead? #Germanwings
Anti-stigma	Re #Germanwings plane crash - in our search for answers, let's not make generalisations. Having depression does not make you a murderer.
Anti-stigma	Theres an important diff b/w lucid deliberate act of religiously/politically motivated terrorism & mental illness #EndTheStigma #Germanwings
Anti-stigma	Donâ€™t stigmatise #depression after #Germanwings crash, says top doctor http://t.co/QBY4QnWBJO
Anti-stigma	The sensational association of the Germanwings horror and "mental illness" has put community understanding of mental health 50 years. #qanda
Neutral	How is it even possible to hide a mental illness from the airlines? They don't do background checks before hiring their pilots? #Germanwings
Anti-stigma	#Germanwings didn't go down because #Lubitz suffered from depression. Depression doesn't lead to murdering 150+. That's irresponsible to say
Anti-stigma	The pilot of #4U9525 may have suffered from depression as well,but such an act was the product of pure craziness. Let's not confuse the two.
Anti-stigma	'#Germanwings crash: I have #depression. That doesn't make me a psychopath' http://t.co/vJFDk9mWPq via @Independent #MentalHealth
Anti-stigma	Stigma fuels shame & silences our ability to get help. Time to #endstigma http://t.co/MTLGg2KZqT #mentalhealth @smh @yawcrc @headspace_aus
Anti-stigma	The problem isn't if the Germanwings pilot had a mental illness, it's why he hid it http://t.co/TYVLY53K9Z
Neutral	Frankfurter Allgemeine cites a Lubitz's friendly person claiming that the co-pilot was suffering from depression http://t.co/1gK7c4A7LZ

Anti-stigma	The Daily Mirror are pointing out that the #Germanwings pilot had depression? Are they trying to blame mental health as a cause for murder?
Anti-stigma	Hoo boy I cannot tell you how little I'm enjoying the media guessing that depression was the reason the Germanwings pilot crashed the plane
Neutral	#Germanwings co-pilot passed all flight and medical tests; pilots don't undergo psych testing, Lufthansa CEO says. http://t.co/MdSqgnWTPm
Anti-stigma	#timetochange is the hashtag against the ableist & stigmatizing headlines about the mental health state of #4U9525 #Germanwings co-pilot
Neutral	Germanwings jetliner catastrophe: The first antidepressant drug-induced mass murder of the skies? - NaturalNews http://t.co/jTPfuGcbce #CCHR
Neutral	Important, measured piece on depression at work and the #Germanwings hysteria from @DaniGaravelli1 in @scotonsunday http://t.co/Nx9mM96l0D
Neutral	Katie Hopkins slammed for 'abhorrent' rant about depression following Germanwings crash http://t.co/bak8yyJ7Rs http://t.co/MHV96zfVzn
Unclear	Oh man so the white dude from #Germanwings had a mental disorder when he crashed the plane... But if he were Muslim... Nvm
Neutral	#Germanwings pilots undergo medical testing once a year, psychological testing not done any more after qualification - lufthansa chairman
Neutral	Lufthansa admits that it does not administer psychological tests on its pilots. Would it have helped? #Germanwings
Neutral	Did an antidepressant bring down Germanwings Flight 9525? http://t.co/W7X2CdOwGx http://t.co/j7B943tYyA
Neutral	Was this Germanwings pilot on antidepressants? He was reportedly "severely depressed", antidepressants trigger suicide/homicide
Neutral	Lufthansa gives recruits a psych test. #Germanwings
Anti-stigma	#Mental health organisations warn against making judgements on mental health of #Germanwings pilot Andreas Lubitz: https://t.co/lWQxmaF6iOâ€
Anti-stigma	TheGuardien: Donâ€™t stigmatise depression after Germanwings crash" http://t.co/KOS7gASleH
Anti-stigma	As lifelong battler of depression I'd just like to remind people that depression does not=mass murderer. #mentalhealth #Germanwings #stigma
Neutral	Aviation expert Neil Hansford is calling for regular checkups on pilots mental health http://t.co/nh8Tl3DepA #Germanwings @jillemberson
Anti-stigma	Germanwings coverage a kick in the teeth for people who suffer from mental health issues http://t.co/ZDhim4Ic7D
Neutral	Germanwings official says co-pilot was "successful in all of the psychological and medical test" administered during his training
Neutral	RT"@FoxNews: Germanwings co-pilot battled depression in '09, friends say. http://t.co/blRMwvWwc9 http://t.co/WZAsvwQn7F" | @RS_Journalist
Anti-stigma	Donâ€™t blame â€œdepressionâ€ for the Germanwings tragedy: http://t.co/xloGVfGa9k
Neutral	Germanwings disaster pressuring airlines to improve psychological screening of pilots http://t.co/EC8IoFxMWj http://t.co/lIeUsWZ24q
Anti-stigma	If the Guardian can report the Digne plane crash without stigmatising depression even more, why not other media? http://t.co/8wCuy4ZlNr
Unclear	Of course the co pilot had a "mental illness", cuz he wasn't a muslim #Germanwings
Neutral	Watch #CBCNN in 20min: @andrewcbc talks with an aviation psychologist about pilot selection and the screening they go through. #Germanwings
Stigma	Testing all the pilots psychologically before each and every flight might be an idea considering the unfortunate #GermanWings disaster.

Neutral	Could depression result behavior that led to the #Germanwings crash? @drsanjaygupta on #AC360 http://t.co/bQnoYCvHjV http://t.co/Qchfx6nH0r
Neutral	.@TGTaylor3rd fact is unless families/friends can do more to help people with #mentalillness who resist help, #4U9525 threat real here
Anti-stigma	Whoever blames mass murder #Germanwings on mental Illness is a fool.Taking 140 souls with you is a deranged killer nothing more nothing less
Neutral	Reinforced doors or no doors Tokyo case 1982 AKA The history of #Antidepressants http://t.co/DEQpvtN0pD http://t.co/S4UaudDudT #Germanwings
Neutral	Lufthansa CEO says pilot scrutiny includes psychological assessments. Both pilots went through test http://t.co/VZQ7TXuwyV
Neutral	Germanwings pilot was declared mentally unfit to fly by doctor, hid illness from employer. http://t.co/czYAG8Aclc
Neutral	#Germanwings co-pilot Andreas Lubitz, 27, had serious depressive episode: Report http://t.co/PKzBNUSrIU http://t.co/Ap8gbQF6xW
Anti-stigma	@LGCircle #Tough on the problem #Easy on the people #stigmafighter #mentalillness Think about it ! http://t.co/7puOl6VP0o
Neutral	The best piece of writing I've seen on the Germanwings disaster, pilot Andreas Lubitz & mental health http://t.co/l91YKa0Iu6
Anti-stigma	Good opportunity for media to use the #Germanwings story to discuss how we deal with mental problems -- and why we should not stigmatise.
Anti-stigma	For those living with #depression #mentalillness impacted by media stories #Germanwings - help via @LifelineAust or: http://t.co/VcrcAM3kwg
Neutral	Who's flying our planes? The Germanwings crash raises questions about mental health of pilots http://t.co/J8qL7Qkm7D http://t.co/w2ElNhtliX
Neutral	"@FRANCE24: Germanwings co-pilot had suffered depression: report http://t.co/iPUxJnAP3w http://t.co/7wniJe2Vn0"
Anti-stigma	Proud of my college @rcpsych today and @WesselyS for putting out such a strong statement to challenge stigma of depression #Germanwings
Anti-stigma	Many suffer from clinical depression and are no danger to others. #Germanwings
Neutral	Watching the news and they are really building a "mental illness" investigation for this Germanwings pilot that killed all those people
Unclear	@Zeinobia Gotta love western media, Captain Gamil al-Batouti---a terrorist, but Andreas Lubitz is labeled 'mentally ill' #germanwings
Neutral	The #pilot who allegedly crashed the GermanWings aircraft killing 150 people had previously been treated for depression in 2008. #sabcnews
Unclear	If only the 9/11 hi-jackers had left notes saying they where depressed. Then maybe Bush wouldnt have had to invade Iraq. #Germanwings
Neutral	Wow!!! This will change the airline industry. - Periodic psychiatric checks. - Possibly the addition of a mandatory third pilot #GermanWings
Neutral	#Germanwings co-pilot concealed #depression:... http://t.co/aqPo15TqVU
Anti-stigma	Just when you think the uk media cannot sink lower, you read their headlines on the possible depression suffered by the germanwings pilot /c
Neutral	Germanwings crash: Andreas Lubitz â€˜received treatment for depressionâ€™ http://t.co/zi5cLXFua2 (by @mllesaraht) http://t.co/VgudoNdDl4
Neutral	Germanwings co-pilot 'took time off for depression' http://t.co/vPXGuMmori http://t.co/mG5tCIKIP8
Anti-stigma	I'm afraid 2 ask: do commercial pilots hav psychiatric counseling? Sad 2 hear they will have to, from now on. #Germanwings #mental health
Anti-stigma	I went through and deleted a fuck ton of people on FB last night because of the reactions they had about mental illness and germanwings.

Neutral	Small section of tomorrow's cartoon on the #Tragic #Germanwings #Disaster #LessonsLearned #mentalhealth http://t.co/UzNk5Vtmrk
Unclear	A pilot doesn't commit suicide in a plane unless he is mentally sick or intent on jihad. #Germanwings
Neutral	@lufthansa CEO concedes that @germanwings doesn't conduct psychological tests of pilots, or interview friends/relatives. One word: lawsuit.
Stigma	Really eerie to think that ur life on a flight is completely dependent on the mental health of one guy - the pilot ! #germanwings
Neutral	Clearly terrorism or suicidal psycho. Whats the pilots name? #Germanwings
Neutral	Really sad to hear about the #germanwings co-pilot - #mentalillness shouldn't have to be hidden.
Anti-stigma	â€œ.@MindframeMedia: MEDIA: tips when including #mentalillness in stories to avoid perpetuating #stigma http://t.co/kGwkEsA5hP #Germanwingsâ€
Anti-stigma	Donâ€™t blame depression for the Germanwings tragedy | Masuma Rahim | Comment is free | The Guardian http://t.co/OqfT1MHqfO
Neutral	I can't believe there were no warning signs this pilot had a troubled mind prior to this flight #Germanwings :(#depression? #terrorism?
Neutral	Germanwings co-pilot had serious depressive episode: report http://t.co/5zHJURElIs
Anti-stigma	Donâ€™t stigmatise #depression after #Germanwings crash, says top doctor #mentalhealth http://t.co/feiD5l0mRy
Neutral	A suicidal #Germanwings pilot is reason enough to reinforce a mandatory mental health care policy
Anti-stigma	Cracking blog from @campbellclaret on not blaming depression for the Germanwings tragedy http://t.co/LsgKQJewsf http://t.co/9NLB49DVcB
Neutral	The #Germanwings co-pilot 'took time off for depression' - France 24 http://t.co/gklHcvGfGD http://t.co/GWsOtlo5h6
Neutral	NEW: Officers search home of #Germanwings pilot who suffered depression & had psych treatment: http://t.co/xfN70h2IT8 http://t.co/g1HMwfYSqZ
Anti-stigma	Donâ€™t blame depression for the Germanwings tragedy http://t.co/Yw9jpe81Ur #GermanWingsCrash #mentalhealth
Anti-stigma	Many with depression manage intense work environments. Let's manage our misconceptions about mental illness. http://t.co/jejqxCvHqG
Anti-stigma	I've suffered from intense depression for 8 years. I've never once been tempted to commit terrorism #GermanWings http://t.co/tXA6ixrXXT
Neutral	Report: Germanwings co-pilot had previous 'serious depressive episode' http://t.co/MnBUrUr9st http://t.co/kbLHsIm2Cs
Anti-stigma	Please read @MindCharity response to media coverage of the #GermanWingsCrash #depressednotdangerous http://t.co/HR4X583R85
Neutral	#Germanwings pilot screened for psychosis, substance abuse, transient loss of control of nervous system, bipolar...."
Neutral	The average person can't hide things like depression that well. Mandatory psych evaluations for pilots is a great idea. #Germanwings
Neutral	â–º Major depressive episode diagnosed at co-pilot Andreas Lubitz (28âœ) â–º #Germanwings #4U9525 â–º Google-translation: https://t.co/56Cl9FRVo5
Neutral	If we don't start talking right now about how we can better help people with depression, then we as a society have failed. #Germanwings
Neutral	UPDATE: Pilots in the Lufthansa group get medical testing, but not psychological testing, Lufthansa CEO Carsten Spohr says. #Germanwings
Neutral	Germanwings co-pilot was suffering from psychosomatic illness and deliberately crashed the plane. How horrific! Cc @eyohenry

Neutral	Germanwings jetliner catastrophe: The first antidepressant drug-induced mass murder of the skies? http://t.co/v8ULpcPAew
Neutral	INTERVIEW: 'The victims are blanked out' - psychologist Rudolf Egg says http://t.co/V5QQGC4q0m #Germanwings http://t.co/IZJRpouGZG
Neutral	Reports: Antidepressants found at home of #Germanwings co-pilot Andreas Lubitz http://t.co/km8kEnWw3m
Anti-stigma	Donâ€™t blame depression for the #Germanwings tragedy, by @MasumaRahim http://t.co/6Q8VYmlqPV (via @picardonhealth)
Neutral	How airline pilots are screened for mental health issues... http://t.co/zkozJZctD3
Neutral	Germanwings crash: Pakistani aviation psychologist weighs in on co-pilotâ€™s mental state http://t.co/VNQ7FGxLJW http://t.co/Rvkv3lMsOE
Neutral	Germanwings co-pilot suffered depression: report http://t.co/V2dvZNb80V http://t.co/zeC43wZyPb
Anti-stigma	Our @MindframeMedia team has issued a media alert re: reporting of #Germanwings & #mentalillness stigma http://t.co/Tv4KK9wnmK
Neutral	#Germanwings co-pilot passed all medical and psychological tests "with flying colors." http://t.co/6aiUgZa2j0 #yello http://t.co/aIHShc1U1X
Neutral	Airlines largely rely on pilots 'self-monitoring' mental health http://t.co/Rhme4ZoaYP #Maddow
Unclear	In response to the actions of #Germanwings pilot #AndreasLubitz , Islams PR Dept. will now proceed to slander the mentally ill. #IslamScam
Neutral	Co-pilot in #Germanwings crash hid mental illness from employer, authorities say http://t.co/oTyO1QQlWz
Neutral	#Germanwings pilotâ€™s deepest mental state will face psychiatric scrutiny http://t.co/yx6AKKU8wo http://t.co/vNt0dEg5Ay
Neutral	Germanwings co-pilot suffered depression: report http://t.co/rvGg9YgqSI
Neutral	@RationalMale @HolisticGame But you won't find them mentioning psychotropics - they never do http://t.co/958Jn5YMn7 & http://t.co/i2WnlGKEdy
Neutral	Germanwings co-pilot Andreas Lubitz showed no signs of psychological stress http://t.co/8NSPNjt2hJ
Neutral	Killer co-pilot had to STOP his training because he was depressed and suffering 'burnout" http://t.co/CjNXERZGJS #Germanwings #Aviation
Neutral	German police search for hints of motive in homes of co-pilot amid depression reports http://t.co/Vu1oyOf4Vb #germanwings
Stigma	People on depression meds are more likely to get into car accidents. Why are they allowed to fly planes? #AndreasLubitz #Germanwings
Neutral	#Germanwings http://t.co/nxfHeIEYdE suicidal ideation is related to depression and treatment drugs side effects
Anti-stigma	Christie Blatchford: In world of mental illness, alleged actions of Germanwings pilot were an exception, not theâ€¦ http://t.co/0dh5qX8w9B
Anti-stigma	"no evidence to suggest that the depressed pose a danger to others" - thi sis important. http://t.co/aHhoMyi94K #GermanWingsCrash
Unclear	Whats diffrence between pilot of germanwings and these murderer sleeper cells of yemen. All are mentally ill. #peaceforyemen
Anti-stigma	A note of caution on #4U9525 reactions: treating pilots as permanent suspects is likely to backfire in terms of their mental health.
Neutral	I'm in Montabaur, home of Germanwings co-pilot Andreas Lubitz. Bild newspaper has details from medical file, says history of depression
Anti-stigma	The reporting of the Germanwings story (The Sun, Daily Mail) is verging on the offensive towards all sufferers of #depression.

Unclear	There you have it. When MH370 went down, the pilot was a terrorist. When GERMANWINGS went down, pilot was suffering from depression.
Anti-stigma	Depressed = dangerous? Media coverage of the #Germanwings crash is destroying progress on #mentalhealth http://t.co/jtK5LWEhKt @MindCharity
Anti-stigma	Germanwings co-pilot mental illness: Suicide is linked to depression but mass murder is not. http://t.co/zX19pwUj8X
Anti-stigma	It's clear we need to talk abt #mentalhealth and reassure ppl that it's OK to talk abt it. RT @nytimes: http://t.co/rraPKjALDy #Germanwings
Anti-stigma	Re: Germanwings crash, remember that while the media will focus on his depression, depression doesn't make people mass murderers.
Anti-stigma	Donâ€™t blame depression for the Germanwings tragedy | Masuma Rahim http://t.co/bvRwcDfO3f
Neutral	Depression, the UK front pages and what we actually know about Andreas Lubitz's mental health http://t.co/rEe6P649ZU #Germanwings
Neutral	BREAKING: From Germanwings press conference "offering psychological support to the families" - @FlightCrisis
Neutral	What to do about pilot psychology: http://t.co/mwKMjXJPoC #4U9525 #MH370
Anti-stigma	Letâ€™s all make bigoted assumptions about people with mental health disorders before the investigation into the #Germanwings co-pilot is done
Anti-stigma	Can we have rational discussion around the whole Germanwings crash without stigmatizing folks with mental illness (again?)
Unclear	Meanwhile, Clarke Carlisle says sport must take responsibility for mental health and he feels no shame about suicide attempt. #Germanwings
Anti-stigma	The problem isn't if the Germanwings pilot had a mental illness, it's why he hid it http://t.co/XC5MPuQcLX
Anti-stigma	Notion that somehow a "depressed" pilot would murder 149 people only serves to show how poorly understood depression is. #4U9525
Unclear	Who flies into mountain breathing "normally". Not even a psychotic suicidal terrorist pilot! #4U9525 #Germanwings Wrong conclusions made?
Anti-stigma	Donâ€™t blame depression for the Germanwings tragedy | Masuma Rahim http://t.co/eR5rkUfPpY <<This. Says it all.
Anti-stigma	Short article on the blog today, but if you are dealing with depression there are some resources at the bottom: http://t.co/Brx9ygQomX
Neutral	Was Germanwings pilot a psychiatric medicated gamer. Have we heard this mass murder scenario enough times?
Anti-stigma	The Q now is how after tragedy of #AndreasLubitz & @germanwings #flight9525 2 have responsible disc about #mentalhealth @nationalcouncil
Neutral	Meanwhile the Germanwings crash story appears to have gone mental. http://t.co/IuNIewBWTh
Anti-stigma	Donâ€™t blame #depression for the #GermanWings tragedy | by @MasumaRahim via @guardian http://t.co/NAwHaVptrz
Stigma	Investigators say the Germanwings copilot suffered from manic depression.One minute he was up, then he was down. http://t.co/jEVmoUpCGe
Neutral	#Germanwings tragedy: Co-pilot had serious 'depressive' episode... http://t.co/dFeSN4dHaL http://t.co/ETKN4jBdGS
Unclear	There.... the Germanwings Pilot who murdered 150 off passengers is just about to be declared "mentally traumatized". Same old pattern.
Anti-stigma	The problem isn't if the Germanwings pilot had a mental illness, it's why he hid it http://t.co/0xUlb0xZbM
Neutral	Arsehole Spainards reacting with barely concealed glee to the news that Catalans died in the germanwings crash. Fucking psychopaths. #SiSi

Appendix 8 – Self-harm and suicide
Twitter

Non-English				RT @twittessMari Moon, VJ da MTV, quase sem roupa, posando de Suicide Girl? o.O Oloco. http://migre.me/44n7 #marimoon // É ela mesma? O.O
Non-relevant				love is the slowest form of suicide </3
Relevant - link to info	Objective	Opinion	Non-personal	Spectacular suicides now available from Swiss clinic Indignitas http://tinyurl.com/mendvu
Relevant	Subjective	Opinion	Non-personal	Catch PTSD early get help please before you committ suicide or kill someone! #Health Care REform
Non-English				@krnzb si, pero por ahi dicen q rob no va a estar T_T estoy en mood depresivo y suicida 9_9 *llora*
Relevant	Subjective	Personal experience	Personal	Back from jail ministry... called into a suicide watch. Young man gave his heart to Jesus! God is good!!!! On to the next assignment!
Relevant - link to info	Objective	Opinion	Non-personal	Another 911 GZ Vet gone -Tehama County deputy coroner an apparent suicide-was called to Ground Zero to identify bodies http://bit.ly/xLnn8
Relevant - link to info	Objective	Opinion	Non-personal	NPD Investigating Possible Murder-Suicide : http://bit.ly/123H5o
Relevant - link to info	Objective	Opinion	Non-personal	"Document: American offered to be al Qaeda suicide bomber" - http://tinyurl.com/mqmbmu
Non-English				@FNegro Não é um clube de suicidas é um culto... isso é mais velho que o Charles Manson!
Relevant	Subjective	Opinion	Non-personal	@MrsRich1 He might commit suicide!
Non-relevant				Just got done running Suicides andworking out... Must have known those will kill you when they Made them up Lol... (ROYALTY)
Relevant	Subjective	Opinion	Non-personal	"hide him under the bed make it look like he committed suicide!" Perry "wait he committed suicide under the bed?"
Non-English				Sacanagem, aquela p* de garota tá exibindo uma foto INVEJÁVEL do lado do Danny no perfil dela e vem tirar minha felicidade de fã suicida VSF
Relevant - link to info	Objective	Opinion	Non-personal	Death By iPhone: Apple and China''s Cultural Time Bomb [Iphone Leak Suicide] http://bit.ly/l2tfK
Non-relevant				Listening to: Suicide Watch - 50 Cent
Relevant - link to info	Objective	Opinion	Non-personal	Midlothian Police Investigating Murder-Suicide: Midlothian police have confirmed that a murder-suicide happened .. http://bit.ly/11apAX
Non-relevant				wish i lived in san diego ! viva comic con ! wouldnt mind seeing a suicide girl dressed as wolverine !
Relevant	Subjective	Opinion	Non-personal	Voluntary death = Suicide, forced "suicide" = Murder, BHusseinO, Pelosi, & Reid all advocate murder #tcot #teaparty
Non-English				Aiai, atendimento sem aluno?Aonde estarão eles? se suicidando talvez? quem me dera
Relevant - link to info	Objective	Opinion	Non-personal	RT @timoreilly:post reflecting on the British Empire, the collapse of the junk economy, and the Foxconn iPhone

				suicide: http://bit.ly/d5AEI
Relevant - link to info	Objective	Opinion	Non-personal	Chinese worker commits suicide over missing #iPhone - #Yahoo! Singapore News http://bit.ly/19xeZR #apple
Non-English				[blogonet.fr] Le prochain iPhone, la cause d''un suicide? http://bit.ly/ZitEW
Relevant	Subjective	Opinion	Non-personal	How much training does a suicide bomber need?
Relevant - link to info	Objective	Opinion	Non-personal	#tech Apple Investigated Foxconn Complaints Before iPhone Suicide Case - eWeek http://bit.ly/R0vbQ
Relevant - link to info	Objective	Opinion	Non-personal	Link: Flash, Deception & Suicide: 10 Remarkable Tricks of Animal Mating | Sex & Reproduction | DISCOVER... http://tumblr.com/xhw2fzdxm
Relevant	Subjective	Opinion	Non-personal	side effects of Chantix are hostility, suicidal thoughts or actions and depressed mood. hmmmm think I will stick to the cold turkey method.
Relevant	Subjective	Personal experience	Personal	@Babelpop, do you know if Bi''s going to be in Comic-con? If he''s going, I''m going to suicide fo-sho.
Non-relevant				Pick up a copy! RT @eboneemonique: @L10 preciate that!! Lol! "Suicide Diaries" in Borders nationwide!! FAMU represent!
Relevant	Subjective	Opinion	Non-personal	So the racist BHusseinO wants to raise taxes to force suicide of old folks to give medical care to illegal aliens... #tcot #teaparty
Relevant	Subjective	Opinion	Non-personal	RT @TEAZY718: We all go thru shit gzzz but da strong survive n da weak commit suicide..which 1 are u???
Relevant	Subjective	Opinion	Non-personal	Tricitians - would it be suicide to try to boat on the river tomorrow? I know Sat & Sun are totally out.
Relevant	Subjective	Opinion	Non-personal	If you''re gonna commit a homocide, do us all a favor, you should try suicide
Non-relevant				Can you commit twitter suicide?!
Non-relevant				@fakedemi Why do you want to commit twitter suicide?
Relevant - link to info	Objective	Opinion	Non-personal	New Details in Case of Foxconn Employee Suicide- Evan Osnos, reporting for The New Yorker: A reporter at the n... http://bit.ly/d8gzI
Relevant - link to info	Objective	Opinion	Non-personal	Chinese man Commits suicide over loosing Apple iPod prototype http://bit.ly/132t2
Relevant - link to info	Objective	Opinion	Non-personal	DF New Details in Case of Foxconn Employee Suicide: Evan Osnos, reporting for The New Yorker: A reporter a.. http://bit.ly/wU7Bk
Relevant	Objective	Opinion	Non-personal	**CNN EXCLUSIVE** US terror suspect in told Belgian authorities he went to Pakistan to become an al Qaeda suicide bomber
Relevant	Subjective	Opinion	Non-personal	3 suicides in under 3 months here. ouch.
Non-relevant				@SuicideBlondEx omg the env touch is SO sweet, i want verizon just so i can have it
Non-relevant				Photo: suicideblonde: http://tumblr.com/xgh2fzq31
Relevant - link to info	Objective	Opinion	Non-personal	New Post! Foxconn Employee Commits Suicide After Losing iPhone Prototype http://digg.com/u19IL2

Relevant - link to info	Objective	Opinion	Non-personal	Perspective on the iPhone Suicide: Guy Died Over a FUCKING PHONE http://short.to/khsf
Relevant - link to info	Objective	Opinion	Non-personal	Apple Investigated Foxconn Complaints Before iPhone Suicide Case - eWeek: Telegraph.co.ukApple Investigated Foxc.. http://bit.ly/10Z0I6
Non-relevant				Gosh, I enjoy Suicide... the band, not the... oh, you know.
Non-relevant				Photo: suicideblonde: Oh Uncle Jesse! *Love* http://tumblr.com/xa02fzw9n
Relevant	Subjective	Opinion	Non-personal	Angelina jolea has a solution for world hunger. Unfortunately it is not either doing porn or suicide. #angelinajolea
Relevant	Subjective	Opinion	Non-personal	@ChelSoGlamRus LoL yea, I don''t dead em'' these bitches out here be killin themselves, suicide its a suicide
Relevant	Subjective	Opinion	Non-personal	@itskristenbitch hahah:D leather pants. sounds... suicidal. but i cannot wait for seeing both of the movies.
Relevant	Objective	Personal experience	Personal	a murder suicide happened just a couple streets over from where my dads house is last night..
Relevant - link to info	Objective	Opinion	Non-personal	Teoh death: Best man rules out suicide - Malaysia Today: Teoh death: Best man rules out suicideMalaysia TodayCur.. http://bit.ly/MRQOb
Relevant	Subjective	Opinion	Non-personal	@wrinkleDTshirt oh and I forgot trending topic suicide lmaoooo
Relevant - link to info	Objective	Opinion	Non-personal	Indonesian authorities arrest a suspected would be suicide bomber with links to JI http://tr.im/tL2q #jakarta
Relevant - link to info	Objective	Opinion	Non-personal	http://bit.ly/1ZkWgu More than 80 percent of the persons who committed suicide were “treated” with psychiatric drugs.
Non-English				@io_malo I commenti a quella notizia sono da suicidio collettivo. Sappilo.
Relevant	Objective	Opinion	Non-personal	@kangsboutique Raided official commits suicide - Times of India: Raided official commits suicideTimes of IndiaRelatives sai..
Relevant - link to info	Objective	Opinion	Non-personal	Worker commits suicide after new iPhone prototype goes missing fr Apple plant; new details emerge http://bit.ly/GVbcU (via @NewYorkerDotCom)
Non-relevant				and yet another lizard takes the suicidal jump into the pool to get away from monster kitty.
Non-relevant				prepping images for Rebel Ink, Auxiliary Magazine, Zivity, Suicidegirls, Clear Channel and my judas priest live shots...cuz they are METAL!
Non-relevant				best trailer music ever -- Wild Whirled - Suicide Mission http://bit.ly/B5ZvH
Relevant - link to info	Objective	Opinion	Non-personal	Foxconn iPhone Suicide: Chinese Police Now Investigating Murder ...: Foxconn has suspended a security official a.. http://bit.ly/u5E0E
Relevant	Subjective	Personal experience	Personal	Attention friends: I will be on suicide watch from now until the night of the 26th. Why? Another Comic-Con I don''t get to go to.
Relevant - link to info	Objective	Opinion	Non-personal	[Gizmodo] Would You Pay More To Have Your Gadgets Made In The US? [Question Of The Day] - The iPhone suicid... http://tinyurl.com/nvkqlc

Relevant - link to info	Objective	Opinion	Non-personal	Apple Investigated Foxconn Complaints Before iPhone Suicide Case: Sun Danyong, an engineer with Foxconn, had bee.. http://bit.ly/hXzdo
Relevant	Subjective	Personal experience	Personal	so there was a maniac living in my house....he is now in a mental institution for suicidal attempts..went last night...no lie
Relevant	Subjective	Opinion	Non-personal	She self harms, looks twelve, social services has owned her child for a year now, dreams of seeing him again one day, didnt take her money..
Relevant - link to info	Objective	Opinion	Non-personal	NEWS HEADLINES - Murder-Suicide Reported In Harahan: Police said a man and a woman were killed i.. http://bit.ly/5qHZR
Relevant	Subjective	Opinion	Non-personal	RT @Mr_Taxi_Man: She self harms, looks twelve, social services has owned her child for a year now, dreams of seeing him again one day, d ...
Relevant	Unclear	Unclear	Unclear	Hangulatváltozások... happy, sad, happy, sad, happy, suicide, happy, sad, confused...
Non-relevant	Objective	Opinion	Non-personal	Comic-Con: splendid excuse for cosplay-themed pinups: Suicide Girls, who were among the first advertisers ever o.. http://bit.ly/M8GkY
Relevant	Subjective	Opinion	Non-personal	@jacksbileduct This isn''t a for-real suicide thing. This is probably one of those cry-for-help things.
Relevant - link to info	Objective	Opinion	Non-personal	Would You Pay More To Have Your Gadgets Made In The US? [Question Of The Day] : The iPhone suicide story raises .. http://bit.ly/2OpHM
Relevant - link to info	Objective	Opinion	Non-personal	Foxconn iPhone Suicide: Chinese Police Now Investigating Murder … - http://tinyurl.com/mdbn4s
Relevant - link to info	Objective	Opinion	Non-personal	Foxconn iPhone Suicide: Chinese Police Now Investigating Murder ... http://tinyurl.com/mdbn4s
Relevant - link to info	Objective	Opinion	Non-personal	Foxconn Hands iPhone Suicide Case to Chinese Police.http://snipr.com/nrltz
Relevant - link to info	Objective	Opinion	Non-personal	Foxconn iPhone Suicide: Chinese Police Now Investigating Murder ... http://twitbit.me/jof296
Non-English				Meu final de quinta foi bem DE QUINTA mesmo. E eu digo a vcs: nunca queiram escutar Halo na versão forró, a nao ser q vc seja suicida.
Non-relevant				Photo: suicideblonde: http://tumblr.com/xhj2g0lpk
Non-English				jogada suicida do nick salva o jogo
Non-English				@latercera Cubran esta noticia añeja "Vigilante se suicida al interior de Banco Falabella" fue el lunes 13 y no lo han publicado.
Relevant - link to info	Objective	Opinion	Non-personal	New Details in Case of Foxconn Employee Suicide: http://is.gd/1JqDP
Non-relevant				@bettyhallock not surprised Luau closed - suicide location and too much $$ on decor and not enough $$ in kitchen!
Relevant - link to info	Objective	Opinion	Non-personal	Updates on the iPhone-contractor suicide - Christian Science Monitor http://bit.ly/Neahb
Relevant	Subjective	Personal experience	Personal	wishing that my life wasnt so fucked up that i wasnt so suicidle

Non-relevant				trying to get this suicide girls stuff done and over with, successfully
Relevant - link to info	Objective	Opinion	Non-personal	New Yorker says he would have been suicide bomber: A New York man who pleaded guilty in January to charges of ai.. http://bit.ly/pUIIH
Relevant	Subjective	Personal experience	Personal	My tom tom wants me 2 commit suicide....u can''t make a left turn on a bridge
Relevant	Subjective	Opinion	Non-personal	a @James__D suicide is as selfish as taking radiation therapy for cancer...in other words, it''s not at all.
Non-relevant				"Janelle is the reason hyenas commit suicide..." -my little bro (to the tune of Jai Ho)
Non-relevant				listening to "Silverchair - Suicidal Dream(live)" ? http://blip.fm/~ahr5r
Relevant	Subjective	Opinion	Non-personal	@tomfelton i dont think so. . . More like assisted suicide :) good job tom!
Relevant - link to info	Objective	Opinion	Non-personal	Updates on the iPhone-contractor suicide http://bit.ly/1eb6H
Non-relevant				xbox 360s commit suicide #jtv http://justin.tv/saw_vi
Relevant	Subjective	Opinion	Non-personal	@nzben yo the link in your article doesn''t work - suicide of a Foxconn employee. Chur
Relevant	Subjective	Opinion	Non-personal	@rqwhitaker Assisted suicide, pump your own gas etc etc
Relevant	Subjective	Opinion	Non-personal	@ghostadventures Not many places like Aokigahara are haunted x3. Abandoned young/old for centuries + plane crash + pop suicide spot. Sheesh!
Non-English				y ¿porqué la gente quiere tener un amor como el de ellos si se terminan suicidando? creo qe por eso a la gente le gusta twilight!
Relevant	Subjective	Personal experience	Personal	needs to get out of this house, its been a week. if i dont go to flc tomorrow. im commiting suicide. lol.
Relevant - link to info	Objective	Opinion	Non-personal	#Lahore New Yorker says he would have been suicide bomber - CNN http://bit.ly/aYSzY
Non-relevant				VOTING FOR OBAMA''S HEALTH CARE BILL... IS IT POLITICAL SUICIDE? http://sodahead.com/question/513501/
Relevant	Subjective	Opinion	Non-personal	?Two Friends recently where suicided by Big Pharma. This is when I sympathize w d Jewish Motto "Never forget never forgive!"?
Relevant - link to info	Objective	Opinion	Non-personal	Arturo Gatti's brother and manager say no way boxer committed suicide http://bit.ly/KPa6k
Relevant - link to info	Objective	Opinion	Non-personal	Decline in support for suicide attacks in Pakistan: The support for suicide bombers in pakistan dropped from 13.. http://short.ie/dbx6sf
Relevant - link to info	Objective	Opinion	Non-personal	Secrete 4G iPhone and Suicide linked to missing prototype http://cafe-iphone.com/Blog/3187 Worker takes blame
Relevant - link to info	Objective	Opinion	Non-personal	Worker at IPhone Maker FOXXCONN Commits Suicide Over Lost 4G iPhone Prototype. http://cafe-iphone.com/Blog/3187 Human Rights Issues.
Relevant - link to info	Objective	Opinion	Non-personal	Worker at IPhone Maker FOXXCONN Commits Suicide Over Lost 4G iPhone Prototype. http://cafe-iphone.com/Blog/3187 Human Rights Issues.

Relevant - link to info	Objective	Opinion	Non-personal	iPhone Worker In China Dies In Connection With Missing Apple 4G Prototype http://cafe-iphone.com/Blog/3187 Suicide confirmed, Apple Response
Non-English				@manuelbondsito pero eso no era amor! aparte resolvieron sus problemas como tipo adolescente: SUICIDANDOSE ....eran emo''s D:
Relevant - link to info	Objective	Opinion	Non-personal	Foxconn Hands iPhone Suicide Case to Chinese Police.http://snipr.com/nrltz
Non-English				acho que sobrevivi à prova de suicidio!
Relevant	Subjective	Opinion	Non-personal	Marisa likes songs about rape and suicide.
Relevant	Subjective	Personal experience	Personal	@caseydamnmorgan killed himself, depictions of suicide in movies really got to me for a while unless I knew they were coming...
Relevant - link to info	Objective	Opinion	Non-personal	[CNN] A New York man who pleaded guilty in January to charges of aiding al Qaeda was ready to be a suicide .. http://digg.com/u19Igb
Relevant	Subjective	Personal experience	Personal	Dinner with the browns was great. Now to our touched by suicide meeting.
Relevant - link to info	Objective	Opinion	Non-personal	COMMENTARY Recession related suicides skyrocket in Houston, Texas http://bit.ly/23foHd
Relevant - link to info	Objective	Opinion	Non-personal	Updates on the iPhone-contractor suicide http://bit.ly/35Xiin
Relevant - link to info	Objective	Opinion	Non-personal	RT @1txsage1957: Calls for probe into Dr. Kelly''s ''suicide'' http://is.gd/1I0n2
Relevant - link to info	Objective	Opinion	Non-personal	Stop being so naive about the Apple-Foxconn suicide: First, we all need to shut up because we.. http://bit.ly/1n2NI (Via @crunchgear)
Non-relevant				@SirMichaelRocks a continental with suicide doors
Relevant	Objective	Opinion	Non-personal	RT @BreakingNews: Man caught carrying explosives was planning to carry out a suicide attack as a follow-up to last week''s Jakarta bombings.
Relevant	Objective	Opinion	Non-personal	www.nycderm.org New Yorker says he would have been suicide bomber - CNN: Houston ChronicleNew Yorker .. nycdermatologist.com
Relevant - link to info	Objective	Opinion	Non-personal	Stop being so naive about the Apple-Foxconn suicide: First, we all need to shut up because we don’t know .. http://bit.ly/1n2NI
Non-relevant				xgames suicide: danny way tryin anything on that big rail. danny, just say no, bro.
Non-relevant				Suicide File is playing in 2 weeks. That is pretty cool.
Non-relevant				Done with suicide greek. Such a great feeling. Just got my final grade and I def passed the class. Thank you Lord.
Non-English				@PaolaJuddnes me suicido ._.
Non-relevant				#mw2 Ground hogs with cameras strap to their backs as a uav. Get suicidal bunnies with bombs strapped to their backs to blow people up at 11
Non-English				J''ai des tendances suicidaires --''

Relevant - link to info	Objective	Opinion	Non-personal	The suicide tourist trap http://bit.ly/8M9WM #postrank #science
Relevant - link to info	Objective	Opinion	Non-personal	inSF: Accused Muni Driver''s GG Bridge Suicide: A Muni driver accused of tampering with the cameras and/or G.. http://bit.ly/fVOhM
Relevant	Subjective	Personal experience	Personal	The teen at the next table over from @bexmith and I is a total trip. Talking about summer camp. Fecund chipmunks and suicidal cutter campers
Relevant	Subjective	Opinion	Non-personal	Are the protesters suicidal,Do they have a death wish? Is Iran being overrun by the dlinically depressed? Or is it 4 freedom? #iranelection
Non-English				De seguro anduvo alguien con "gomeras" acá lo hacen los tacheros d la plaza :P RT @alfredobergna: suicidio masivo? o_O @El_ErRaldo
Relevant	Subjective	Opinion	Non-personal	Senior citizen suicide promotion?
Relevant - link to info	Objective	Opinion	Non-personal	Would You Pay an Extra $58 for a U.S.-made iPod?: Following the controversy surrounding the apparent suicide of .. http://bit.ly/6ZBfK
Non-relevant				my door are suicide bitch go kill ur self "Killa"@cthagod
Relevant	Subjective	Personal experience	Personal	After mvc, multiple suicides, and an infant I am exhausted. The last two days kicked my ass. Off for the weekend. Irish fest tomorow
Non-relevant				RT @8091sickness: my door are suicide bitch go kill ur self "Killa"@cthagod Classic Camron Bar!!
Non-relevant				@mayhemmiller Yeah! Suicide bomb her with my cock! Get it? It means sex.
Relevant - link to info	Objective	Opinion	Non-personal	RT @r4today Dr Michael Irwin: Assisted suicide laws "the height of hypocrisy" Listen here: http://is.gd/1VNkW
Relevant - link to info	Objective	Opinion	Non-personal	@DowntownNews 5th "jumper"suicide this year http://m.ladowntownnews.com/articles/2009/07/31/news/doc4a733c58e3735449738335.txt its only July
Relevant	Subjective	Opinion	Non-personal	Correction Adam and jake 87% of suicidea are due to hugh grant movies and jonas brothers
Relevant - link to info	Objective	Opinion	Non-personal	Army Chief Talks Soldier Suicide Prevention at Ft. Jackson - WLTX.com - Army Chief Talks Soldier Sui http://tinyurl.com/mawbes
Non-relevant				Photo: suicideblonde: http://tumblr.com/x0m2j9v5c
Relevant - link to info	Objective	Opinion	Non-personal	Suicides break county record - Fairplay Flume - Suicides break county recordFairplay FlumeJanet Karn http://tinyurl.com/nrlq8c
Relevant - link to info	Objective	Opinion	Non-personal	Re: Gatti A Suicide?: What a shame. http://bit.ly/hB5Db
Relevant	Subjective	Personal experience	Personal	@swellyn I made the mistake of RTing a story about a teacher arrested/suiciding over porn. Then I started getting porn twitter spammers.
Non-relevant				@SuicideGirls its saturday here, and a good few hours till night but I am going to paarrrhhhtie
Non-English				A mulher saiu com os amigos, porra! ainda por cima estou assistindo globo repórter falando de traição! o jeito é tentar o suicido..#todos

reddit

direct-reply	comment			If that's true, his wife must have really loved him to push this coverup. I mean, not like I approve of whitewashing, but she saved his legacy. Some people on the fringe will be able to joke about what really happened, but the public has their story to believe. It will become the accepted narrative, and everyone will go back to sleep. Let's not delude ourselves, if we wanted to have a frank discussion about the dangers of an asphyxiation fetish, we would have done it when Carradine died, or any of the other thousands who meet an untimely end this way.
direct-reply	disagreeing	certain	quoting-verifiable-source-author-quoted	This is disgusting, disrespectful, and down right Moronic. Williams was diagnosed with Parkinson's disease a debilitating disease that destroys the nervous system and the ability to speak, use your motor skills or live a normal life. Who among us wouldn't be torn down to learn of such a fate let alone a man who was defined by his ability to speak and move. the laceration marks on his wrist and his frank discussion of past bouts with suicidal thoughts on Mark Maron's WTF podcast show that his suicide is likely. This is

				nothing more than a hack YouTube channel host trying to milk a tragedy for everything it's worth an dfollowing Alex Jones's play book of just saying crazy bullshit all the time until something sticks. That guy is reprehensable.
direct-reply	agreeing	somewhat-certain	none	I honestly clicked on this thinking (I can't wait to make fun of this stupid conspiracy video) but honestly my tone turned and I mostly agree with you.
direct-reply	agreeing	somewhat-certain	reasoning	I kinda figured auto-erotic asphyxiation was the cause of his death. It's weird that he made a movie about what actually happened to him. It's called World's Greatest Dad (2009). The dude in the video totally spoiled it, although I'll still give it a watch. I wonder if he got into it because of that movie. **Allegedly.**
direct-reply	disagreeing	certain	reasoning	Accidental auto-erotic asphyxia is just one possible explanation. In this scenario his corpse would have to have been dressed and the pen-knife cuts would have been made post mortem (possibly by Williams' wife or PA) to avoid salacious press reports. Let's look at the other possibilities: * Williams deliberately hanged himself and tried to slit his wrists, with no nudity or masturbation involved (ie

				the official story, and to be fair, there is zero EVIDENCE that masturbation was involved). * Williams deliberately killed himself in an auto-erotic asphyxia pose (a sick joke referencing World's Greatest Dad, a final fuck-you to the world). His wife or PA dressed him and added the pen-knife cuts post-mortem. * Williams was murdered in a staged suicide designed to reference World's Greatest Dad. The pen knife cuts could have done by the murderer or by Williams' wife or PA thinking that Williams had died of auto-erotic asphyxia. If this seems far-fetched I would remind people of the death of Elisam Lam (in the hotel rooftop water-tank) which was a typological reference to the film Dark Water. Personally, I think any of these are possible, and the **accidental** auto-asphyxia just doesn't sit right with me.
direct-reply	agreeing	certain	none	The pocket knife cuts are inflicted by his family. They are ludicrous.
direct-reply	comment			Got half way through, seems plausible.
direct-reply	comment			I still don't understand why in divorce the man loses half of his monetary funds straight up instead of dividing the funds by who has what and going their separate ways.

direct-reply	comment				The real question is: Did the money problems cause his depression, or did his depression cause him to focus on his money problems and make them a more prominent issue than they really were? He was a highly paid, very in demand entertainer. He could have systematically worked through his financial problems. Many people don't have that option. I suspect that his financial issues weren't really as bad as he made it sound, but his depression had him tightly focusing in that direction.
deep-reply	irrelevant	disagreeing	certain	none	Yes, your post was wrong. The facts were already out there -- they may not have been all there in this particular piece, but they were all out there. And if you had really cared about 'getting' and 'evaluating' all of the facts, you would have known them. but you only cared about saying 'calm the fuck down' for karma, so you didn't bother.

deep-reply	appeal-for-more-info	appeal-for-more-info	uncertain	none	> I'm pretty sure he had serious chemical issues with depression Would the way the law treated him have any influence on being depressed and turning to chemicals as a crutch?
deep-reply	irrelevant	comment			Lol, no, you misunderstood.. I meant a chemical imbalance in the brain, not that he was using drugs. Some people have chemical imbalances that cause their depression. It's biological. You could have $100 million to your name and more friends and family than you could count and still be crushingly sad every day. Irregardless of whether or not he had a chemical imbalance, we can most definitely say that his divorces contributed to his financial troubles, depressed state and eventual suicide.
deep-reply	appeal-for-more-info	appeal-for-more-info	certain	none	'Chemical imbalance'? 'It's biological'? Did you learn those facts from commercials?
deep-reply	irrelevant	comment			Uh, no, it's a pretty [standard term.](http://en.wikipedia.org/wiki/Chemical_imbalance) Google it. It's not uncommon or unusual. Many psychological disorders are due to chemical imbalances.

deep-reply	irrelevant	disagreeing	certain	quoting-verifiable-source-url-given	>Many psychological disorders are due to chemical imbalances. Not really, you'd be surprised how sparse details are regarding support of the 'chemical imbalance' hypothesis. Even that wikipedia page is close to useless in support of it. It's less scientific, more marketing gimmick. [Ethical issues in psychopharmacology](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2564489/)
deep-reply	irrelevant	appeal-for-more-info	uncertain	none	Okay, so what would be the proper term? I wasn't even trying to be specific to depression.

deep-reply	irrelevant	comment			Since the cause and manifestation are unknown, I'm not sure. It's a complex psychological condition -- granted, most are. I'd avoid the chemical imbalance bit though. It spreads the wrong message, but that's the point. These are chemical imbalances => corporation can sell you the product to put them back into balance... It's a dirty industry, unfortunately. The science doesn't correspond to the extreme simplification posited by pharmaceutical companies. It might not even be reducible to the chemical components of the synapse. For example: It could be the 'wiring' pattern that's wrong -- what pathways of neuronal communication are occurring.
deep-reply	irrelevant	agreeing	uncertain	reasoning	Ok, so I'll ditch the term. I was just trying to get at any disorder caused by any chemical. I was trying to convey the idea that he might just have a disorder brought on by biological causes and not to jump to the conclusion that it was caused solely by divorce until we had those facts.

deep-reply	irrelevant	comment			Yeah, I understand what you're saying. Perhaps 'biological causes' might suffice for asserting that perspective? Then, if the deeper cause is known, posit that. Even if it weren't this way, I agree, it's way too direct to jump to the conclusion that it's caused solely by divorce. But if you have significantly adverse events occurring in your life, it's generally there, the surrounding events, and the responses to them, where you'd find reasons for depression. In any case, we don't really have access to what it was like to be him. Must have been rough in the end :(
deep-reply	irrelevant	comment			The mechanisms from depressions are too well known to throw this kind of fit.
deep-reply	irrelevant	disagreeing	certain	none	'Too well known' ? Cite some examples. You're parroting commercials and advertisements, not science. [Ethical issues in psychopharmacology](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2564489/)

deep-reply	irrelevant	comment			Chemical imbalances are not necessarily the cause, they can also be the effect. For example, constant exposure to stress induced cortisol will in itself reduce serotonin levels and prevent brain cell regeneration. Anti-depressants can to some extent counter the effect, but if the stress continues the damage will continue. So saying someone is depressed because of chemical imbalances is like saying that someone who hit their thumb with a hammer is in pain because he has a chemical imbalance in his nerves. Both may be true, they may be treatable with anti-depressants or painkillers, but they're not necessarily the cause. Of course there are also genetic factors that may cause a predisposition towards certain biological patterns that affects response.