'Mind Control' Experiences on the Internet: Implications for the Psychiatric Diagnosis of Delusions

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Abstract

Background: The DSM criteria for a delusion indicate that it should not include any beliefs held by a person's 'culture or subculture'. The internet has many examples of people reporting 'mind control experiences' (MCEs) on self-published web pages, many of which suggest a community based around such beliefs and experiences. It was hypothesized that some of these reports are likely to reflect delusional beliefs and the hyperlinks between web reports were likely to show evidence of social structure, demonstrating the 'culture or subculture' exemption to be increasingly redundant in light of new technology. *Sampling and Methods:* Texts from web sites reporting MCEs (n = 10), experience of cancer (n = 10), depression (n = 10) and being stalked (n = 10) were identified, and were blind-rated by three independent psychiatrists for the presence of delusions. Hyperlinks from web sites reporting MCEs were used to create a network structure; this was compared with a size-matched, randomly generated network and known social networks from the literature using social network analysis. *Conclusions:* The sampled web-published accounts of MCEs are highly likely to be influenced by delusional beliefs. Social network analysis suggests there is significant evidence of an online community based around these beliefs. The fact that individuals can form a community based on the content of a potentially delusional belief presents a paradox for the DSM diagnostic criteria for a delusion, and suggests the need to revise and revisit the original operational definition in the light of these new technological developments.

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Introduction

Accounts of mind control experiences (MCEs) have been among the most influential in psychiatry. The first book-length study of a psychiatric patient was of James Tilly Matthews' fantastical account of being controlled, mind and body, by a sinister-sounding pneumatic device called the 'air loom', originally published by the Bethlem Hospital apothecary John Haslam in 1810 [1]. In a seminal paper Tausk [2] called these delusions of mechanistic control the phenomenon of the 'influencing machine' and related them particularly to schizophrenia. Kurt Schneider [3] thought these symptoms of passivity or ex-

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ternal control so important as to list them among his 'first rank symptoms', which he believed were of particular diagnostic importance in schizophrenia. Although it is now questioned whether first rank symptoms are reliably diagnostic [4], such experiences remain a common theme, with studies reporting their prevalence of anything between 27 [5] and 73% [6] in schizophrenia.

It has been noted that Matthews' experience of 17th century mind control bears more than a passing resemblance to modern day reports of MCEs [7]. Many of these modern-day reports are available as self-published web pages on the internet. Increasingly, the World-Wide Web (or simply 'the web') is used to publish online diaries, journals and accounts of personally significant events. This form of personal publishing is becoming popular as a method of disseminating personal views and opinions [8]. The dynamic nature of the web means that other people's writing and research can be referenced or incorporated, making for a fast-moving online community.

Unusual, anomalous or distressing experiences are particularly noteworthy and it is hardly surprising that personal accounts of illness, both physical and mental, are now a permanent feature of the internet landscape. This material would seem to be a fertile ground for research scientists, but one which seems to have been largely ignored by reviews of this area. One exception is a recent review by Hewson [9], who mentioned the internet as a source of observations, and Davies and Lipsey [10], who have highlighted the proliferation of web sites promoting anorexia. Notably however, the method used here [using social network analysis (SNA) and the rating of internet texts for psychopathological content] is a novel approach to clinical research on the internet.

Of particular interest for this study is the exemption clause in the diagnostic criteria for a delusion, as laid out in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR [11]). According to this criterion, a belief is not considered delusional if it is 'accepted by other members of the person's culture or subculture'. This criterion has already been recognised to be lacking, because the definition of what should be considered when assessing the culture or subculture to which a person belongs is ambiguous and largely subjective [12]. As has been noted, one characteristic feature of internet authorship is the way in which authors may include themselves in an online community and create or join their own niche subculture. This creates a potential diagnostic paradox if it is found that authors of accounts describing potentially delusional experiences are part of an online community based around the content of such experiences.

This study aimed to examine whether the content of selected web-published accounts of MCEs expressed delusional beliefs, and whether a structural analysis of the links made between the various web sites show signs of social organisation. This was completed with a view to testing whether the 'culture or subculture' exclusion criteria in the DSM diagnosis of delusions can be maintained in the light of new technological developments that allow cultures or subcultures based around minority beliefs to be formed online.

Method

Analysis of Web Site Content

Ten web-published accounts of MCEs and 10 accounts each of experiences of cancer, depression and being stalked were selected from the web. Accounts were identified by using internet search engines and by following on-site links to related pages. The majority of MCE reports on the internet are held on one web site [13]; for this study however, only accounts published independently and by a single author were included to avoid any bias due to editorial control.

Three independent psychiatrists, blind to the purpose of the study, were asked to rate each account for the presence of delusions, hallucinations and passivity symptoms. Accounts were presented to the raters as printed material, untitled and showing only the text from the relevant web pages in a uniform font and page layout. The raters were further asked to make a best guess as to a likely diagnosis, based only on the experiences described in the text.

SNA of Links between Mind Control Web Sites

SNA is a research tool for identifying structures in social networks based on the relations between the components in the system, where a social network is a conceptualised as a set of 'nodes', which represent people, organisations or other social actors, and links between nodes, representing relationships such as affiliation or information exchange [14].

Jackson [15] and Wellman [16] have argued that SNA is particularly suited to analysing the hyperlinks between web sites and that the structure of such links is likely to reflect the communicative choices, agendas and underlying social structure of the authors – a view which has been supported by reviews of the empirical hyperlink analysis literature by Park [17] and Park and Thelwall [18].

For the purposes of this study the sampled network was created using the 'snowball sampling' method [19] whereby the initial nodes (the 10 accounts of MCEs) are identified and hyperlinks from these are used to identify a further set of connected nodes. This was completed by downloading web pages containing the accounts of MCEs and using custom software to extract and collate the hyperlinks made by each author. This list was then processed so that duplicate hyperlinks made by the same author were counted as one, as were multiple hyperlinks made to the same web site.

Using the methodology of Lusseau [20], the sampled network was then compared with a network generated to contain the same number of nodes and links as the sampled network, but connected

randomly. Additionally the sampled network was compared with several known social networks from the SNA literature. Two were technology-mediated social networks, namely Freeman and Freeman's [21] study of users of an early computer conferencing system and Killworth and Bernard's [22] study of calls between amateur radio users. The other was a network centred around a shared interest, namely Zachary's [23] study on ties between members of a university karate club. All network analysis was conducted using UCINET 6 [24], a software package for SNA that also contains the data sets from the literature used for comparison.

Comparisons with both a size-matched random network and known social networks were conducted for several reasons. Network measures can be sensitive to the network size, so an ideal comparison would involve finding a pre-identified social network with the same number of nodes and links as the sampled network. This becomes increasingly non-trivial for networks containing more than a few elements. In an attempt to avoid this problem, Lusseau [20] has favoured size-matched random network comparison. It might be argued however, that demonstrating a sampled network to be different from a random one is not the same as showing that it has signs of social organisation. Therefore both methods were used in this study to attempt to control for the shortcomings of each.

Various measures of network properties have been found to be useful in SNA and the following were selected for this study. The distance or d of a network is defined as the mean length of the shortest path between any two nodes. The smaller the value of d, the quicker information can be transferred between individuals, a property thought to be important in cohesive subgroups [14]. The clustering co-efficient, or C, is a measure of social relatedness between individuals. For each node, it provides the likelihood that two associates of that node are associates themselves [25]. Group degree centralisation or C_D is a measure of how network connections focus on specific node or nodes and is thought to be an important structural attribute of social networks [26].

Results

Web Site Content

Inter-rater reliability was assessed by calculating Cohen's kappa for each permutation of paired raters, with an overall kappa for each category calculated as a mean value, as recommended by Conger [27]. The mean kappas for ratings on all 40 accounts were as follows: delusions = 0.92 (SD = 0.07); hallucinations = 0.68 (SD = 0.13); passivity symptoms = 0.90 (SD = 0.04). These results suggest an excellent level of discrimination between delusional and non-delusional authors, and those with and those without passivity symptoms.

As the focus of the study is on potential community involvement among people likely to be delusional, it is notable that when only the accounts selected for the SNA were included in the inter-rater reliability analysis, there was full agreement (mean kappa = 1.0) among raters that

Table 1. Details of MCE reports on the 10 sampled web sites

No.	Attribution of MCE
1	'Ex-military neighbours' and 'husband's cohorts' using 'recently declassified technology'
2	'Rings of sex deviates' *(sic)* using 'high energy radiation' technology
3	Royal Canadian Mounted Police using a 'telepathic amplifier that works with microwaves'
4	'Freemasonic intelligence agencies' using 'frequency weapons'
5	'Police' using a 'brain implant'
6	'Implantable controlling chip'
7	'Dutch government' using a 'network of transmitters'
8	'Politicians and journalists' using 'satellite surveillance and harassment technologies'
9	'Bad Guys' using 'psychotronics' and 'microwaves'
10	'Warsaw Pact Military Research' using 'hypnosis and electromagnetic waves'

Following the recommendation of Davies and Lipsey [10] individual web addresses are not listed.

the accounts expressed delusional beliefs. The attributions for the source of the MCEs by the authors of the accounts are given in table 1.

The overall agreement among raters when considering all accounts for diagnoses was 0.78, calculated using Fleiss' kappa [28] to allow for empty cells in the comparison table. Notably, all MCE accounts were classified as describing experiences of schizophrenia by the raters, except on one occasion, where a rater classified the text as describing experiences of delusional disorder. Furthermore, 7 of the 10 authors of MCE accounts mention contact with psychiatric services, suggesting other mental health professionals may have considered their experiences as signs of psychopathology.

These results suggest that signs of psychosis are strongly present in the selected web-published accounts of MCEs.

SNA

Table 2 outlines the network properties derived from the sampled network of accounts of MCEs, the known social networks from the literature and the size-matched randomly generated network. Notably, the sampled mind control network has a small d, comparable with the other known social networks, and is almost 3 times smaller than the random network. This suggests that the sampled network shows properties similar to a real social network and

Table 2. Properties of network sampled from MCE reports compared to other social networks and size-matched random network

Network	d	C	C_D
MCE	1.571	0.158	49.25%
Computer conferencing [24]	1.345	0.750	49.26%
Amateur radio [25]	2.034	0.687	48.84%
Karate club [26]	2.408	0.588	39.96%
Size-matched random network	4.527	0.010	1.29%

d = Distance; C = clustering coefficient; C_D = group degree centralisation.

indicates an efficient transfer of information through its members. Whilst the value of the clustering coefficient C is relatively small compared with the known social networks, it is many times greater than the size-matched random network. This suggests that the organisation of the network is far from random, but that there is a lower probability than in the known social networks that individuals form social clusters within the greater social group. The group degree centralisation measure C_D is equivalent to or greater than for the known social networks, and many times above that of the random network. This again suggests evidence of social organisation and also that the network is centralised around some key members of the network.

Discussion

This study selected 10 web-published accounts of MCEs and analysed them for both the content and hyperlink structure. Analysis showed a significantly higher level of psychosis-like symptomology and concordance with the diagnostic criteria for schizophrenia than similar reports describing experiences of cancer, depression or being stalked. SNA of the hyperlinks made from accounts of MCEs suggests evidence of social organisation and community, based around the content of these experiences and beliefs.

Common themes also occur in the accounts of MCEs. Scientific papers are sometimes cited, particularly one by Frey [29] entitled 'Human auditory system response to modulated electromagnetic energy'. There is frequent mention of the CIA's MKULTRA project, a classified behavioural modification project from the 1960s which was heavily criticised for testing (largely drug-based techniques) on non-consenting and unwitting members of the public [30]. These themes are usually cited as evidence for the reality of the authors' experiences. Additionally, authors may identify themselves with organised campaigns to lobby authorities to stop the unauthorised testing of 'mind control technology' on members of the public. The presence of common and specific themes across accounts, despite the variations of belief in the alleged perpetrators, suggests a level of information exchange between web site authors to explain their experiences.

It must be noted that we are not suggesting all members of a community interested in these issues show signs of psychopathology. Although this study's SNA showed signs of community engagement between likely psychotic people, it is noteworthy that the sampled authors are also likely to be an active part of a wider, non-psychotic community, who may have thematically similar, albeit differently motivated, concerns.

Both of these facts however, pose particular challenges for the current diagnostic criteria for delusions, particularly the clause in the DSM-IV definition exempting beliefs that are 'accepted by other members of the person's culture or subculture'. Indeed, the results presented here demonstrate a paradox in that the sampled authors' online community is based upon the content of potentially delusional beliefs, which, technically, cannot be diagnosed as delusional if they are shared by a community to which a person belongs. It now seems clear that online communities have much in common with offline communities, with many of the same dynamics apparent in each, including frequent intra-group communication and strong feelings of cohesion [31, 32]. This suggests that internet communities such as this one may be as much of a 'culture or subculture' as communities based on geographical location, at least in terms of core psychological features. To extend the paradox, by DSM-IV criteria it would seem that a person diagnosed as delusional would only have to find him or herself the nearest internet-connected computer to 'cure' themselves of delusion by searching out other people with the same belief and joining or forming an online community.

It seems that the use of the internet by potentially psychotic persons may be adding to the criticism of the philosophical basis for defining delusions, which has already been attacked on its criteria of fixedness [33], certainty and incorrigibility [34] and falsity [35]. Indeed, David [36] has even gone as far to say that 'there is no acceptable (rather than accepted) definition of a delusion'.

Given the evidence presented here, it is particularly noteworthy that a potentially disabled and disenfran-

chised group has co-opted available technology to create a complex, dynamic and information-rich community that serves to support and inform similarly affected people within the confines of a world view driven by potentially psychotic symptoms. This is a striking example of a support network completely removed from the traditional medico-legal support networks of the state and even the grassroots support networks run by mental health services user groups. In particular it demonstrates that the internet may enable complex support mechanisms without reference to a view of reality held by the authorities or even the mainstream of opinion. Whether this sort of support network works well for all, if any, individuals remains to be seen.

In conclusion, the presence of a complex and evolving online community based around the content of potentially psychotic experience challenges mainstream psychiatric understanding and diagnostic criteria for how a delusion is defined. This paper also presents the first application of internet-based SNA to clinical research, which the authors hope will be a useful tool in furthering medical research.

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