

Cover sheet

Author: Gavin Brookes

Affiliation: Lancaster University

Full address: Corpus Approaches to Social Science, FASS Building, Lancaster University,
Lancaster, LA1 4YW

Email: g.j.brookes@lancaster.ac.uk

Full title: Insulin restriction, medicalisation and the Internet: A corpus-assisted study of
diabulimia discourse in online support groups

Short title (for running head): Insulin restriction, medicalisation and the Internet

Word count (all inclusive): 7,998

Character count (with spaces): 53,214

Author bionote

Gavin Brookes is Senior Research Associate in the ESRC Centre for Corpus Approaches to Social Science in the Department of Linguistics and English Language at Lancaster University. His main research interests include corpus linguistics, discourse analysis, multimodality and health communication. He is Associate Editor of the *International Journal of Corpus Linguistics* (published by John Benjamins). Address for correspondence: ESRC Centre for Corpus Approaches to Social Science, FASS Building, Lancaster University, Lancaster LA1 4YW, United Kingdom. Email: g.j.brookes@lancaster.ac.uk.

Abstract

Diabulimia is a contested eating disorder characterised by the deliberate restriction of insulin by people with type 1 diabetes in order to lose and control their body weight. This article reports the first discourse-based study of diabulimia. It employs a combination of quantitative and qualitative techniques afforded by corpus linguistics, a methodology for examining extensive collections of digitised language data, to interrogate the discourse surrounding diabulimia in an approx. 120,000-word collection of messages posted to three English-speaking online diabetes support groups. The analysis shows how, despite lacking official disease status, diabulimia was nonetheless linguistically constructed by the support group contributors as if it were a medically-legitimate mental illness. This article explores some of the consequences that such medicalising conceptions are likely to have for people experiencing diabulimia, as well as their implications for health professionals caring for people presenting with this emerging health concern in the future.

Keywords

Diabulimia, medicalisation, corpus linguistics, diabetes, online support groups

Insulin restriction, medicalisation and the Internet: A corpus-assisted study of diabulimia discourse in online support groups

Gavin Brookes

Lancaster University, UK

1. Introduction

Diabulimia is an eating disorder characterised by the deliberate restriction of insulin by people with type 1 diabetes to shed calories and control their body weight. Diabulimia has a contested medical status, which means that it is not recognised as an illness by medically-legitimate practitioners and other sources of medical authority, who tend to view it as signalling deviance from prescribed diabetes self-management regimen. Likely as a result of this, diabulimia has remained a severely under-researched topic, not least in terms of discourse-based studies. This means that, in empirical terms at least, we know very little about how individuals communicate about and potentially understand and experience this emerging health phenomenon. The aim of this study is to begin to address this knowledge gap by examining the discourse that surrounds diabulimia in the context of online, peer-led diabetes support groups.

This article begins by providing an overview of current understandings of diabulimia, including exploring the genesis of its name, its contested status, and existing research on the topic. The methodology section then documents the corpus compilation and introduces the corpus-assisted approach that is used to examine the discourses surrounding diabulimia across the messages. The subsequent analysis is divided into two sections: inductive quantitative corpus analysis, followed by more qualitative corpus-assisted discourse analysis. Throughout the analysis, comparisons will be drawn between the discourse surrounding diabulimia and what might be considered medically-legitimate mental conditions (specifically anorexia

nervosa, bulimia nervosa and depression), based on existing discourse-based research on these topics. This is followed by discussion of the consequences that the (medicalising) discourses identified are likely to have for people affected by diabulimia. The article concludes by considering the possible implications of the findings for health professionals, offering a brief review of the corpus-assisted approach used to analyse the data, and gesturing towards directions for future research on the topic of diabulimia.

2. Literature review

Diabulimia has a contested medical status; although people experiencing it might regard it as a medical disorder, it is not recognised as such by practitioners and other sources of medical authority, who tend to view it as an inappropriate compensatory behaviour and marker of deviance from diabetes self-management regimen (Sharma 2013). For example, the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* (American Psychiatric Association 2013) does not recognise diabulimia as a legitimate mental condition, but instead offers the following labels under which it might be classified: ‘inappropriate compensatory purging behaviour’, ‘misuse of medications for weight loss’, ‘bulimia nervosa’, and ‘eating disorders not otherwise specified’. Accordingly, the moniker *diabulimia* is not a medically-legitimate label, but a portmanteau of *diabetes* and *bulimia*, invented by sufferers as a means through which to share their experiences and seek advice online (Goebel-Fabbri *et al.* 2008). For the purpose of this study I have elected to use the term *diabulimia*. Although this term has yet to gain medical approval, the increasing awareness of it, and the apparent traction that it has gained amongst both non-expert and researcher communities alike (but particularly the former), attest to its suitability for exploring the discourses surrounding this health phenomenon in the context of online, peer-to-peer interactions.

Due to its contested status, it is currently not possible for any person to receive a diabulimia diagnosis from a medical practitioner. This notwithstanding, as many as 30 per cent of people with insulin-dependent diabetes are estimated to have intentionally restricted their insulin to control their body weight at some point in their lives (Goebel-Fabbri *et al.* 2008), with adolescents (Colton *et al.* 2009) and women (Shih 2011: 7) most affected. Deliberate insulin restriction, as is practised in diabulimia, can lead to a series of negative consequences, including diabetic neuropathy, kidney disease, diabetic retinopathy, and increased susceptibility to heart attack and stroke (Mathieu 2008). Research into the long-term effects of insulin restriction suggests that life expectancy in people with diabulimia could be reducible by as much as thirteen years (Shih 2011: 25).

Likely a consequence of its contested status, diabulimia has remained under-researched from both medico-scientific and social science perspectives (Hughes 2010: 11). Of those studies which *have* sought to provide insight into diabulimia, the majority has approached the topic from a decidedly positivist perspective, seeking to provide prevalence figures and understand its biological consequences (as discussed above). Although such studies provide a useful resource for health professionals seeking to gain an understanding of what diabulimia is, they reveal little, if anything, about individuals' subjective experiences and understandings of this emerging health phenomenon.

The limited body of research which *has* sought to explore the lived experience of diabulimia has based its insights on anecdotal evidence and researcher-invented accounts (Shih 2011), meaning that, in empirical terms at least, we know very little about how diabulimia is experienced and understood from the perspectives of those people who have lived experience of it, including sufferers, but also their relatives. As set out in the introduction section, this study begins to address this gap in knowledge by interrogating the discourse surrounding diabulimia in messages posted to online, peer-led diabetes support groups.

3. Data and Methodology

3.1 Data

The analysis reported in this article is based on a specialised corpus of diabulimia-related messages posted to online, peer-led diabetes support groups. Support groups were sourced through a search engine query using the phrases *diabetes support group*, *diabetes forum* and *diabetes message board*. Of the top 100 search results, only three support groups met the following criteria for inclusion in the corpus:

- I. English-speaking;
- II. Dedicated to diabetes;
- III. Hosts peer-to-peer, user-generated content (as opposed to practitioner-directed and practitioner-led content);
- IV. Not affiliated to a healthcare provider or charity (such sites are typically monitored by practitioners and other specialists);
- V. Ethical criteria (does not require registration to view content, explicitly informs users of the public nature of their contributions and does not explicitly discourage, or state requirement of permission for, the use of content for research purposes (see: Eysenbach and Till 2001)).

Convenience sampling was used to build the corpus, with individual threads (chronologically-ordered chains of messages) included in the data if they contained mentions of the words *diabulimia* and/or *diabulimic* either once in the thread title or three or more times throughout the messages it contained. This was an arbitrary threshold which helped to ensure

that the threads included in the corpus were sufficiently “about” the topic of diabulimia (and did not just contain one or two incidental mentions). Qualifying threads were included in their entirety. The completed corpus is 119,982 words in size, comprising 81 threads and 1,072 messages posted between 2007 and 2014. The size of the corpus was determined (and limited) by the availability both of diabulimia-related threads and support groups which satisfied the aforementioned inclusion criteria. Although this specialised corpus is relatively small (for the corpora analysed in corpus linguistic research regularly amount to millions, and occasionally billions, of words), its size does at least render it more amenable than some larger datasets to closer, fine-grained qualitative discourse analysis.

Due to the anonymous nature of the support groups, it was not possible to sample the corpus according to any demographic criteria. As such, I cannot assess the demographic representativeness of my data. Moreover, the corpus contains a mixture of messages from contributors who ostensibly do and do not experience diabulimia, with the latter group consisting mainly of relatives and advice-givers. That said, I am also sensitive to the possibility for contributors to falsely present either as having or not having diabulimia (in the former case, for example, to seek advice on behalf of another (Harvey 2012)). With these caveats in mind, the corpus is best described as representing the disclosure of experiences *and understandings* of diabulimia by contributors to three online, English-speaking peer-led diabetes support groups. Ethical approval was obtained prior to data collection.

3.2 Method

The discourse surrounding diabulimia in my corpus of support group messages is examined using a corpus-assisted approach to discourse analysis (Baker 2006). Corpus linguistics is a collection of methods that use specialist computer programs to study language in a large body of machine-readable text (the corpus) (McEnery and Hardie 2012). In the

present study, the corpus is analysed using three well-established techniques in corpus linguistics: frequency, collocation and concordance, all of which are accessed using version 7 of the *WordSmith Tools* computer program (Scott 2016). The quantitative analysis begins by using the frequency measure to identify those words that were used most often by the contributors to linguistically denote – or ‘lexicalise’ (Jones 2013: 36) – diabulimia in their messages. A series of the most frequent diabulimia-referring words in the corpus are then used as lexical entry points through which to undertake more qualitative analysis of the discourse surrounding diabulimia in the support group messages.

The qualitative analysis begins by using the collocation technique to provide an initial sense of the discourse surrounding the frequent diabulimia-referring terms identified in the quantitative analysis. Collocation is a word association measure that provides information about how often two or more words occur alongside one another in the corpus, and whether this association is statistically significant (Baker 2006: 95). Analysing those words which recur alongside a word of interest can be useful for developing an understanding of that word’s meanings and patterns of use. In this study, I examine the collocates of the words *diabulimia* and *diabulimic* to gain an initial sense of the discourse surrounding the concept of diabulimia in the corpus.

The diabulimia-referring terms are then subjected to more qualitative discourse analysis, which is carried out using the final corpus measure of concordance. Concordancing displays a list of all the occurrences of a particular word or phrase in the corpus, with a few words of surrounding text either side (Baker 2006: 71). Concordancing thus provides the means to adopt a different perspective on the language in the corpus – one which allows more human-led, theory-informed interpretations to be developed. The present study followed a procedure for analysing concordance lines, well-established in corpus research, of examining 30 randomly-selected messages containing one or more of the diabulimia-referring words,

recording observable discourses and repeating the process until new discourses ceased to emerge (Sinclair 2003). However, as the forthcoming analysis will show, to apprehend the full force of the discourses observed, it was often beneficial – indeed sometimes necessary – for my analysis examination of the discourse to go beyond single messages and consider threads in their entirety.

The use of corpus techniques enabled the analysis of a larger and more representative collection of support group messages than would have been possible without computational assistance. Programs such as *WordSmith Tools* are also generally superior to the human eye alone when it comes to spotting recurrent patterns across large bodies of language data (McEnery *et al.* 2006). However, this approach is not beholden to computational techniques entirely, for the use of more qualitative corpus techniques, particularly concordance, allows the analysis to be enriched by human-led, theory-sensitive readings of the data. Indeed, crucial at each stage in the analytical procedure is the involvement of the human analyst, from selecting which techniques to use and deciding on their parameters, to analysing the corpus output in a theory-informed way.

4. Quantitative analysis

The first stage of the analysis involved using the frequency technique to identify those words that were used most often to lexicalise diabulimia in the corpus (Table 1).

[Insert Table 1 about here]

The high frequency of terms relating precisely to diabulimia (*diabulimia*, *diabulimic*) is expected, given that these reflect the search terms used to sample messages for the corpus. The less frequent spelling variant, *diabulemia*, reflects the non-official status of this disease nomenclature (Sharma 2013), but also the orthographic inconsistency that is characteristic of

much computer-mediated communication (Harvey 2013). Other alternative spellings, further down the word frequency list, include (frequencies in brackets): *diabulima* (2), *diabullemia* (2), *diabelimia* (1), *diabulaemia* (1), *diabullimia* (1), *dibulemia* (1) and *dibulimia* (1). The adjective *diabulimic* also exhibited several orthographic alternatives, including: *diabulemic* (4) and *dibulemic* (1). To facilitate analysis, the spellings of *diabulimia* and *diabulimic* were standardised across the corpus from this point, resulting in revised frequencies of 204 and 25, respectively.

The linguistic creativity involved in formulating the words *diabulimia* and *diabulimic* itself provides an early indication of the influence that the medical perspective has on the ways that insulin restriction is talked about in the corpus. As mentioned earlier, the term *diabulimia* is a portmanteau word combining the terms *diabetes* and *bulimia*. The incorporation of these two nomenclatures, each biomedical in origin and denoting medically-legitimate conditions, might suggest that those using the term are likely to conceive of *diabulimia* as a disorder, their use of it also possibly signalling an attempt to elevate this health phenomenon to the same medically-recognised statuses afforded to *diabetes* and *bulimia*.

The influence of medical language can also be observed in the associated term, *diabulimic* – a word whose morphology (particularly *diabulimic*) mirrors the terminology for so-called medically-legitimate diseases (e.g. *anorexic*, *bulimic*, *diabetic*). The comparatively higher frequency of the noun *diabulimia* compared with the adjective *diabulimic* suggests that, as with the lexicalisation of illnesses generally (Fleischman 1999), *diabulimia* is more likely to be lexicalised as a noun than an adjective in this context. However, the main purpose of identifying the most frequent *diabulimia*-referring words in the corpus was to provide a series of lexical entry points through which to undertake more qualitative analysis of the discourse surrounding *diabulimia* using the corpus techniques of collocation and concordance.

5. Qualitative analysis

Examination of the collocates and concordance lines surrounding *diabulimia* and *diabulimic* revealed a range of discourses through which the support group contributors construed their experiences and understandings of diabulimia in their messages. Through the forthcoming qualitative analysis, I will argue that the most dominant discourses surrounding diabulimia in the context of the support groups are influenced by, and to some extent propagate, a medicalising perspective on the practice of insulin restriction. Medicalisation can be understood as the sociocultural process whereby ordinary aspects of life become defined in medical terms, described using medical language, understood through a medical framework, or “treated” through medical intervention (Conrad 1992: 211). This analytical section is divided according to three medicalising discourses on which the support group contributors drew to discursively construct their understandings and experiences of diabulimia in their messages. I interpret these to be: (i) a discourse of distance and objectivity, (ii) a diagnostic discourse, and (iii) a disorder discourse. As the ensuing analysis will show, these discourses relate to each other in the ways that they are drawn upon in the support groups, collectively contributing to a medicalising perspective on diabulimia in these contexts.

Discourse of distance and objectivity

To ascertain how diabulimia was lexically framed in the corpus, I began by analysing the words that occurred most frequently within the five words preceding the term throughout the messages, that is, its left-sided collocates (Table 2).

[Insert Table 2 about here]

The first observation to make of this table is the high frequency of the first-person pronoun *I* as a left-sided collocate of *diabulimia*, a trend that reflects the tendency of the support

group contributors to construct diabulimia from their own subjective perspectives. Other collocates in Table 2 reveal a propensity for the support group contributors to construct diabulimia using a distancing and objectifying discourse (Mintz 1992), through grammatical constructions that have been observed in the discourse surrounding other, medically-legitimate mental conditions (Rich, 2006; Galasiński 2008; Harvey 2012; Hunt 2013), and which are consistent with an ontological or medicalising perspective. For example, the definite article *the* occurs within the five words preceding *diabulimia* 34 times, directly preceding it 10 times, resulting in the expression ‘the diabulimia’, as demonstrated in Extract 1. Note that these and future corpus extracts were selected because they were deemed to be illustrative of broader patterns observed in the concordance output.

Extract 1

I'm really pleased that you spoke to your doctor about *the diabulimia*, it is definately a huge step in the right direction.

The use of the definite article in this context helps to construct diabulimia as a discrete, countable entity that is detached from the individual experiencer (Fleischman 1999). Another collocate that signals a distancing and objectifying discourse is the verb *have*. Although this item is ranked sixth in Table 2, occurring within the five words preceding diabulimia 21 times, when considered along with its morphological variants (*had* and *has*), the lemma HAVE becomes the most frequent left-sided collocate of *diabulimia* in the corpus, occurring within the five words preceding it on 42 occasions, as exemplified by the Extracts 2 to 4:

Extract 2

I have another factor is that I *have diabulimia* aswell, but due to lack of NHS support am using hypnotherapy to help me through this...

Extract 3

I had a friend who *had diabulimia* and we always used to eat together and eat sensibly bolus etc and it really helped me because we understood how big of a deal it was and supported each other to do it.

Extract 4

My 27 year old daughter *has diabulimia*. She is in the hospital now. The doctor put her in the behavioral health unit but they did not address her diabetes other than check her blood sugar and count carbs. She is back on the medical floor now.

In this context, the words *have*, *had* and *has* function as possessive auxiliaries (Lipták and Reintges 2006), construing diabulimia as something that is possessed by, rather than an inherent part of, the person experiencing it (Semino 2008: 182). As Fleischman (2001: 491) argues, ‘the genitive construction (“I have”) casts the pathology as an external object in one’s possession and relocates the pathology *outside* the patient’.

The collocate *with* signals the use of metaphorical language to construe diabulimia as something with which the support group contributors (and others) *struggle(d)* (8) and *live(d)* (4). Examples of both tropes can be observed in Extract 5.

Extract 5

I *struggled with Diabulimia* for a long time but I've been in recovery for the past 2yrs. So I know what it is like to live with the condition and how frightening and

how isolating it can be *living with diabulimia*. Please feel free to contact me either through my website or by personal message.

Such tropes metaphorically construct diabulimia, respectively, as an individual to be fought and a companion that sufferers live with (Semino 2008). In addition to this, the contributors talked about diabulimia as something they and others *suffer* with (5) and have to *deal* with (1). Likewise, the collocate *from* was also used to frame diabulimia as something from which participants *suffer[ed]* (8):

Extract 6

I was diagnosed with type 1 7 years ago when I was 13 and have suffered with diabulimia for 5 of those years. Still trying to fight it :(

The distancing constructions explored thus far can be interpreted as reflecting a broader dualistic framework for understanding and communicating health and disease, according to which illnesses are externalised and good health is internalised (Gwyn 2002). Such constructions are also particularly prominent in Western cultures in which diseases are typically nominalised and treated as objects to be classified and evaluated (Fleischman 1999).

Despite the seeming preference for distancing constructions, this discourse was not ubiquitous in the data, for some of the support group contributors construed diabulimia in less objectifying, more personalising terms. Ranked tenth in Table 2, the possessive pronoun *my* occurs within the five words preceding *diabulimia* 14 times, immediately preceding the node (i.e. ‘my diabulimia’), on six occasions. Cassel (1976) argues that encoding illness as a possession serves to reduce the distance between the illness and the person experiencing it. Examining messages containing the expression ‘my diabulimia’, it became apparent that this

formulation occurred invariably within the wider context of diabulimia recovery. For example, the contributor of the message reproduced below recounts positive experiences with a range of medical professionals and reports feeling ‘better’, even if they are not cured of diabulimia entirely.

Extract 7

I'm better, like I'm not "cured" from *my diabulimia* however I've gotten a lot of help during the past 9 months, I'm in several groups at the hospital at the eating disorder unit also my D.nurse have been very helpful.

The use of possessive pronouns in relation to diabulimia might therefore be connected to intentions to recover from it. A similar trend has been observed by Ridgway (2001) in narratives of recovery from psychiatric disorders, whereby, as part of their recovery, individuals recast themselves from the relatively passive role of sufferer to the comparatively active role of illness owner or possessor.

Aligning constructions were also observable in the discourse surrounding the participial adjective *diabulimic*. As with *diabulimia* above, to assess how the term *diabulimic* was framed in the messages, I examined those words that occurred most frequently within the five words preceding it across the corpus (Table 3).

[Insert Table 3 about here]

A series of the collocates in Table 3, specifically *a*, *am*, *have* and *been*, suggest the proclivity for the contributors to construe diabulimia as something that they are or have been in the past (e.g. ‘I am diabulimic’, ‘I am a diabulimic’, ‘I have been diabulimic’ and ‘I have

been a diabulimic’). Staiano (1986) argues that to state that ‘I am + [condition]’, as opposed to ‘I have + [condition]’, posits an identification with the condition in question, incorporating the pathology as a part of one’s individual, personal identity. Like the use of the expression ‘my diabulimia’, these contributors tended to describe themselves (and others) as *diabulimic[s]* within the wider context of (attempted) recovery, as the example below attests.

Extract 8

I am a diabulimic and need help. Can anyone suggest a forum for me, book or treatment? Anything? I'm desperate to get better.

It could be argued that by aligning themselves with diabulimia within contexts of recovery, the contributors were able to disclose their diabulimia-related experiences and concerns without necessarily undermining their identities as “good” diabetics who effectively manage their condition in accordance with a practitioner-determined regimen (Armstrong *et al.* 2012). On the other hand, some of the contributors appropriated such aligning and internalising language with the seeming aim of foregrounding their knowledge and experience of diabulimia (and diabetes), perhaps with the objective of presenting themselves as ‘experts’ in it (Fox *et al.* 2005). For example, the message reproduced below was posted in response to a thread-initial message requesting advice about diabulimia:

Extract 9

I feel your pain! I, too, have pretty much been diabulimic for the last 3 years of my life and trying to change that. I am improving my blood sugars now and gaining weight and it is driving me mad! You are definitely not alone in this...

This contributor expresses empathy with the writer of the thread-initial message ('I feel your pain!') and attests their personal experience of diabulimia ('I, too, have pretty much been diabulimic for the last 3 years of my life'), but also emphasises their intention and attempts to recover from it ('and trying to change that', 'I am improving my blood sugars now'). By positioning themselves as experienced experts, some of the support group contributors might conceivably be attempting to qualify or legitimise any diabulimia-related advice they give to other members of their online community. Such advice-giving passages are explored more in the next section, which examines the appropriation of diagnostic discourse in the support group messages.

Diagnostic discourse

Examining the concordance lines surrounding *diabulimia* and *diabulimic*, I observed a tendency for the contributors to establish diagnostic criteria for diabulimia, to judge the severity of others' attested 'symptoms', and to ultimately determine whether or not someone (usually another member of the support group) could be described – or “diagnosed” – as having the condition. This diagnostic discourse was particularly prevalent in messages which discussed the 'symptom[s]' and 'warning sign[s]' of diabulimia:

Extract 10

Given you have already taken the first steps to resolving the problem you've had with purposefully not controlling your diabetes, let's see that lack of control as a *symptom* of something.

Extract 11

Warning signs for diabulimia include a change in eating habits - typically someone who eats more but still loses weight - low energy and high blood-sugar levels

The adoption of this type of diagnostic lexis provides further evidence not only of the influence of the medicalising perspective in this context, but also of attempts by the contributors to present themselves as experts of diabulimia (Fox *et al.* 2005). Diagnostic discourse was also evident in messages in which contributors commented on, and determined the prototypicality and severity of, the ‘symptoms’ and ‘warning signs’ disclosed by others. For example, the contributors of the extracts below describe features of what they perceive to be (and to not be) ‘classic diabulimia’ and ‘severe diabulimia’.

Extract 12

Classic diabulimia is not a complete renunciation of insulin, that would just be suicide. Diabulimia do enough insulin to barely get by.

Extract 13

I had *severe diabulimia* from 20-33 (I was diagnosed at 15). I basically ate all the sugar I could get my hands on and barely injected any insulin.

In a similar vein, despite diabulimia’s lacking official disease status, a number of the contributors nevertheless diagnosed themselves or others as having the condition, as in Extracts 14 and 15.

Extract 14

you are practicing something called diabulimia please please talk to someone!! do a google search on this. we have a couple of members here who have gone through this im hoping they see this and answer you

Extract 15

It sounds to me like diabulimia - she is eating whatever she wants and not taking enough insulin for the food to actually be absorbed. What she needs is professional help. Sorry, but threatening her in any way won't help.

By diagnosing others as having diabulimia and judging and grading the severity of their attested symptoms, these and other contributors can be interpreted as not only adopting the position of expert patient, but also as propagating a medicalising perspective on diabulimia by subjecting it to the kind of classification that is routinely made of other, medically-legitimate, mental disorders. Despite its lacking official disease status, some of the contributors nonetheless implored – or, in keeping with the theme of the expert patient, “referred” – others to seek advice from a health professional, thereby situating diabulimia-related concerns firmly within the remit of medicine.

Extract 16

you know what you're doing is dangerous and i think it's great that you are seeking support here, are you able to do the same thing in 'real life'? *are you able to go to your GP/endo/nurse?*

At other points across the data, the contributors contested the suggestion that they or another support group member actually had diabulimia. Such contestations were initially

signalled by the negative item *not*, which features as a left-sided collocate of *diabulimic*. However, examining the co-occurrence of *not* with both *diabulimic* and *diabulimia* in context, it became clear that these contestations were made not on the basis of diabulimia's lack of official disease status, but rather because the particular experiences or circumstances disclosed were judged not to satisfy the diagnostic criteria for diabulimia, presumably as these have been established within these and other such online communities. Examples of three such passages are provided below.

Extract 17

As long as you're not actually using less insulin to raise your BG levels to lose weight...then no, you're *not considered diabulimic*.

Extract 18

To [name] and other low carbers, *No, your approach is not diabulimia*, as you are not skipping shots in order to pee out sugar and lose weight. I really can't comment on your overall health, but that is *not diabulimia*.

Extract 19

My endo equated what I do with diabulimia, yet my own choices have been accompanied by weight loss, improved health, more energy, disappearing complications, better control (though my Christmas A1C slid back up to 6.0), and a much better prognosis. My war-torn retinas looked great once again last week! *What I do isn't diabulimia* yet I suppose it is close if you only consider it with ignorant eyes. I still take my insulin and have never contemplated not, but my current levels are just below half of what they were four years ago -- <50u vs 120u.

The contributors of Extracts 17 and 18 each resolve that because other group members' insulin omission was not motivated by the desire to lose weight, they cannot be considered diabulimic. The contributor of Extract 19 refutes an endocrinologist's suggestion that they have diabulimia, on the grounds that they still take some insulin (even if not necessarily in prescribed amounts).

Such is the influence of the medicalising perspective within these contexts, then, that even when online diabulimia diagnoses were refuted, such refutations were made not because diabulimia is not officially an illness, but rather because the reported "symptoms" did not fit with the diagnostic criteria established within and by such online communities. Moreover, the expression, 'I suppose it is close if you only consider it with ignorant eyes' (Extract 19) is tellingly disparaging of the practitioner's perspective (as 'ignorant'), further solidifying the sense in which it is the contributors to this and other such online communities, rather than medical professionals, who are truly the knowledgeable "experts" when it comes to diabulimia (an observation also made by Fox *et al.* (2005) in relation to online diabetes support groups more generally).

Disorder discourse

The lion's share of the analysis so far has focused on the discourse surrounding the words *diabulimia* and *diabulimic*. However, the final part of this analysis will focus on the other words that were frequently used by the contributors to lexicalise diabulimia, specifically *disorder* and *disorders* (see Table 2). Examining the collocates of these two words, I observed the propensity for contributors to lexicalise diabulimia primarily as an *eating disorder(s)* (n= 172), as well as a *disorder(s)* (n= 15) and, on one occasion, as a *mental disorder*. Extracts 20 to 22 exemplify each of these lexicalisations.

Extract 20

I think what we might be missing here is that this is an *eating disorder*... not terribly different from anorexia or bulimia... it's not a healthy diet, *it's a disorder*.

Extract 21

I had Diabulimia and was seriously unwell with it. It is a horrendous *disorder* to have and the mortality rate is exceptionally high due to DKA and the complications associated with it.

Extract 22

It [diabulimia] is a complicated *mental disorder* that is absolutely terrifying not only for those suffering from it but for their friends and family as well.

In Extract 20, diabulimia is not only described as an ‘eating disorder’ and a ‘disorder’, but is also likened to specific, medically-recognised diseases (anorexia and bulimia) – ‘not terribly different from anorexia or bulimia’. To investigate this discourse further, I examined the concordance lines surrounding the terms *anorexia* and *bulimia*, finding evidence of the terminological and conceptual collectivisation (Jones 2013) of diabulimia with these other, medically-legitimate eating disorders, as shown in the Extracts 23 to 25.

Extract 23

With so many teenagers suffering from *bulimia and anorexia*, I suppose this is the same thing but in another form. I think teenager girls with diabetes need a lot more attention to make sure they don't fall into these pitfalls.

Extract 24

Myself I have suffered from *anorexia and bulimia*, for some reason never done the omitting insulin thing, just all the rest!

Extract 25

there are psychogenic causes, but I thought I had read something about altered brain chemistry, as well, in *anorexia and bulimia*?

Diabulimia is likened here to anorexia and bulimia, described in Extract 23 as ‘the same thing but in another form’. However, this connection is more implicit in Extract 24, the contributor of which is seemingly at a loss to explain why they had not had diabulimia, having experienced anorexia and bulimia in the past, writing: ‘I have suffered from anorexia and bulimia, for some reason never done the omitting insulin thing, just all the rest!’ (where the expression ‘all the rest’ also serves to collectively group diabulimia with these other disorders). Finally, the contributor of Extract 26 situates diabulimia firmly within a biomedical discourse by attributing its causes to biological and neurological complications, that is, to (vaguely-worded) ‘psychogenic causes’ and ‘altered brain chemistry’, the latter of which is presented, once more, as the cause of anorexia and bulimia.

6. Discussion

The foregoing analysis has revealed the proclivity for contributors to online diabetes support groups to construct their subjective experiences and understandings of diabulimia by drawing upon what I have interpreted to be decidedly medicalising discourses. The linguistic patterns surrounding the words *diabulimia*, *diabulimic* and *disorder(s)* were found to be similar

to those observed in studies of the discourse surrounding so-called medically-legitimate mental conditions, in particular anorexia, bulimia and depression (Rich 2006; Galasiński 2008; Harvey 2012; Hunt 2013). Specifically, the contributors constructed diabulimia in grammatically objectifying and distancing terms (except in contexts of recovery); presented their and others' experiences of insulin restriction using diagnostic discourse as 'symptoms'; and classified diabulimia explicitly as a *disorder*, an *eating disorder* and a *mental disorder*, often collectivising diabulimia with medically-legitimate eating disorders, particularly anorexia and bulimia. So dominant was the medicalising perspective in these support group contexts that even when diabulimia "diagnoses" were refuted, these refutations were made because the disclosed "symptoms" did not fit with the support group's diagnostic criteria, rather than having anything to do with diabulimia's medically-contested offline status.

The tendency to draw on medicalising discourses can be interpreted as providing further evidence of the increasing medicalisation of society, as observed by Conrad (2007), which has resulted partly from advances in diagnostic tools and refinements in scientific understanding of the human body and its ailments, but which also reflects the concomitantly ever-expanding remit of medical pathology to increasingly incorporate formerly non-medical problems and other natural aspects of life. Indeed, a wealth of existing research has reported the propensity for members of online health communities to construe and categorise their health-related experiences and concerns in medicalising terms (Barker 2008; Miah and Rich 2008). The ever-widening remit of medicalisation can have far-reaching consequences for how experts and non-experts alike conceptualise and communicate about health. Conrad (2007) argues that these consequences can be either positive or negative – what he refers to as the "light" and "dark" sides of medicalisation. Let me now consider the positive and negative consequences that the medicalisation of diabulimia is likely to have for those who are affected by it.

Though medicalisation has tended to be regarded critically in the literature dedicated to this topic, there is some evidence that it can actually bring significant clinical and symbolic benefit to those affected by the particular health concern in question (Miah and Rich 2008: 70). At the surface level, the profuseness of medicalising discourses across my corpus suggests that medical frameworks for understanding and communicating about the body and its ailments at the very least afford useful means for the support group contributors to disclose their health-related experiences and concerns. English is, after all, a language often lacking in adequate descriptors for experiences of mental distress and other non-physical ailments. The vocabulary of medicine might therefore afford individuals experiencing diabulimia the most effective, or at least most accessible, linguistic means with which to articulate, comprehend, and generally render more cohesive their otherwise unexplainable thoughts, actions and experiences (Harvey 2012: 372).

A potentially appealing outcome of the process of medicalisation is that emotionally challenging experiences are likely to be taken more seriously and treated with greater urgency by health professionals once they are talked about and conceptualised in disease terms (Gabe 2013: 51-52). To define a problematic or distressing set of experiences in medical terms, as an illness, is to open up the opportunity for medical interventions which can have a positive affect on people's lives. This consideration seems particularly apt in the case of diabulimia, given that dedicated channels of medical support do not presently exist for people with diabulimia. The classification of deliberate insulin restriction as an illness, rather than a compensatory behaviour or simply a marker of "poor" diabetes management, could also alleviate some of the stigma and censure that might otherwise attend to admissions of deliberately restricting one's insulin, particularly in the context of diabetes support groups (Armstrong *et al.* 2012).

Yet, as Conrad (2007) reminds us, medicalisation also has a "dark" side. An oft-cited negative consequence of medicalisation is that it can result in people becoming over-reliant on

medical intervention, but at the same time uncritical of the concomitant expansion of modern medicine (Gabe 2013: 52). Of course, domination by medical experts is not always a necessarily bad thing, particularly in cases where people do not feel capable of remedying their ailments and emotional distress themselves (Conrad, 2007). However, the prospect of having other, and maybe all, aspects of life dominated by medical professionals is likely to be a less attractive proposition. This has particular significance for diabulimia, with previous research reporting that people who have diabetes can struggle to adhere to practitioner-prescribed regimen respecting the management of their condition (Paterson *et al.* 1998).

A further consequence of medicalisation is that the biomedical perspective it propagates favours depoliticised explanations of illness which pathologise and individualise causes of ill-health, all the while eliding the influence of environmental and broader socio-cultural factors. Eating disorders have long been understood, both within academic scholarship and popular culture more generally, to be influenced by harmful media messages which propagate dangerously thin body ideals (Bordo 1993), with studies demonstrating a propensity for exposure to media images of thinness to induce (particularly in young women) body dissatisfaction and, in turn, the development of eating disorders (Wykes and Gunther 2005). Moreover, literature concerned with the development of eating disorders in people with diabetes has pointed to potential for diabetes diagnoses (or, more specifically, the demands of chronic illness self-management and body weight increase caused by insulin therapy) to lead to body dissatisfaction and the onset of eating disorders (Affenito and Adams 2001). Meanwhile, research has also pointed to the role of impaired family functioning in the development of eating disorders in people with diabetes (Colton *et al.* 2009). However, while the support group contributors of the messages examined in this study frequently drew upon medical concepts to describe and explain diabulimia and its causes, there was little (if any) consideration paid to the influence of environmental and socio-cultural factors, such as media

images of slenderness, the demands of diabetes self-management and problematic relationships with relatives.

7. Conclusion

This study is the first of its kind to interrogate the discourses of diabulimia, examining the linguistic routines of contributors disclosing their experiences and understandings of this contested condition in the contexts of online, peer-led diabetes support groups. By focusing on individuals' subjective constructions of their own (and others') lived experiences and understandings of diabulimia, this study has been able to provide a deeper, indeed novel, set of insights into the social and lived dynamics of this emerging health phenomenon, offering a timely counterbalance to existing research on this topic, which has tended to adopt a positivist perspective.

The medicalising discourses on which the contributors drew to construct their experiences and understandings of diabulimia can be interpreted as being indicative of the expanding influence of medicalisation in modern societies. Yet, at the same time, this trend is also likely to suggest that many contributors found some value in adopting medicalising perspectives to make sense of and communicate about diabulimia. It is therefore important for health professionals to be aware of the potential for their patients to disclose their experiences and concerns relating to insulin restriction using medicalising language – as well as the possibility that medicalising perspectives might bear therapeutic and de-stigmatising benefits for those individuals – even if they would not adopt such diction when talking about diabulimia themselves. Despite its potential benefits, health professionals should also be mindful of the possible negative consequences of medicalising discourses for people experiencing diabulimia, in particular the potential for this perspective to individualise and pathologise experiences of

diabulimia to the extent that the significance of environmental and socio-cultural factors are downplayed or elided altogether.

The corpus-assisted approach to discourse analysis adopted in the present study allowed me to analyse a larger and more representative collection of diabulimia support group messages than would have been possible without computational assistance. By affording the opportunity to examine large quantities of authentic language data, corpus methods also go some way to appeasing the commitment to more objective approaches to large datasets that is commonplace in the domain of empirical health research (Brown *et al.* 2006).

Although the quantificational affordances of corpus techniques provided a useful means for isolating the most frequent diabulimia-referring terms in the data, prioritising data according to such criteria as frequency poses its own limitations. Having utilised the word frequency measure as an analytical entry point, the medicalising discourses subsequently identified and unpacked in this study are likely to constitute so-called “majority” discourses relating to diabulimia in the support groups I analysed. Future research is therefore needed to determine the extent to which the medicalising discourses reported here are applicable to other contexts, as well as whether such discourses surround other ways of lexicalising insulin restriction and are not just particular to the term ‘diabulimia’.

Diabulimia remains an emerging and likely increasingly prevalent health concern that will continue to pose challenges to health professionals involved in the care of people with diabetes. Although this study marks a significant first step in understanding people’s subjective understandings and experiences of diabulimia (at least as these are reified through discourse), a great deal about the discourse surrounding this contested condition is yet to be explored. Future research is needed to explore the discourses surrounding diabulimia in other communicative contexts, for instance in interviews and focus groups, the media, and even support groups dedicated to eating disorders, the contributors to which are likely to hold values

and assumptions about the body, food, and eating that are distinct from the diabetes support groups analysed here. Furthermore, having sampled data from peer-led platforms, the discourses identified in this study best represent the perspectives of non-experts. Future research should therefore endeavour to explore the discourses on which health professionals draw to communicate about diabulimia. Finally, given the robust body of research that points to the profound influence of culture on the ways that individuals conceptualise and communicate about illness and disease, including diabetes (Ferzacca 2012), further research is needed to examine how diabulimia is constructed by people from a range of cultural groups that is more diverse than that which is likely to be represented in the English-speaking diabetes support groups featured in my corpus.

Acknowledgement

This research was supported by the Economic and Social Research Council (ESRC) (grant number: ES/J500100/1).

References

- Affenito, S. and Adams, C. (2001) Are eating disorders more prevalent in females with type 1 diabetes mellitus when the impact of insulin omission is considered? *Nutrition Reviews* 59 (6): 179–182.
- American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. Washington, D.C: American Psychiatric Association.
- Armstrong, N., Koteyko N. and Powell, J. (2011) ‘Oh dear, should I really be saying that on here?’ Issues of identity and authority in an online diabetes community. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 16 (4):

- Baker, P. (2006) *Using Corpora in Discourse Analysis*. London: Continuum.
- Bordo, S. (1993) *Unbearable Weight: Weight, Feminism, Western Culture, and the Body*. Los Angeles: University of California Press.
- Brown, B., Crawford, P. and Carter, R. (2006). *Evidence-Based Health Communication*. Buckingham: Open University Press.
- Cassel, E. (1976) Disease as an “it”: Concepts of disease revealed by patients’ presentation of symptoms. *Social Science & Medicine* 10 (3-4): 143–146.
- Colton, P., Rodin, G., Bergenstal, R. and Parkin, C. (2009) Eating disorders and diabetes: Introduction and overview. *Diabetes Spectrum* 22 (3): 138–142.
- Conrad, P. (1992) Medicalization and Social Control. *Annual Review of Sociology* 18: 209–232.
- Conrad, P. (2007) *The Medicalization of Society: On the Transformation of Health Conditions into Treatable Disorders*. Baltimore: The Johns Hopkins University Press.
- Eysenbach, G. and Till, J. (2001) Ethical issues in qualitative research on internet communities. *BMJ* 323: 1103–1105.
- Ferzacca, S. (2012) Diabetes and Culture. *Annual Review of Anthropology* 41: 411–426.
- Fleischman, S. (1999) I am..., I have..., I suffer from...: A linguist reflects on the language of illness and disease. *Journal of Medical Humanities and Cultural Studies* 20 (1): 3–32.
- Fleischman, S. (2001) Language and Medicine. In D. Schiffrin, D. Tannen and H. Hamilton (eds) *The Handbook of Discourse Analysis*, 470–502. Oxford: Blackwell.
- Fox, N., Ward, K. and O'Rourke, A. (2005) 'Expert patients', pharmaceuticals and the medical model of disease: The case of weight loss drugs and the Internet. *Social Science & Medicine* 16 (6): 1299–1309.

- Gabe, J. (2013) Medicalization. In J. Gabe and L. Monaghan (eds) *Key Concepts in Medical Sociology* (2nd edition.), 49–52. London: Sage.
- Galasiński, D. (2008) *Men's Discourses of Depression*. Basingstoke: Palgrave Macmillan.
- Goebel-Fabbri, A., Fikkan, J., Franko, D., Pearson, K., Anderson, B. and Weinger, K. (2008) Insulin restriction and associated morbidity and mortality in women with type 1 diabetes. *Diabetes Care* 31 (3): 415–419.
- Gwyn, R. (2002) *Communicating Health and Illness*. London: Sage.
- Harvey, K. (2012) Disclosures of depression: Using corpus linguistics methods to interrogate young people's online health concerns. *International Journal of Corpus Linguistics* 17 (3): 349–379.
- Harvey, K. (2013) *Investigating Adolescent Health Communication: A Corpus Linguistics Approach*. London: Bloomsbury.
- Hughes, J. (2010) Addressing the new teen trend of “diabulimia”: Moral quandaries of a pediatric endocrinologist. *University of Western Ontario Medical Journal* 79 (1): 11–13.
- Hunt, D. (2013) Anorexia nervosa, depression and medicalisation: A corpus-based study of patients and professionals. Doctoral thesis: University of Nottingham, Nottingham.
- Jones, R. (2013) *Health and Risk Communication: An Applied Linguistic Perspective*. Oxon: Routledge.
- Lipták A. K. and Reintges, C. H. (2006) Have = be + Prep: New evidence for the preposition incorporation analysis. In M. Frascarelli (ed) *Phases of Interpretation*, 112–128. Berlin: Mouton de Gruyter.
- Mathieu, J. (2008) What Is Diabulimia? *Journal of the Academy of Nutrition and Dietetics* 108 (5): 769–770.

- McEnery, T. and Hardie, A. (2012), *Corpus Linguistics: Method, Theory and Practice*.
Cambridge: Cambridge University Press.
- McEnery, A., Xiao, R. and Tono, Y. (2006). *Corpus-Based Language Studies: An Advanced Resource Book*. London: Routledge.
- Miah, A. and Rich, E. (2008) *The Medicalization of Cyberspace*. London: Routledge.
- Mintz, D. (1992) What's in a word: The distancing function of language in medicine. *The Journal of Medical Humanities* 13 (4): 223–233.
- Paterson, B., Thorne, S. and Dewis, M. (1998) Adapting to and managing diabetes.
Journal of Nursing Scholarship 30 (1): 57–62.
- Rich, E. (2006) Anorexic dis(connection): Managing anorexia as an illness and an identity.
Sociology of Health and Illness, 28 (3): 284–305.
- Ridgway, P. (2001) ReStorying psychiatric disability: Learning from first person recovery narratives. *Psychiatric Rehabilitation Journal* 24 (4): 335–343.
- Scott, M. (2016) *WordSmith Tools version 7*. Stroud: Lexical Analysis Software.
- Semino, E. (2008) *Metaphor in Discourse*. Cambridge: Cambridge University Press.
- Sharma, A. (2013) *Diabulimia: Towards Understanding, Recognition, and Healing*. South Carolina: CreateSpace.
- Shih, G. (2011) *Diabulimia: Diabetes + Eating Disorders; What It Is and How to Treat It*.
Lexington (KY): Grace Huifeng Shih.
- Sinclair, J. (2003) *Reading Concordances: An Introduction*. London: Pearson.
- Wykes, M. and Gunther, B. (2005) *The Media & Body Image: If Looks Could Kill*. London:
Sage.

Table 1: Top 5 words used to lexicalise diabulimia, ranked by frequency

Rank	Word	Frequency	Texts
1	<i>diabulimia</i>	169	122
2	<i>disorder</i>	140	102
3	<i>disorders</i>	48	42
4	<i>diabulemia</i>	26	24
5	<i>diabulimic</i>	20	20

Table 2: Top 10 left-sided collocates of *diabulimia* (L5>L1), ranked by frequency

Rank	Collocate	Frequency
1	<i>I</i>	36
2	<i>the</i>	34
3	<i>with</i>	28
4	<i>of</i>	26
5	<i>to</i>	25
6	<i>have</i>	21
7	<i>about</i>	18
8	<i>from</i>	17
9	<i>a</i>	17
10	<i>my</i>	14

Table 3: Top 10 left-sided collocates of *diabulimic* (L5>L1), ranked by frequency

Rank	Collocate	Frequency
1	<i>I</i>	10
2	<i>a</i>	10
3	<i>that</i>	5
4	<i>am</i>	5
5	<i>not</i>	4
6	<i>know</i>	3
7	<i>have</i>	3
8	<i>been</i>	3
9	<i>when</i>	2
10	<i>was</i>	2