INTRODUCTION

‘Functional’ is a common term for medically unexplained symptoms. It has a much broader medical history, however, with ‘function’ serving as one of the organising concepts of early neurology where a number of meanings evolved. Today it is strongly associated with Jean-Martin Charcot, who classified hysteria as a ‘functional disorder’ in that no structural lesion could be found but where a currently undetectable physiological abnormality was hypothesised. This demonstrated two of the established meanings of ‘functional’—a disorder not explicable by gross anatomical lesion and a disorder explicable physiologically—and popularised a third—a psychiatric disorder, as hysteria would soon become. It has retained some popularity among neurologists as a medical term for conversion disorder and been found less offensive than some of the alternatives to patients, but recent commentators have considered the term fallen into misuse, so it may be surprising to find ‘functional’ restored to eminence as the proposed replacement for ‘conversion disorder’ in the forthcoming DSM-5. In this study, we aim to explore the current meaning(s) of ‘functional’ and to understand its lingering influence.

METHODS

This study employed mixed methods: a qualitative exploration of the uses of ‘functional’ in a group of consultant neurologists (ie, those whose training is complete), which guided a quantitative survey of all consultant neurologists in the UK.

Interviews

All practising consultant neurologists in a large UK region were approached, with respondents undergoing depth interviews exploring their understanding and management of conversion disorder. The meaning of ‘functional’ often arose naturally, but was directly enquired about at the end if it had not. Further recruitment proceeded by snowball sampling until thematic saturation was reached. Interviews were audio recorded, transcribed, coded and inductively analysed, consistent with grounded theory, using NVIVO 7 (see Kanaan and colleagues for further details, including the interview guide).

Survey

A postal survey was sent to all consultant neurologists registered with the Association of British Neurologists. After 4 weeks, a second round was sent to non-respondents. The survey contained 35 questions exploring their understanding and management of conversion disorder. Question 30 addressed the meaning of ‘functional’:

If you say a conversion patient has a functional disorder, what does that mean? (tick all that apply)

a. Abnormality of brain function?

b. Abnormality of bodily function?

c. A psychiatric problem?

d. Not ‘organic’?

A further question asked whether the respondent saw conversion to be neurological, ‘in the same way as multiple sclerosis (MS)’.

Data were analysed with SPSS V.16. Reported p values represent $\chi^2$ tests (see Kanaan and colleagues for further details, including the full survey).
The local research ethics committee approved the study. All interviewees gave written informed consent; response was taken to indicate consent for the survey.

**RESULTS**

**Interviews**

Twenty-two neurologists were interviewed, of the 35 in the region. Fifteen were men and seven were women, with a median age of 45 years and a median of 20 years of neurology experience.

They described a range of uses of ‘functional’. In approximate order, these were ‘not organic’ (seven neurologists), an alteration in brain function (n=6), a bodily dysfunction or disability (n=4) and a psychiatric/conversion disorder (n=3). Many (n=6) explicitly used it ambiguously, typically between physical disability and ‘not organic’ meanings:

S15: I use it when I talk about disabilities, about real functions... or I just use it as ‘medically unexplained’...

Sometimes it was used differently for different problems, sometimes in the same patient:

S2: I might talk of somebody with MS as having some functional disability... a problem with carrying out their functions of everyday life, but I also might say... they had functional overlay...a bit of a conversion disorder on top of the true MS...

Some found this ambiguity useful in avoiding difficult discussion:

S22: ...it ...enables you to say that it doesn’t fit, without actually having to speculate on the psychopathology.

While others said they did not use the term because of this ambiguity, or because it insinuated a false dichotomy between structure and function, or psychiatric and neurological:

S16: I don’t see a particular reason to see somebody with ...a non-organic... disorder as particularly different to a migraine ...all we can say is ‘...I don’t know the nature of this disease’.

Some saw ‘functional’ in its associations with functional neuroimaging and functional neurosurgery, as a herald of modernity, in which physiological explanations would be widely found:

S3: ...the fact that now there’s a professor of functional neurosurgery ...tells us that actually there are physical explanations for absolutely everything...

Others saw it as false confidence that this kind of dysfunction could explain the pathology:

S9: [It] negates everything we try and tell them ...that there isn’t a neurological problem... they say my functional scan ...says that I’ve got a blob in the inferior orbital frontal lobe ...that’s why I’ve got my illness.

**Survey**

Of the 616 neurologists of the Association of British Neurologists, 319 responded to the first round and 57 to the second round. Excluding blank surveys, wrong addresses and those who were not practising neurologists gave an adjusted response of 349 from 591 eligible subjects (59%).

The respondents were largely male (82%), with a median age range of 46–50 years and an average of 19.5 years of neurology experience.

Respondents showed a significantly unequal (p<0.0001) pattern of responses that roughly paralleled the frequencies of meanings from the interviews, with ‘not organic’ the most popular choice (table 1).

The tendency to ambiguity observed in the interviews was confirmed in a minority by the survey, with 219 neurologists employing just a single meaning, 73 using two, 29 using three and 18 using all four meanings. This ambiguous usage was not itself evenly distributed between selections, however, with the proportion of those choosing each response exclusively widely diverging (p<0.0001): while a clear majority of those who selected ‘not organic’ chose only that use, only a minority of those making the other selections did so (see table 1); of those who selected ‘abnormality of bodily function’, for example, 58% also chose ‘abnormality of brain function’.

The optimism that some interviewees showed that a physiological view of ‘functional disorders’ would be achieved proved a minority persuasion in the survey: 10% said they saw conversion to be neurological now; 26% said they expected to one day; 63% said they thought they never would (reported in Kanaan and colleagues). This co-segregated with the response to the preceding question: only 27% of those who used functional to mean ‘non-organic’ thought conversion was or would one day be considered neurological, compared with 50% of those who used functional to mean ‘abnormality of brain function’ (p<0.0001).

**DISCUSSION**

The results confirm significant ambiguity in the meaning of ‘functional’ among UK neurologists but with this ambiguity unevenly distributed. While a majority of neurologists hew resolutely to a strict interpretation of ‘functional’ as ‘non-organic’, a considerable minority use it to indicate abnormalities in brain or body function, or a psychiatric disorder, and that minority seems to embrace the ambiguity as offering some utility in clinical management.

There is a view among neurologists that their diagnostic obligation ends with the diagnosis—or exclusion—of neuro-pathology: once they have established that a problem is not ‘with the wiring’ they should properly remain ‘agnostic’ about what it otherwise is. Those who adopt the ‘non-organic’ use for ‘functional’ can be seen as taking that line, refusing to be drawn into speculation about the nature of the disorder.

By contrast, the neurologists who employ the other uses of ‘functional’ do so adaptively, aware that the other meanings can have their place. It can, for example, be used to mean a disturbance of bodily function or it can be used to denote conversion disorder; and by telling a patient they have a ‘functional disorder’ they may encourage them to contemplate the former meaning, without being aware of the latter. The use of euphemisms or codes is extremely common in conversion disorder—three quarters of neurologists do so at least some of the time—but there is also a divergence between the terms neurologists use medically and with laypeople.

| Table 1 Responses to survey question No 30, the meaning of ‘functional’ |
|-----------------------------|-------------------------------|-------------------------------|
| Selection                    | Proportion (%) choosing the selection at all | Proportion (%) of those choosing only that selection |
| Abnormal brain function      | 127/349 (36)                  | 45/127 (35)                  |
| Abnormal body function       | 77/349 (22)                   | 17/77 (22)                   |
| Psychiatric problem          | 104/349 (30)                  | 29/104 (28)                  |
| Not organic                  | 216/349 (62)                  | 128/216 (59)                 |

J Neurol Neurosurg Psychiatry 2012;83:248–250. doi:10.1136/jnnp-2011-300992
advantage of ‘functional’ may thus be as a simplifying euphemism, allowing neurologists to use the same term to mean one thing to colleagues and another to patients. It may be precisely this ambiguity which has allowed the construct to survive despite the uncertainty and conflicts underpinning its meaning at any point in time.

The wide circulation of the term may also conceal fundamental differences on the nature of unexplained ‘neurological’ illness. A minority of neurologists, for example, take a functional model for conversion disorder seriously. That is to say, the vision articulated by Charcot where ‘more powerful microscopes’ will reveal the subtle physiological alterations underlying hysteria is seen to be a real possibility with the advent of functional neuroimaging. The functional/structural dichotomy may have broken down as the distinction between psychiatry and neurology, but some clearly see the result of that being functional, psychiatric illness welcomed back into the neurological fold.

This study is, inevitably, limited in a number of ways. The study investigated only UK neurologists; the response rates may have introduced a degree of selection bias; and responses may have been shaped by the structure of the survey and the nature of the interview despite the mixed methods approach. But this is not to suggest that there is a right answer to the question of the meaning of ‘functional’. The variability of meanings identified across and within neurologists attests to the vibrancy of the construct, despite—or more likely because of—its ambiguity. Its proposed use in DSM-V indicates that in certain clinical areas ambiguity has its own function.

**Funding** This study was funded by Biomedical Ethics Fellowship 079743 from the Wellcome Trust. The funders had no role in the design, execution, analysis or writing of this study.

**Competing interests** RK had support from The Wellcome Trust for the submitted work.

**Ethics approval** Ethics approval was provided by King’s College Hospital.

**Contributors** RK designed the study, collected the data, analysed the data, drafted the manuscript and acts as guarantor; DA designed the study, cleaned the data, analysed the data and edited the manuscript; SW designed the study and edited the manuscript. All authors had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**REFERENCES**

The function of 'functional': a mixed methods investigation

Richard A Kanaan, David Armstrong and Simon C Wessely

*J Neurol Neurosurg Psychiatry* 2012 83: 248-250 originally published online January 16, 2012
doi: 10.1136/jnnp-2011-300992

Updated information and services can be found at:
http://jnnp.bmj.com/content/83/3/248

These include:

References
This article cites 13 articles, 7 of which you can access for free at:
http://jnnp.bmj.com/content/83/3/248#BIBL

Open Access
This is an open-access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits use, distribution, and reproduction in any medium, provided the original work is properly cited, the use is non-commercial and is otherwise in compliance with the license. See: http://creativecommons.org/licenses/by-nc/2.0/ and http://creativecommons.org/licenses/by-nc/2.0/legalcode.

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections
Articles on similar topics can be found in the following collections

- Open access (227)
- Disability (194)
- Somatoform disorders (52)

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/