Correspondence

EDITED BY LOUISE HOWARD

Comprehensiveness of systematic review – update

Readers may remember the correspondence about the identification of studies for a review of volumetric magnetic resonance imaging (MRI) findings in schizophrenia (Lawrie & Abukmeil, 1998). Adams *et al* (1998) suggested that a more comprehensive search strategy would have identified other relevant studies. Lawrie (1998) questioned whether this effort would alter the results of the review – particularly for a pre-specified region (the left amygdalo-hippocampus). We now report the outcome.

Clive Adams searched Medline between 1986 and June 1996 (inclusive) – the same period covered by the original investigation. A simple MRI search identified 142 studies in total. Employing Boolean logic and adding a refined schizophrenia search term (by using 'and') found 27 studies. Refining the MRI search term resulted in the location of 196 studies. Out of interest, EMBASE, a more comprehensive database covering 67% of 506 indexed psychiatry journals (*v.* 47% in Medline), was searched similarly and identified 289 potentially relevant studies. PsycLit, covering 73% of indexed psychiatry journals, was not searched. Stephen Lawrie examined every identified citation for volumetric MRI studies in patients with DSM–III–R (American Psychiatric Association, 1987) schizophrenia and healthy controls, giving raw data that could generate case–control differences (expressed as a percentage) for relevant brain regions.

Five studies that should have been included in the original review were identified (see Table). One of these, Lim *et al* (1995), should have been identified in the simple Medline search, and all should have been identified in the hand search of journals. Indeed, Lawrie & Abukmeil were aware of two of the studies but mistakenly excluded them for not giving relevant raw data (Woods & Yurgelun-Todd, 1991) or for being published outside the time frame (Cowell *et al*, 1996). It should be noted, however, that two of the studies (DeLisi *et al*, 1992; Cowell *et al*, 1996) simply gave information on more subjects than in earlier papers which were included in the review, and another two included the data in subsequent papers.

Incorporating the figures from the Table into the calculations of median percentage

Table Volumetric magnetic resonance imaging (MRI) studies in schizophrenia omitted by Lawrie & Abukmeil (1998)

	Woods & Yurgelun-Todd (1991)	DeLisi *et al* (1992)	Waldo *et al* (1994)	Lim *et al* (1995)	Cowell *et al* (1996)
Identified in	Medline refined MRI	Medline refined MRI & EMBASE	Medline refined MRI & EMBASE	Medline simple MRI & EMBASE	Medline refined MRI & EMBASE
Methods	con, 5–6, sa	sk, 5, man	con, 5, sa	sk, 5, a	con, 5, sa
Subjects	14m/3f patients 14m/5f controls age-matched	25 patients 33 controls both genders	11 patients 13 controls both genders	19m patients 18m controls age-matched	54m/37f patients 62m/52f controls
Cranium				T −3.5%	
Whole brain	L −3.5% R −4.5%				L −4%m, −3.5%f; R −4%m, −3.5%f
Cortical grey	L −9%* R −9.5%*			T −10%	
Cortical white	L −2.5% R −1%			T+0.5%	
Cortical CSF	L+22%* R+16%*			T+6.5%	
Lateral ventricles		L+16%* R+6.5%		T+15% (Third+21%)	
Prefrontal lobe	L −10% R −8.5%				L −3%m, −2%f; R −3.5%m, −3%f
Prefrontal grey	L −13%* R −12%*				
Prefrontal white	L −6.5% R −9.5%				
Prefrontal CSF	L+8.5% R+7%				
Temporal lobe	L 0% R 0%	L −1% R −4%			L −5%m*, −3%f; R −4%m, −2%f
Temporal grey	L −9.5% R −6%				
Temporal white	L+5.5% R 0%				
Temporal CSF	L+57%* R+67%*				
Amygdala			L −11% R+0.5%		
Hippocampus			L −4% R −3%		
Comments	Subsequently published in July 1996	Updated data on schizophreniform patients		Data included in subsequent papers	An update on three previous papers, with increased numbers

*, reported as statistically significant difference in original paper; con, contiguous; sk, skipping; slices of 'x' mm thickness; sa, semi-automated; a, automated; man, manual; m, male; f, female; T, total; L, left; R, right; CSF, cerebrospinal fluid.

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differences between patients with schizophrenia and controls generally has little effect for most brain regions – probably as a consequence of the small amount of additional data gleaned for any particular region in specific subject groups. The only region in a subject group to have more than one additional datum was the left and right temporal lobes in both genders combined. The result for this region was also changed by more than any other cortical region, from −6% and −9.5% (left and right) to −3.5% and −7%. Similarly sized but opposite effects were found for the prefrontal lobes, rendering the revised median differences more compatible with those of the temporal lobes (−5.5% and −4%, respectively). The largest overall change was for the right lateral ventricle volume in both genders, the median difference being reduced from 36% to 23% in patients with schizophrenia. The pre-specified region of maximal interest (left amygdalo-hippocampus) was not altered – the only relevant data (Waldo *et al*, 1994) reporting these structures separately. One previous study had reported data this way, giving a new median estimate (between the two studies) of −11.5% and −9% (left and right) for the amygdala, and −6 and −4% for the hippocampus.

The grey/white segmentation data in Woods & Yurgelun-Todd (1991), that only had two relevant previous studies, were the only data that actually altered the findings. Whereas prefrontal and temporal white matter was bilaterally increased before (Lawrie & Abukemil, 1998), such volume increases are only evident in the left temporal lobe after incorporating the new data and the other three regions are actually reduced in line with overall and grey matter reductions. However, the inclusion of one further study – in an updated review (Lawrie, 1999) – re-instates the previous finding. Overall, therefore, the main conclusions of the review – that patients with schizophrenia have small reductions in whole brain volumes as well as greater reductions in medial temporal lobe structures – remain unaltered.

What has this exercise taught us? First, systematic reviewers can fail to include relevant articles through oversight, despite doing appropriate searches. Second, full reporting of comprehensive searches is desirable – as a general rule and because unidentified articles where there are few published papers are disproportionately important. Finally, readers with good memories will remember that we staked a bottle of Glenndronnach malt whisky on the outcome of our efforts. As there were exactly five additional articles identified (rather than more or fewer) we have declared an honourable draw.

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Lim, K. O., Beal, M., Harvey, R. L., *et al* (1995) Brain dysmorphology in adults with congenital rubella plus schizophrenia-like symptoms. *Biological Psychiatry*, **37**, 764–776.

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PACT to the future

The PRiSM papers (Becker *et al*, 1998) and subsequent editorial (Marshall *et al*, 1999) on assertive community treatment (ACT) highlight the quest by mental health professionals to provide appropriate and effective services to vulnerable individuals with severe mental illness. The design, implementation and model fidelity of ACT have been a widely researched aspect of community mental health care (Mueser *et al*, 1998).

Interestingly, the studies and editorials animatedly examine research carried out between 1992 and 1994, the inception and teething stage of the Nunhead psychiatric assertive community care team (PACT). Crucially, this period was characterised by staff and client recruitment, site relocation, and resource allocation while imbibing the tenets of ACT. Designers of ACT fidelity measures (McGrew *et al*, 1994) sound a note of caution that "implementation and fidelity are developmental" and this "natural temporal evolution in service" if not accounted for in research, can be a potential source of unexplained error.

The Nunhead PACT team has shown considerable development over the 1990s derived from tailoring a service to suit its own unique client population. Community mental health services are not identical as they cover unique geographical and socio-economic areas, with diverse ethnic, demographic and psychopathological characteristics. However, numerous studies of ACT facilities (mainly outside the UK) stress that model fidelity is fundamental to effective ACT service provision (Teague *et al*, 1998).

We present here an updated description of the Nunhead PACT team. The multicultural client population (55% male, 45% female), with a mean age of 46 years, has a predominant diagnosis of schizophrenia (80%) and the remainder affective psychoses. With a mean duration of illness of 17 years, characterised by multiple hospitalisations, admissions are currently one-sixth pre-ACT intervention levels.

The team comprises staff with diverse backgrounds namely psychiatrists, clinical psychologist, psychiatric nurses, social workers, a community forensic psychiatric nurse, an occupational therapist and support workers, with a staff (keyworker) : client ratio of 1 : 12. Furthermore, regular input from a benefits/welfare adviser, chaplain and community pharmacist has proven beneficial to clients and their carers. Dual diagnosis/substance misuse expertise is also being developed. The mean core staff duration in the team is 4.5 years. Patient input through client-led weekly community meetings and newsletters has been found to be invaluable. A variety of work rehabilitation activities (e.g. computer skills, tool workshop, photography and college courses) are being taken up by clients. Multi-sectoral collaboration with voluntary and statutory housing befriending, and ethnic and religious agencies has also facilitated engaging clients in the community. With its current resource and near total programme fidelity, is it likely that the service is actually more

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