SPECIAL ARTICLE

Taking the long view: an emerging framework for translational psychiatric science

Kenneth W.M. Fulford[1], Lisa Bortolotti[2], Matthew Broome[3]

[1]Faculty of Philosophy, University of Oxford, Oxford, UK; [2]Department of Philosophy, University of Birmingham, Birmingham, UK; [3]Department of Psychiatry, University of Oxford, Oxford, UK

Understood in their historical context, current debates about psychiatric classification, prompted by the publication of the DSM-5, open up new opportunities for improved translational research in psychiatry. In this paper, we draw lessons for translational research from three time slices of 20th century psychiatry. From the first time slice, 1913 and the publication of Jaspers' General Psychopathology, the lesson is that translational research in psychiatry requires a pluralistic approach encompassing equally the sciences of mind (including the social sciences) and of brain. From the second time slice, 1959 and a conference in New York from which our present symptom-based classifications are derived, the lesson is that, while reliability remains the basis of psychiatry as an observational science, validity too is essential to effective translation. From the third time slice, 1997 and a conference on psychiatric classification in Dallas that brought together patients and carers with researchers and clinicians, the lesson is that we need to build further on collaborative models of research combining expertise-by-training with expertise-by-experience. This is important if we are to meet the specific challenges to translation presented by the complexity of the concept of mental disorder, particularly as reflected in the diversity of desired treatment outcomes. Taken together, these three lessons – a pluralistic approach, reliability and validity, and closer collaboration among relevant stakeholders – provide an emerging framework for more effective translation of research into practice in 21st century psychiatry.

Key words: DSM, RDoC, ICD, psychiatric classification, mind and brain, social sciences, reliability, validity, collaborative research, expertise-by-experience, values-based practice

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"A classification – N. Sartorius wrote back in 1992 in the preface to ICD-10 – is a way of seeing the world at a point in time" (1, p. vii). Thirty years on, the response to the publication of the American Psychiatric Association (APA)'s DSM-5 (2) suggests that the world of psychiatric science is in disarray.

T. Insel, writing as Director of the world's most powerful neuroscience funding institution, the USA's National Institute of Mental Health (NIMH), spelled out one of the main critiques, that DSM-based research had failed to translate into tangible improvements in patient care. In a blog introducing NIMH's alternative Research Domain Criteria (RDoC) framework, Insel indicated that "NIMH will be reorienting its research away from DSM categories" (3). The sparring parties subsequently clarified that DSM remains a helpful basis for clinical work (4). Yet, this left the world of psychiatric science still apparently at risk: a discipline lacking a unified theoretical framework, with researchers divided between NIMH and APA.

But a crisis, as psychiatry above all recognizes, is an opportunity as well as a threat, and it is with the opportunities opened up by current debates over psychiatric classification that we are concerned in this paper. Understood in their historical context, we suggest, these debates are a mark not of theoretical incoherence but rather of the particular and specific challenges of psychiatric science.

Recent commentators have addressed these challenges from a number of theoretical perspectives (see for example, 5). In this paper we take instead the long view provided by three time slices from 20th century psychiatry – one early, one middle and one late century time slice. Each time slice points a number of lessons for more effective translation of research into practice. Embraced with confidence, we conclude, these lessons could put psychiatry very much at the forefront of 21st century translational medical science.

FIRST TIME SLICE: 1913 AND JASPERS' *GENERAL PSYCHOPATHOLOGY*

Our first time slice is 1913, the year of publication of K. Jaspers' *General Psychopathology* (6). Celebrated in recent centenary events and publications (7), Jaspers wrote *General Psychopathology* at a time like our own of rapid advances in the neurosciences, psychiatry's "first biological phase", and the challenge he took up remains very much at the heart of the challenge of translation we face today.

Jaspers, a psychiatrist as well as philosopher, had worked in the neurosciences and was well aware of their potential (8). But their ambitions, he believed, had become overblown. He was concerned in particular that mental disorders demand meaningful understanding as well as the causal explanations delivered by the brain sciences (9). This was the essence of Jaspers' challenge. And it is the challenge of translation. Translation of research into practice means nothing more nor less than translating between the objective findings of the brain sciences and the meaningful life-worlds of our everyday subjective experience.

Avoiding "single message mythologies"

So, what are the lessons from 1913? First, that we should not underestimate the difficulty of the challenge. As a theoretical challenge, translating between meanings and causes takes us into the depths of that mother of all philosophical problems, the relationship between mind and brain. Philosophers have made progress on this since 1913, with many helpful insights into what would nowadays be formulated as a problem of translation between sub-personal and personal levels of functioning (10). But the problem as such remains.

Correspondingly then, with problems of this peculiarly difficult kind, we should be wary of claims to "solutions". As the American humorist H.L. Melken quipped, "there is always an easy solution to every human problem – neat, plausible and wrong!" (11). Psychiatry notoriously fluctuates between such "solutions". The history of psychiatry, as the German historian and psychiatrist P. Hoff has described, is one of repeated collapses into "single message mythologies" (12). Jaspers was concerned about the collapse of psychiatry's first biological phase into a brain-only mythology. Similar concerns, as we have noted, are not out of place today (13). Moreover, far from delivering improvements in patient care, some of the worst abuses of psychiatry have had their origins in (initially well-intentioned) single message mythologies (14).

When it comes to holding the line against future single message mythologies, RDoC, we believe, holds promise. Insel attributes the failure of translation of DSM-based research to its preoccupation with reliably identifiable symptoms (3). We return to reliability in the next section. But in Hoff's terms, reliability in DSM – if Insel is right – has become yet another single message mythology. The RDoC framework, correspondingly, has been launched with the express intention of providing an open and inclusive framework hospitable to a plurality of research paradigms (15).

Resources for a pluralistic approach

Good intentions, of course, may not be enough. But there is no lack of resources for building a pluralistic approach. The new sciences of the mind range from the cognitive and related sciences (16), with their potential for computational methods (17,18), through the social and anthropological sciences, including the proven translational potential of theories of the social construction of meaning in such core areas as dementia care (19,20), to novel applications of "naturalized" and other clinically realistic phenomenologies (21,22).

The risk, though, with all this variety in play, is that while psychiatric science may avoid the blind alley of yet another single message mythology, it becomes, as psychiatry by the end of the first half of the 20th century had become (23), factionalized and fragmented. It is to the lessons for today from mid-20th century psychiatric science that we turn next.

SECOND TIME SLICE: 1959 AND THE WHO CLASSIFICATION MEETING IN NEW YORK

Fast forward then, from Jaspers to 1959 and to a meeting on psychiatric classification convened by the World Health Organization (WHO) in New York. It is from this meeting that our current symptom-based classifications, both ICD and DSM, are ultimately derived. But the story, as standardly told, of how ICD and DSM were derived from the 1959 meeting misses a detail that is key to understanding how 21st century psychiatric science might avoid the equal and opposite traps of single message mythologies and of fragmentation. In this section we will first reprise the story of the 1959 meeting, in standard and in revised versions, and then draw out the lessons for today.

The story, as standardly told (23,24), runs essentially as follows. The WHO convened the New York meeting with the aim of achieving international consensus on psychiatric classification. This was a priority for the WHO because the then-reigning nosological chaos in psychiatry stood in the way of its attempts to establish reliable comparative epidemiological data on rates of morbidity worldwide. The meeting thus brought together a small international group of senior psychiatrists of the day to make recommendations.

A distinguished North American philosopher of science, C. Hempel, was invited to open the meeting with a keynote lecture on the nature and purpose of scientific classifications. Drawing on his work in a theory of science called logical empiricism (a form of positivism, 25), Hempel talked about how sciences progress from descriptive to theoretical stages. Psychiatric classifications, he is then standardly reported as suggesting, had become fragmented because psychiatry was attempting to produce theory-based classifications of mental disorders while still at a descriptive stage in its development as a science. The reliability (agreement in use) of psychiatric classifications could thus be improved by pulling back from theory, at least for the time being, and basing psychiatric classifications instead on descriptively defined symptoms.

The meeting, so the standard story continues, took Hempel's point; the proposal for a descriptive classification was reported to the WHO (26); a new symptom-based glossary to ICD-8 was prepared (27); the success of the glossary in improving the reliability of psychiatric classifications led to the first fully symptom-based classifications in ICD-9 (28) and DSM-III (29); and a descriptive symptom-based approach driven by the need for reliability has remained the basis of subsequent editions of both classifications up to and including DSM-5.

Much of this story is right. The key detail though, the detail that is key to the lessons from the New York meeting for psychiatry today, is that it was not the philosopher C. Hempel who suggested the move to a symptom-based classification, but one of the psychiatrists present, A. Lewis (30).

A transcript of the actual meeting (published in 31) shows that Hempel did indeed emphasize the importance of

improvements in reliability for psychiatric science. But what Hempel had in mind in his lecture was the reliability of research in the then dominant (in the USA) paradigm of psychoanalysis. It was instead Lewis who saw the potential of this approach for epidemiological psychiatry. Lewis, moreover, far from believing a symptom-based approach to be the research panacea it was to become, called for a *pluralistic* approach. For "epidemiological work" – Lewis said (with the work of the WHO specifically in mind) – we should "eschew categories based on theoretical concepts and restrict ourselves to the operational, descriptive (i.e. symptom-based) type of classification". For other purposes, he continued, including other research purposes, any classification that is "based on a theory which seems a workable, profitable one may be very appropriate" (30, p. 34).

In itself this detail from the story of the 1959 meeting says something about the need for two-way collaboration between philosophy and psychiatry (30). We return to the importance of collaboration in research below. For now, though, we want to focus on what we can learn from the revised story of the 1959 meeting, respectively for the reliability of psychiatric classifications and for their validity.

Keep reliability

Embroiled as we are now in a crisis of psychiatric classification, it is important not to lose sight of how well the original move to symptom-based classifications, with its associated improvements in reliability, was received. It seemed indeed to many at the time that psychiatry had finally come of age as a medical science and the new approach to classification through the ICD (28) as well as DSM (29) was readily taken up in many parts of the world.

Small wonder, then, with expectations running so high, that when reliability-based classifications in the event failed to deliver on their early promise, a correspondingly deep disillusionment should have set in. Insel makes this explicit in his blog: "The strength of each of the editions of DSM has been reliability… The weakness is its lack of validity" (3). Advocates of DSM, it seems, agree. In setting the "research agenda for DSM-V", D. Kupfer, M. First and D. Regier argued that the primary strength of the DSM's reliability-based descriptive approach is "its ability to improve communication among clinicians and researchers, not its established validity" (32, p. xviii). What is needed, they continued, is "an as yet unknown paradigm shift" that would "transcend the limitations of the current DSM paradigm" (32, p. xix).

Lewis, not to say Hempel, would have seen any downgrading of reliability as a shortcut back to the nosological chaos from which psychiatry had been delivered by the outcomes of the 1959 New York meeting. This is essentially because without reliably repeatable observations there is no reliably repeatable research and without reliably repeatable research there is no science. Lewis indeed, in a later publication, warned of the dangers of psychiatry retreating from the disciplines of observational science. In his foreword to ICD-9, he emphasized the need for psychiatry to remain ever vigilant in guarding "the gate of observation" (33).

A first lesson then from the 1959 meeting is that, if we want to avoid a return to fragmentation and chaos, we should build on, not down-grade, reliability. The failure of DSM-based research to deliver comes not from an overreliance on reliability as such but rather from an overreliance on reliably-defined *symptoms*. The revised Lewis-plus-Hempel version of the story of the meeting fits well with the aspirations of the RDoC. As Insel and others have emphasized (15), RDoC is not a classification. It is intended rather as a symptoms-plus-theory framework for assimilating the results of future research which, in breaking away from the symptoms-only basis of DSM, will accommodate pluralistic approaches of exactly the kind Lewis had in mind.

But add validity

The message from 1959 is thus about hanging on to reliability as the basis of observational science. But there is nothing in this message about abandoning validity. To the contrary, Lewis' interpretation of Hempel's account of the development of sciences from descriptive to theoretical stages directly anticipates Insel's and Kupfer et al's shared concern (in the above quotes) with the importance of validity.

Just what validity means in science is harder to pin down. Hempel in his 1959 lecture had a good deal to say about validity, but it was all rather technical and had little influence on subsequent developments in psychiatric classification (30). Logical empiricism itself, indeed, as Hempel's guiding theory, has since proved to be very far from the last word on the nature of science. It remains helpful as a source of insights, for example into the much misused (in psychiatry) concept of "operationalism" (25). But when it comes to validity, new insights have come rather from post-logical empiricist philosophy of science. Of particular relevance to current debates is the work of the North American philosopher of science, A. Fine, showing that even in physics there is no gold standard for validity. Criteria of validity in science are instead set locally in a "fit for purpose" approach according to what seems appropriate to those concerned (34).

With reliability, therefore, so too with validity there is a neat fit between the revised Lewis-plus-Hempel story of the 1959 meeting and today. Lewis' pluralistic vision for psychiatric science based on theories that seem to those concerned "workable and profitable" closely tracks Fine's (1999) locally set "fit for purpose" criteria of validity. With our third and final time slice, we come to what "fit for purpose" validity means specifically for translational research in 21st century psychiatry.

THIRD TIME SLICE: 1997 AND THE DALLAS CONFERENCE ON CLASSIFICATION

Organized by the North American psychiatrist and philosopher J. Sadler, the historical importance of the 1997 Dallas conference is that it brought together for the first time on a fully collaborative basis each of the principal stakeholder groups concerned with psychiatric classification, i.e. not just clinicians and researchers but also patients and carers. The Dallas conference inspired a series of similar conferences in London, hosted by the UK's Department of Health in partnership with the WHO, that in turn led to a collaborative programme on good practice in mental health assessment (35).

In this final section, we argue that closer collaboration between clinicians/researchers and patients/carers is one of the keys to "fit for purpose" validity in translational psychiatric research. This is essentially because psychiatry is distinctive as a medical science in being concerned not with the regularities of this or that sub-system of persons (as cardiologists are concerned with the cardiovascular system, for example), but rather with the diversity of what the philosopher of mind K. Wilkes called "real people" (36). We will look at how the diversity of real people is reflected in three challenges to "translational validity" presented by the concept of mental disorder: its contested meanings, the complexity of its presenting symptoms, and its value-ladenness.

Translational validity and contested concepts of mental disorder

For much of the second half of the 20th century, psychiatry was dogged by the question of just what exactly *is* mental disorder. The question as such was not new: since classical times (37), and across diverse cultures (38), mental disorder has been understood in widely different ways, ranging from the medical to the moral (or psychological). But prompted by the American psychiatrist T. Szasz's skeptical claim that mental disorder is simply a myth (39), the 1960s and 1970s witnessed an unprecedented flowering of different conceptions of mental disorder (40), and the debate between different models continues to this day.

We do not have space here to engage with the "pros and cons" of all the many different models in this debate (see 41 for a summary of main positions). One way to understand the debate as a whole, however, is as a dispute between the various "cultures" of psychiatry, the different models thus representing the different perspectives on mental disorder of the various mental health professions (medical, psychological and social) and of patients and carers. But there is the same range of perspectives involved in all areas of medicine. So understood, therefore, the operative question for translational validity becomes not "which?" but "why?", i.e., not which if any of the proposed models is right, but why the debate has been about *mental* disorder with no corresponding debate about bodily disorder.

Critics of psychiatry are inclined to answer the "why?" question in terms of difficulties of definition. But bodily disorder is at least equally difficult to define (42). For instance, are obesity and tooth loss disorders? The "why?" question, we suggest, is better answered in terms not of difficulties of definition of the concept of mental disorder, but rather of difficulties in use arising, in part but importantly, from the need for an integrated biopsychosocial approach. In single-system areas of medicine, such as cardiology, a relative focus on biological factors may at least approximate to good medicine. Something similar might be said of neurology to the extent that it too is a single-system area of medicine. But in psychiatry no such single-system approximations are available, because the real people with which psychiatry is concerned are themselves biopsychosocial in nature.

In clinical work the importance of an integrated biopsychosocial approach in which the different cultures of psychiatry come together to serve the diverse needs of patients has been recognized for some time (43). If in clinical work, therefore, why not in research? Such research will draw on the resources for a pluralistic ("mind as well as brain") approach discussed in section 1. As such, it would be informed by a variety of theories that, as Lewis (section 2) might have put it, seem "workable and profitable". So, this is not a recipe for quick wins. But such research, consistently with Fine's (section 2) locally set "fit for purpose" criteria, would have at least *prima facie* translational validity.

Translational validity and the complexity of psychiatric symptoms

But why does research of this kind require closer collaboration between researchers and patients/carers? Why does it require more than an integrated approach between researchers with expertise-by-training from within psychiatry's different professional cultures – biological, psychological and social? Such an integrated approach is difficult enough. Why then do we need to add the further challenges of closer collaboration with patients and carers?

The short answer is that patients and carers add to the expertise-by-training of professional researchers their own distinctive expertise-by-experience. There is no hard and fast divide here, of course. Many professional researchers have experience as patients and/or as carers, and many patients and carers have expertise in one or another research discipline. Correspondingly, "closer collaboration" could take place in different ways and at different levels depending on the demands of the research in question (44). In the UK, closer collaboration in all areas of health-related research has been the norm for some time, although debate continues as to its benefits (45). But that both kinds of expertise in one form or another have to be in play, if research at least in mental health is to translate successfully

into practice, is a consequence of the complexity of the very symptoms of mental disorder.

Again, a comparison between cardiology and psychiatry makes the point. Angina (heart pain) is similar from one patient to the next. In this respect, then, angina is a relatively simple symptom. But hallucinations, delusions, obsessions, depressive and other presenting symptoms of mental disorder all vary widely in both form and content between different individuals, between cultures, and at different historical periods. Added to the sheer diversity of such symptoms, furthermore, is a far greater degree of individual variation in attributed meanings: a given hallucination, for example, may be interpreted by one person medically and by another in spiritual terms (46). Hallucinations, indeed, are now well recognized to occur commonly within the normal population (47), and this is an area in which the clinical importance of bringing together expertise-by-training with expertise-by experience has been recognized for some time (48).

There is, of course, much that expertise-by-training can bring to tackling the complexity of psychiatric symptoms. Besides the standardized checklists so widely employed in contemporary psychiatric research, a range of other methods, phenomenological and empirical, qualitative and quantitative, have been and continue to be used by experts-by-training from each of the wide range of research disciplines noted towards the end of section 1 above.

But to the extent that such methods in the hands of experts-by-training alone have largely failed the test of translation, it is no less than good science to try something new. Closer collaboration is a big step, certainly. But it is a step that builds on the established and growing (good) practice of including patients and carers in research teams (45). It is for a big step, for a paradigm change, that as noted above both Insel (for RDoC, 3) and Kupfer et al (for DSM, 32) have called. There is, moreover, a growing resource for closer collaboration in clinical work and training on which to draw (see for example the UK's recently revised National Occupational Standards for Mental Health, 49). So, why not try the big step of closer collaboration in research?

Translational validity and the value-ladenness of mental disorder

The need for closer collaboration in translational research is given a particular edge by the value-ladenness of mental disorder and the way this is reflected in sometimes radically different desired outcomes of treatment. The value-ladenness of mental disorder has been subject to different theoretical interpretations within a wider debate about the meanings of concepts of disorder in general (50). Leaving aside though these theoretical considerations, a contemporary example of its practical significance in relation to outcomes is the tension between the traditional medical outcome of symptom control and a "recovery model" focussed on improving quality of life (51).

Once again, it is important to be clear that the difference in this respect between bodily and mental disorders is only a matter of degree. Yet it is a significant difference nonetheless. In bodily medicine, symptom control and quality of life normally go hand in hand (as in controlling angina). But in psychiatry the relationship is more complex. This is partly a matter of side effects: antipsychotic medications, for example, may help to control psychotic symptoms but at the expense of side effects that in some cases impair a person's quality of life by reducing his/her ability to hold down a job or maintain close personal relationships. It is though also a matter of riding rough-shod over the very different ways in which psychiatric symptoms themselves may be valued or disvalued. A given hallucination, for example, whether understood medically or spiritually, may be experienced positively by one person and negatively by another (52).

A further aspect of the value-ladenness of mental disorder is the way in which, besides their obvious negative aspects, some disorders may also have positive aspects, including in some cases enhanced cognitive skills. These positive aspects are crucial to quality of life as a desired outcome in that, if recognized and developed, they bring with them improved prospects for employment. Anxiety (53) and mood disorders (54), for example, have been linked with creativity; and people with autism are beginning to be recruited by some high-tech industries for their particular cognitive skills (55). There is compelling evidence, furthermore, suggesting that people with certain psychiatric disorders may actually be more rational in certain tasks than the non-clinical population (56). For instance, people with schizophrenia are less vulnerable to a statistically normal but irrational tendency to gamble when faced with a certain loss (57); and people with autism are more logically consistent than controls when making decisions involving possible financial gain, because they are not distracted by emotional contextual cues in the same way as controls (58,59).

There is evidence too that delusions and distorted memories, which as symptoms of psychiatric and neuropsychological disorders are often regarded as paradigmatic instances of irrationality, can play useful pragmatic and epistemic functions. Delusions may reduce anxiety and enable normal learning processes to resume and enhance memory after the prodromal phase of psychosis, by offering some explanation for hypersalient stimuli (60). Distorted memories and confabulatory narratives may help a person with impaired or declining autobiographical memory retain some sense of self with positive effects on wellbeing, mood regulation and socialization (61,62).

Once again, there is no knock-down argument in all this for closer collaboration in research. The argument though has been widely accepted in policy and practice, with growing resources for more effective ways of working collaboratively towards a diversity of desired outcomes. In the UK, for example, the National Occupational Standards noted above (49) bring together co-production with the skills for values-based practice (63) as twin resources for recovery-

oriented care. There are early moves towards closer collaboration in research in bodily medicine (64). And, further reinforcing the continuity between psychiatry and bodily medicine, values-based practice is already being extended from mental health into other areas of medical and surgical care (65). Psychiatry, then, in developing more collaborative models to meet its own particularly acute challenges of translation, would be leading the field for medicine as a whole.

CONCLUSIONS

In this paper, we have outlined lessons for the future of translational research in psychiatry from three time slices of the history of 20th century psychiatry:

- From 1913, and the publication of Jaspers' *General Psychopathology*, the lesson was that we should beware simple solutions (Hoff's "single message mythologies"), adopting instead a pluralistic approach encompassing the resources equally of the sciences of the mind (including the social sciences) and the sciences of the brain.
- From 1959, and the birth of our current symptom-based classifications in Lewis' response to Hempel's lecture on logical empiricism, the lesson was that, in pluralistic as in any other research, reliability (as the basis of observational science) is essential, but that we should add to it an understanding of validity appropriate to the challenges of translational research.
- From 1997 and the Dallas conference came the lesson that one of the keys to this "translational validity", as we called it, is closer collaboration in research bringing together the resources of expertise-by-training with those of expertise-by-experience. Such collaboration is challenging and may take different forms according to the demands of a given research question. But its *prima facie* importance is evident in the unique challenges to translation presented by the complexity of mental disorder, particularly as reflected in the diversity of desired treatment outcomes.

Taken together, these lessons – a pluralistic approach, reliability *and* validity, and closer collaboration among all relevant stakeholders – provide an emerging framework for psychiatric science that, in building on 20th century advances, points the way forward to more successful translation of research into practice.

Our chosen time slices are of course not definitive of the history of 20th century psychiatry. The lessons they offer are intended to help us look forward, not back. These lessons, moreover, as we have indicated, are not confined to psychiatry. The challenge of translation is greater in psychiatry than in other areas of medicine for the sufficient reason of its greater complexity. The brain is more complex than, say, the heart. But crucial to translation is the greater complexity of the actual *experience* of mental disorder. As we outlined in our third time slice, there are no less than three distinct ways in which experiences of mental disorder are more complex that their counterparts in such areas as cardiology. Small wonder therefore that, looking back, translation has been slow to get going in psychiatry. But equal reason, with the lessons of the past in mind, and with so many new resources to hand, to look forward with confidence towards successes to come.

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