

## Psychiatry's catch 22, need for precision, and placing schools in perspective

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### Abstract

The catch 22 situation in psychiatry is that for precise diagnostic categories/criteria, we need precise investigative tests, and for precise investigative tests, we need precise diagnostic criteria/categories; and precision in both diagnostics and investigative tests is nonexistent at present. The effort to establish clarity often results in a fresh maze of evidence. In finding the way forward, it is tempting to abandon the scientific method, but that is not possible, since we deal with real human psychopathology, not just concepts to speculate over. Search for clear-cut definitions/diagnostic criteria in psychiatry must be relentless. There is a greater need to be ruthless and blunt in this, rather than being accommodative of diverse opinions. Investigative tests - psychological, serum, CSF, or neuroimaging - are only corroborative at present; they need to become definitive. Medicalisation appears most prominent in psychiatry; so, diagnostic proliferation and fuzziness appear inevitable. And yet, the established diagnostic entities need to forward greater and conclusive precision. Also, the need for clarity and precision must outweigh pandering to and mollifying diverse interests, moreso in the upcoming revision of diagnostic manuals. This is specially because the DSM-5, being an Association manual, may need to accommodate powerful member lobbies; and ICD-11 may similarly need to cater to diverse country lobbies. Finding precise biological correlates of psychiatric phenomena, whether through neuroimaging, molecular neurobiology and/or neurogenomics, is the right way forward. It is in the 1.5-kg structure in the cranium that all secrets of psychiatric conditions lie. Social forces, behavioural modification, psychosocial restructuring, study of intrapsychic processes, and philosophical insights are not to be discounted, but they are supplementary to the primary goal - studying and deciphering those brain processes that result in psychiatric malfunction. Experimental breakthroughs, both in psychiatric aetiology and therapeutics, will come mainly from biology and its adjunct, psychopharmacology; while supplementary and complementary breakthroughs will come from the psychosocial, cognitive and behavioural approaches; the support base will come from phenomenology, epidemiology, nosology and diagnostics; while insights and leads can hopefully come from many fields, especially the psychosocial, the behavioural, the cognitive and the philosophical. Major energies must now be marshalled towards finding biomarkers and deciphering the precise phenotype-genotype-endophenotype axis of psychiatric disorders. Energies also need to be focussed on unravelling those critical processes in the brain that tip the scale towards psychiatric disorders. At how those critical processes are set into motion by forces de novo, in utero, in the genes and their expression, by the environment«SQ»s psychopathological social forces - stress, peer pressure, poverty, deprivation, alienation, malnutrition, discrimination of various types (caste, gender, race, etc.), mass conflicts (war, terror attacks, etc.), disasters (natural and man-made), religious/ideological fascism - or social institutions like marriage, family, work place, political governance, etc. Ultimately, we must decipher how the brain goes into malfunction when such varied forces impinge on it, which precise cortical areas and neuronal cellular and molecular processes are involved in such malfunction and its manifestation, as also which of these are involved when malfunction ceases and health is restored, and the psychosocial processes and institutions which aid such health restoration, as also those which promote well-being and help in primary prevention. Emphasis on the brain and its intimate neurological and molecular mechanisms will not impinge on, or nullify, importance of the «SQ»mind,«SQ» wherein subtle and gross brain functions in the form of behaviour, thought and emotions in all their ramifications will continue to be the focus of psychological, cognitive, sociological, psychopharmacological, behavioural and philosophical research. Progress in brain research must move in tandem with progress in «SQ»mind«SQ» research.

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## Full Text

### Introduction

We are in a peculiar catch 22 situation in psychiatry. To establish precise diagnostic categories/criteria, we need precise investigative tests - lab/radioimaging/psychological. But to establish such precise investigative tests, we need precise diagnostic criteria/categories in the first place.

Precision, both in diagnostics and in investigative techniques, is lacking at present. And unless such precision and clarity is pursued with renewed vigour, cutting-edge translational research, which brings scientific discoveries into the clinical setting, either in aetiopathology or in psychiatric therapeutics, or in providing point-of-care support tools, in diagnosis or therapy, will remain only a pipe dream.

Not that efforts to establish clarity in both diagnostics and tests are not on. But often the result is a maze of evidence, which, rather than clarify issues, only further entangles and waylays the search. Such is also the case with the mass of genetic, aetiopathologic and prognostic study results. The labyrinth of evidence is so difficult to decipher that it appears identical with the maze of synapses that make the brain so inscrutable. The promise that growth of branches like behavioural neurochemistry, cognitive neuroscience and pharmacogenetics held in deciphering the genetic code of psychiatric disorders and in identifying disease producing genes, as also in producing more effective drugs, with greater efficacy, faster onset and lesser side effects, is a hope still to be realised in actuality. Also, in the wake of advances in brain imaging and computer technology as means to help quantitative measurement of brain functioning, the promise that brain function in health and disease would be clearly identified is a goal still to be achieved. The developments in cognitive neuroscience in studying brain areas connected with brain functions in memory, language, perception and even emotions have offered numerous leads which have not still resulted in a comprehensive understanding of the complexities of human brain function. The addition of branches like social cognitive neuroscience and moral neuroscience is still groping with imprecise terms of reference and insufficient techniques to make a coherent picture of how brain functions get influenced by social and personal moral norms in health and disease. Also worthy of attention is a growing anti-psychiatry movement, which is not just a reflection of growing consumerism and a crumbling of trust in hitherto hallowed social institutions, but also a reflection of the lack of precision and clarity that is reflected in our diagnostic categories that have still to find their precise biological correlates, the one thing that would firmly establish psychiatry as a medical discipline from its interim position today (Singh and Singh, 2009 [21] ); and our investigative tests which have still to pinpoint precise psychiatric 'diseases' from the 'illnesses' and 'sicknesses' that we conveniently label as psychiatric 'disorders' today, in that only further underscoring our interim status as a medical discipline (ibid [21] ).

The only relative clarity we see is in the psychopharmacology of most psychiatric conditions, and that is probably the main reason why the psychopharmacological approach has the greatest number of proponents in mainstream psychiatric clinical practice today. But this redeeming feature is not without its own share of mazes and stultifiers. Since the 1950s, we have had the same three neurotransmitters to work with to treat depression, one transmitter for psychoses and three for anxiety (Schwartz, 2010 [16] ). We have developed newer drugs that are more tolerable, but have not developed drugs better in efficacy (ibid [16] ). More than half a century after the introduction of effective pharmacotherapy for schizophrenia, in most patients it remains a chronic, relapsing condition with poor long-term outcomes, and the future of its pharmacotherapeutics remains bleak (Andrade et al., 2012 [1] ).

Of course, it is comforting to think this may just be an interim phase. Other neurotransmitters are under active consideration, and drugs with better efficacy are being actively researched. And with regard to schizophrenia itself, some suggest that the schizophrenia construct will be deconstructed into component psychopathology domains

(Carpenter, 2012 [4] ), as will probably happen with other psychiatric conditions. And the way forward for diagnostic manuals like the upcoming DSM-5 would be incorporation of simple dimensional measures for assessing syndromes within broad diagnostic categories and supraordinate dimensions that cross current diagnostic boundaries (Reiger et al., 2009 [13] ). But we must be careful that such 'deconstruction' and incorporation of 'simple dimensional measures' does not amount to mere symptomatisation, which would hammer at the very edifice of diagnostic categorisation in psychiatry. The fallout could be to sever psychiatry's links with the mainstream of medicine, diagnostic categorisation being one of medicine's fundamental cornerstones.

#### The way forward

What, then, is the way forward? To abandon the scientific method is a tempting hypothesis to consider, but must be immediately abandoned, for, whatever the anti-psychiatric schools of various persuasions may say about psychiatric disorders being a 'myth' etc., there are real, psychopathological problems of human beings which psychiatrists have to deal with day in and day out. And we cannot wish such problems away sitting in our thinking chambers, or with our clever arguments and debates.

Where does that lead us? Firstly, we must accept that the search for more precise and clear-cut definitions and diagnostic criteria must be relentlessly pursued. For this, efforts like the DSM-5 (due in 2013) and ICD-11 (due in 2015) are laudable. With all their limitations, and in spite of various pitfalls, each revision is a step forward in attempts at further clarity and greater precision. We of course need to know the issues and challenges both the APA and World Health Organization (WHO) face as they go about their work (Sartorius, 2010 [14] ). But what needs to be done here, more than anything else, is being rather ruthless and blunt in putting forth as precise diagnostic criteria as possible, rather than being accommodative of diverse opinions to take the group along, and mollify or placate vociferous mutually antagonistic and potentially divisive voices.

#### Precision in diagnostic and investigative tests

It is equally important to look into diagnostic tests and investigations for our disorders. Psychological tests are useful corroborators, and pointers, at present, but they do not have a definitive status, except, perhaps, with intelligence tests. The need for further precision with these, and newer, tests cannot be overemphasised, both in their structure and their interpretation. A great number of studies into the validity and reliability of Ror, MMPI, TAT/CAT, WAIS/WISC and similar others need to be relentlessly pursued to find out if they can become confirmatory of any psychiatric diagnosis.

Similarly, serum lab tests are mainly related to blood tests of psychoactive drugs, which are useful confirmatory tests, but do not confirm or validate a primary psychiatric diagnosis, except in conditions of drug toxicity, for example, serum tests for Li toxicity, clozapine granulocytopenia (commonly called clozapine agranulocytosis) and, to an extent, lab evidence of muscle injury in Neuroleptic Malignant Syndrome (e.g. elevated serum CPK). At present, we do not have a single serum test to validate a single primary psychiatric diagnosis. This situation is in urgent need of repair.

Similarly, CSF investigations, radioimmune assays and neuroimaging studies by various scans, including functional magnetic resonance imaging (fMRI) and positron emission tomography (PET), are offering fascinating evidence of brain functioning in health and disease. But they do not offer conclusive or clinching diagnostic evidence at present, although they hold immense potential to do so in the future. Ongoing related work to find biomarkers and work with endophenotypes for psychiatric disorders hold promise too. This is in spite of the fact that there are no biomarkers currently available in psychiatry (Turck, 2009 [23] ), because of which psychiatric diagnostic tools are restricted to behavioural and clinical phenotypes, a severe limitation in the precision we seek. And for endophenotypes to be useful in psychiatry, they must meet certain criteria, including association with a candidate gene or gene region, heritability that is inferred from relative risk for the disorder in relatives, and disease association parameters (Gottesman and Gould, 2003 [9] ), all goals still to be achieved.

#### Precise terms of reference and time frames

The need to work concertedly on all these fronts, with precise terms of reference and equally precise time frames, cannot be overemphasised. But work towards precision in investigative tests will be stymied if we do not, first of all, have precise diagnostic categories. If we still court controversies over our diagnosis of schizophrenia, MDD, BPD, etc., how can we have any progress with clinching investigative tests? Investigate what? Schizophrenia? But we have

not clearly decided what it is - one disorder, a syndrome/spectrum/construct? Let us first do that with schizophrenia as much as most other psychiatric disorders. It is here, more than anywhere else, that the greatest amount of precision and clarity is imperative. And that must be the major, if not the only, driving force for diagnostic manuals like DSM-5 and ICD-11.

#### Medicalisation and its pressures

Medicalisation of life's problems is mainly because health is being increasingly viewed as a commodity (Turner, 2004 [24] ). The need to medicalise life problems is most manifest in psychiatry (Maturro, 2012 [11] ), and therefore it suffers the greatest onslaught on 'new' diagnoses. While this proliferation, and consequent vagueness, for such categories is inevitable in the interim, the need is to be ruthlessly, and conclusively, precise with most other well-established psychiatric conditions. Either lay them down and seal them, to be reaffirmed/banished by further studies, or recognise them to be interim diagnoses, to be further affirmed/rejected by future studies. In any case, the need for clarity and precision must outweigh the need for pandering to and mollifying diverse interests. That can especially happen in the DSM-5, since here there is the possibility of diverse interests involved in an association-based/regulated diagnostic manual. The WHO, in formulating the mental disorders section of ICD-11, too can succumb to such pressures, since it also is a motley of various countries. Ambivalence and loosening of association better remained confined to a condition in psychiatry, not afflict the branch itself. This is not meant to fault honest efforts of those working in these fields, but for them to be cautious that 'political' forces do not stymie their honest efforts for extra-scientific reasons.

#### Find precise neurobiological correlates of psychiatric phenomena

Hence, the search for greater cutting-edge research in the aetiopathology and treatment of various psychiatric conditions cannot be overemphasised. On the one hand, greater proliferation of conditions and on the other hand, greater proliferation of treatments and search for aetiopathology are inevitable. The great outpouring of evidence reflects a robust attempt to aid the search and earnest attempts at narrowing the gap between ignorance and knowledge, while incidentally also waylaying research and researchers (the maze talked of earlier). However, the attempt to find precise biological correlates of psychiatric phenomena, whether through neuroimaging, molecular neurobiology or neurogenomics, is the right way forward. Unravelling the neurobiology of mental phenomena (Charney and Nestler, 2011 [5] ) needs to be actively pursued so that the aetiopathology and therapeutics of major mental disorders first, and later of others too, can be clearly delineated. The revolution in molecular medicine has rightly made its presence felt in the field of psychiatry through advances in molecular and cellular biology, and through systems and translational neurosciences. The role of endophenotypes in psychiatry in general (endophenotypes being special kind of biomarkers whose purpose is to divide behavioural symptoms into more stable phenotypes with a clear genetic connection, or as Gottesman and Gould, 2003 [9] say, "measurable components unseen by the unaided eye along the pathway between disease and distal genotype") and their role in psychiatric genetics in particular (Walters and Owen, 2007 [25] ), as also psychophysiological genetics in general [search for and study of the biological variables (including vulnerability and markers) that are related to the gene (s) presumed to be the cause of the disease in question; Campbell, 2009 [3] will be most greatly felt in the next few decades as the major psychiatric disorders reveal the secrets of their aetiology and their therapeutics. But again, all this is possible only when our diagnostic categories are clearly fixed in the majority of cases.

Of course we have to be careful that huge investment in biology and genetics does not make us prone to neglect social causes of diseases, or predispose us to consider them in biological terms alone (Clarke and Shim, 2011 [6] ), or result in genetisation - the tendency to consider that for any disease condition, genes are the main factors responsible (Shostak and Frese, 2010 [18] , p. 419).

#### All secrets of psychiatric conditions lie in the brain

Even if we need to be so careful, one point needs emphasis. Psychiatric problems manifest in the individual's behaviour, thoughts, actions, moods, perceptions, judgement, attitude, appearance, whatever - as our mental status examination reveals. It may be a manifestation of upbringing, genetic make-up, societal factors, life experiences, or unique personality factors. But ultimately they are a manifestation of disorganised brain functioning. And it is in the 1.5-kg structure in the cranium that all the secrets of psychiatric conditions lie, not in one's outward behaviour, not in societal forces, not in genetic factors, not in our debates and symposia. This does not mean all these - social forces, behavioural modification, psychosocial restructuring, study of intrapsychic processes, philosophical insights - are to be discounted. They are to be considered supplementary to the primary

goal - studying and deciphering those brain processes that result in psychiatric malfunction.

Any waylaying of this agenda must be firmly resisted. Let me re-emphasise that does not make any of the other schools of psychiatry redundant. It only places them in perspective, and encourages them to play their role that much the better, with greater clarity and precision.

To take an example on the lighter side, like in a game of cricket. Everyone plays his or her specialist roles. Let the batsman do his job, the bowler his, and the wicket keeper his. Let not everyone believe he is an all rounder. And worse, let not everyone believe he is the captain!

The only real all rounder is a biology which takes the psychosocial in its fold. But the captain has to be, and is, biology. This realisation must be squarely faced and promptly accepted. For long have we resisted this simple truth. For long have we allowed the agenda to be waylaid by committed pressure groups.

The fear can be that this will reduce the importance of the other branches compared to the biological. If we are playing the political power game or wanting to maintain entrenched positions, such questions are legitimate. If we are in the pursuit of truth and want to work for the welfare of the branch as a whole, such questions become diversions. This is not a game of someone usurping someone's importance. It is a game of everyone playing true to his or her role so that synergistic effort results in breakthrough evidence for the branch.

A new perspective might first identify the basic underlying processes, for example, genetically determined endophenotypes, interacting effects of genes and environment during human brain development, and then biopsychosocial influences during maturation. Mapping each factor onto the phenomenology of adult mental disorders, regardless of diagnosis, might be quite clarifying (Book Forum, 2009 [2] ). And what Kandel and Squire talked of with regard to memory studies may be equally applicable to further progress in all brain studies, including psychiatric conditions: "A new alignment of neuroscience and psychological science and bridging cognitive neuroscience and molecular biology... is needed, and we will need to continue to search for new molecular and cellular approaches and use them in conjunction with systems neuroscience and psychological science" (Kandel and Squire, 2000 [10] ).

#### Cognitive dissonance

Medical students often experience significant cognitive dissonance as they attempt to understand psychiatry. After the security of lab values and medical tests that characterise much of medical practice, the ambiguity of seemingly subjectively obtained information characteristic of psychiatry often leaves students somewhat uncomfortable with how psychiatric diagnoses are made and understood. This is, at its root, an issue of epistemology: how do we know what we say we know? Psychiatry can seem fuzzy to medical students, and some would advise that it behoves psychiatry educators to explicitly address this discomfort but, at the same time, not apologise for the differences between psychiatry and the rest of medicine (Schlozman, 2009 [15] ).

I want to put this thought for your consideration. It is time psychiatrists and psychiatric research also experience the cognitive dissonance medical students experience as they attempt to study psychiatry, so that the ambiguity of subjective information does not replace the security of lab investigations and medical tests that mark the rest of medicine. Subjective information is of course valuable, and that is what is psychiatry's unique contribution to medicine, which others could learn from us with some benefit. It would make medicine more compassionate and the medical man more empathetic, so that he understands the art of healing even as he practices the science of procedures. But that does not absolve psychiatry from finding objective correlates of its subjective findings. For, we are also a science, as much as the best of psychiatric practice is an art. As is all medical practice at the highest level. The key is to make our branch become the best of science by finding objective biological correlates of psychopathology even as we improve upon and make our branch the best of art in listening to and healing patients.

The path towards making psychiatry a rigorous science is a much longer one to traverse than its artful arm. While the rest of medicine concentrated on becoming a science so much that it is in danger of losing the art of practice, psychiatry is in danger of having concentrated so much on the art (its psychoanalytic/humanistic/existential moorings are not the least responsible for this) that it lost out on its commitment to the rigours of science. It is time both worked to set the balance right: The rest of medicine to capture the art of practice while retaining its scientific objectivity, and psychiatry to firmly establish its moorings in scientific objectivity while further refining, and adding to its contributions to the art of healing. And our Socratic dialogue to tackle thorny issues of psychiatry

(Schlozman, 2009 [15] ) should not make a virtue out of a necessity - depending wholly on subjectivity in the absence of conclusive/confirmatory objectivity. This role needs to be abandoned by concerted efforts at developing precision, and remedying the cognitive dissonance that stands in the way of psychiatry becoming one with the mainstream of medicine.

## Role of different stakeholders

What is the role for the different stakeholders in this process?

While the experimental breakthroughs, both in psychiatric aetiology and therapeutics, will come mainly from biology and psychopharmacology, the supplementary and complementary breakthroughs will come from the psychosocial, the behavioural, and the cognitive; the support base will come from phenomenology, epidemiology, nosology and diagnostics; and the insights and leads can hopefully come from many fields, especially the psychosocial, the cognitive, the behavioural, the psychopharmacological, as well as the philosophical (in continuation with a thought expressed earlier in Singh, 2007 [19] : "While the experimental breakthroughs, both in aetiology and therapeutics, will come mainly from biology, the insights and leads can hopefully come from many other fields, especially the psychosocial and philosophical.")

Without a strong support base of nosology, epidemiology and diagnostics; the robust insights and leads of the psychosocial, behavioural, cognitive and philosophical; and supplementary breakthroughs from the psychosocial, the behavioural, and the cognitive, it is difficult to achieve seminal cutting-edge breakthroughs that biology must ultimately provide, in spite of any number of planned studies we may carry out, or chance/serendipitous discoveries that fall our way. It is an edifice which must stand on many contributing pillars. And what we call chance or serendipity is itself the result of a great churning of insights combined with leads based on a strong support of earlier evidential enquiry. To think of something springing out of nowhere, just like that - even though it appears to be so - is a non-scientific, and may I say, unscientific proposition. Even as there is every need to harvest that ability in achieving scientific breakthroughs when, and wherever, it occurs. Having said that, let it also be noted that serendipity, chance, the 'eureka' phenomena, etc., need as much scientific study to unravel their mystery as the rest.

What biologists plan, then, must be based on the combined cerebral insights of our branch, which includes all - the psychosocial, the behavioural, the cognitive, the epidemiological, the psychopharmacological and the philosophical - as well as the leads and insights that the present biologists pass on to the future ones. The task is for other branches to offer heuristic/translational leads/models to biology, and for biology to pick up such leads/models from the rest of the schools so as to result, firstly, in coevolution and, eventually, finding the precise biological cause for the different psychiatric disorders, whereby these disorders can legitimately qualify to be considered diseases. And psychiatry itself moves from an interim medical discipline to a full-fledged one (Singh and Singh, 2009 [21] ).

What tips the scale towards a psychiatric disorder?

It is in unravelling those critical processes in the brain that tip the scale towards psychiatric disorders that all our energies must now be marshalled. It is in knowing how those critical processes are set into motion by forces de novo, in utero, in the genes and their expression, by the environment's psychopathological social forces - stress in all its forms, discrimination of various types (caste, gender, race, stigma, etc.), inequality, injustice, lack of freedom, mass conflicts (war, terror attacks, class/caste, etc.), disasters (natural and man-made), religious/ideological fascism, peer pressure, poverty, deprivation, alienation, malnutrition, and more recently, hate/defamatory emails/sms'/mms', spamming, media trials, etc., - or social institutions like marriage, family, religion, work place, political governance, ethnicity, regionality, etc. Cross-cultural and cross-national studies focussing on distinctive attributes of psychopathological manifestation must combine with efforts to reveal commonalities that cut across nations and cultures, and how, ultimately, both impact measurable cerebral function (endophenotype), gene expression (genotype) and overt psychopathology (phenotype) (Schwartz, 2013 [17] ). The attempt to establish the phenotype-genotype-endophenotype axis of psychiatric disorders will be a significant step in its progression from 'disorder' to 'disease,' and, most importantly, in firmly establishing psychiatry as a medical discipline with precise biological correlates of its overt psychopathology.

Ultimately, we must decipher how the brain goes into malfunction when all these varied forces impinge on it. And which precise areas and molecular processes are involved in such manifestation. The way forces combine, the cauldron which simmers them - in other words, all the predisposing factors - and the final tipping point - in other

words, the precipitating factor/s.

It is not enough to claim our branch is different from the rest of medicine. We are different in our subject matter and in our therapeutic procedures. As are all branches of medicine from each other. But we cannot be different in our basic tenets - offering clear-cut diagnostic entities and therapies based on clear-cut diagnostic/investigative tests - in which the whole of medicine is united. That we do not have them at present cannot be justified on the basis of the unique characteristics of our branch. There is nothing virtuous about being imprecise.

Disorder, but also disease control, health and well-being

This of course does not mean that we concentrate only on disorder and psychopathology. We also need to focus energies on what is the critical stage when a condition remits and eventually abates, and what tips the scale towards health and well-being. And therefore, continuing to forward the therapeutic advances that the psychopharmacological, psychosocial and behavioural approaches offer, and will continue to actively pursue and offer, in the future, towards these goals. The precise neurobiological correlates of health, and whether that is approximated when a condition remits, or is stabilised, and also the psychobiological correlates of well-being (Cloninger, 2008 [7] ) need careful delineation. More studies on normality need to be forwarded too, so we know the goal to be achieved. The protective role of stable marriage/family ties, stable income, healthy nutrition, positive emotions, altruism, of self-transcendence (Cloninger, 2013 [8] ), prosocial behaviour, emotional homeostasis, of wisdom (Meeks and Jeste, 2009 [12] ), hobbies/pets, helping peers, proactive work place ethos, religious ties, community activities that promote well-being, and enlightened governance needs further promotion and active study.

Ultimately all measures to understand psychiatric disorder come to naught if they are not harnessed to the goal of their amelioration/prevention in psychiatric patients in particular, and control/removal of psychopathology in society in general. Let that primary focus never get obliterated. Equally important, modern medicine's efforts need to be now decisively directed towards prevention, cure, longevity and well-being (Singh, 2010 [20] ), and psychiatry must play its own important role here.

In all this lofty goal-setting, let it not be forgotten that all our research, our institutions, our very existence depends on the often nervous, expectant and sometimes unwilling patient, who sits with wringing hands and hopeful/diffident eyes outside our clinics and our OPDs, and fills up our wards and our hospitals. Anything that does not ultimately benefit him is of no consequence whatsoever.

Brain and mind

Therefore, while a particular psychiatric disorder must be clearly and categorically deciphered in brain function, in both its micro and macro forms, as must its immediate aetiopathology, its contributing aetiopathology must be equally well researched in the genetic, psychological and social forces that impinge on and make for the environment that affects and modifies these brain functions.

In other words, emphasis on the brain and its intimate neurological and molecular mechanisms, will not at all impinge on, or nullify, the importance of the 'mind,' wherein subtle and gross brain functions in the form of overt behaviour, thought and emotion will continue to be the focus of psychological, sociological, psychopharmacological, behavioural, cognitive and philosophical research in psychiatry.

Progress in brain research must move in tandem with progress in 'mind' research. Both can, and should, complement each other. Here we consider brain to be the structural correlate of the mind, and the mind to be the functional correlate of the brain (Singh and Singh, 2011 [22] ).

Biology of the brain cannot, and will not, supersede the legitimate domains of activities of other branches of psychiatry. None of them will ever become redundant, if they know the legitimate parameters of their domain of influence.

The time for resisting this realisation is past. No amount of vociferous voices of varied stakeholders, especially those who may face potential oblivion and may therefore resist change, must allow this agenda to be waylaid. (And do we not know how such people manage to stall change if they hold powerful positions or have impressive following?)

## Synergy to replace antagonism

It is in synergy that these supposedly antagonistic branches of psychiatry must engage themselves, to complement and nurture rather than confront and dismember (Singh, 2007 [19] ). They will do so only if and when they realise their true potential, and equally importantly, the legitimate parameters in which they can function, and the legitimate limitations that their approach imposes upon them.

The catch 22 situation can then be remedied. If we remember that we are actually an 11-member team (to go back to our earlier example of cricket), and who is the captain. And the players are ready to play to the best of their abilities knowing who is their leader. And the captain can get the best out of each of his players, even as he leads from the front by polishing his own act.

## Concluding Remarks

[See also [Figure 1]]{Figure 1}

There is the urgent need for greater precision and clarity in psychiatric diagnostics and investigative tests. Equally important is it to accept that the brain is where psychiatric psychopathology resides, although it manifests in overt behaviour, thought, mood, perception, insight and judgement. The need is for primary breakthroughs in the neurobiology of psychiatric disorders to be supplemented and complemented by secondary breakthroughs from the psychosocial, behavioural, psychopharmacological, and cognitive fields. Also needed is the support base of phenomenology, epidemiology, nosology and diagnostics, with insights and leads from many fields, especially the psychosocial, the behavioural, the psychopharmacological, the cognitive, as well as the philosophical.

All our energies must be marshalled in unravelling those critical processes in the brain that tip the scale towards psychiatric disorders. There is equal need to understand and study the psychobiological correlates of health, well-being and normality, and what tips the scale when a disorder remits, and what keeps a patient healthy. More studies in primary prevention need to be forwarded, even as we strengthen secondary and tertiary preventive procedures.

Emphasis on the brain and its intimate neurological and molecular mechanisms will not at all impinge on, or nullify, importance of the 'mind,' wherein subtle and gross brain functions will continue to be the focus of psychological, sociological, psychopharmacological, behavioural, cognitive and philosophical research in psychiatry.

## Take home message

Need for greater precision and clarity in psychiatric diagnostics and investigative tests. Primary breakthroughs will come from biology, with secondary breakthroughs, support base, insights and leads from other branches like phenomenology, epidemiology, nosology, diagnostics, and the psychosocial, behavioural, psychopharmacological, cognitive and philosophical approaches. "What constitutes psychiatric disease is the external behavioural manifestation of abnormality correlated with a pathophysiological process in the brain, reversible or irreversible... The aim of psychiatric research is to decipher all such correlates. Also needed is precision in diagnostic categories and developing foolproof objective methods to verify/justify them" (Singh and Singh, 2009 [21] ; II.9, II.10). As we do so, we will zero in on precise therapeutic regimen that optimises primary, secondary and tertiary prevention in psychiatry. And finally leads to health and well-being. Studies in well-being, health and normality are as important as studies in psychopathology. Brain studies will not make 'mind' studies redundant. Both need to, and will, complement and supplement each other.

## Conflict of interest

None declared.

## Declaration

This is my original, unpublished piece, not under consideration for publication elsewhere.



## Questions that this Paper Raises

How do we make psychiatric diagnosis more foolproof? How do we find precise diagnostic tests/tools for such diagnostic categories? How do we tackle the various stakeholders, especially those who may face potential oblivion and may therefore resist change, and manage to stall it if they hold powerful positions, or have impressive following? Will biology ultimately replace the psychological and the social schools? Is that the fear? Is it legitimate? What can be done to dispel it? What are the fundamental presuppositions of biology? Molecular or gross? Is it fundamentally opposed to the psychosocial? And vice versa? What is the tipping point when someone becomes sick? What is the tipping point when someone develops a psychiatric disorder? Who decides this? Is it doctor, patient, relatives, society, or law? Where do we look for this tipping point in psychiatry? Is it in the brain, the genes, or the environment? Which are the critical, and which the contributing, forces? Is it legitimate to distinguish between predisposing and precipitating factors? Are cure and primary prevention legitimate goals to aspire for, for medicine in general and for psychiatry in particular? Can normality be clearly defined? Can well-being be a legitimate goal?

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