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Blueprint for an Indian Nobel Laureate in Psychiatry*

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ABSTRACT

There are a number of spoofs and light-hearted writings in blogs, journalistic pieces and book form (even from former Nobel Laureates), which attempt at 'understanding' the secret of getting a Nobel. This is not one of them. It is more pedantic without necessarily being dry. It first analyses the meaning of the concept, 'the greatest benefit of mankind', which is the crux of the Nobel Will and the overarching requirement for a Nobel in Medicine. Further discussion in the paper is divided into 5 parts:

(1) General qualities for a Nobel: The need to be really bright is a given; what is necessary is to be sufficiently crazy about a research topic to make it an obsession; be ready to forgo many creature comforts for long stretches of time; and after all this, be ready to accept that the Nobel may never happen, yet continue to do a type of research solely because it is intrinsically worth doing.

(2) Nobel in Physiology or Medicine: Here, the key is to do fundamental/basic research to answer persistent, nagging, unanswered questions of medicine which others neglect because they are discomforting. Or, find treatments that change the whole manner a disease has been hitherto treated.

(3) Nobel in Psychiatry: There are many Nobels waiting to be won, provided: (a) The branch becomes more precise; (b) Science, quantitative study and biology remain its bedrock; and (c) There is an almost obsessive preoccupation with unravelling the mysteries of the brain. One has to choose wisely where to put in efforts, e.g., fields like fundamental

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research into the causes of psychiatric disorders, especially schizophrenia, depression, bipolar disorders. Or their definitive treatments. Or, work at the cellular or molecular level of the neuron and brain; or, the glandular or genetic level of the systems connected with psychiatric disorders; or, in brain radio imaging. If other, or allied, fields are chosen, to work with finding quantitative data and attempt to pinpoint their precise biological correlates.

(4) Indian Nobel in Medicine: There is first the need to give up the colonial mindset that everything trend-setting in science comes only from the West. As also, for Departmental Heads, to protect and nurture those with research excellence rather than the mediocre and the sycophants. For governments, to set up an autonomous Research Excellence Council to expressly and exclusively cater to promoting research excellence, with a sizeable fund to put this into practice.

All these four points are summarised as four rules.

(5) Indian Nobel in psychiatry: Practical suggestions are presented in the form of an 11 Point Action Plan based on 1-4 above.

Key Words: 4 Rules for a Nobel; 11 Point Action Plan for Indian Nobel in Psychiatry; Colonial mindset; Fundamental research; Greatest benefit of mankind; Indian Tradition; Indians with Nobel; Nobel in Medicine; Nobel in Psychiatry; Research excellence

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Introduction

What could possibly be the secret of getting the Nobel has understandably intrigued both lay writers and Nobel Laureates. Spoofs have been written in the form of blogs (Halling, undated;^[1] CNN.com 2006;^[7] Piepenbring 2014),^[20] including one by a Nobel (Esaki, 2001).^[9] Journalistic pieces have also dealt with it, quite a few tongue in cheek (Spoon, undated;^[28] Altman and Wade, 2011;^[3] BBC.com 2012).^[6] Even book reviews in journals have been published (Agre 2006^[1]) as also books by Nobels themselves (Watson 1968;^[31] Mullis 1998;^[15] Bishop 2003;^[5] Kandel 2006;^[13] Doherty 2006).^[8] Kary Mullis, who won the Nobel in Chemistry in 1993 for polymerase chain reaction (PCR), the PCR, wrote his Book in 1998^[15] titled *Dancing Naked in the Mindfield* whose cover shows him (guess it is him on the cover) prominently in swimming trunks holding a skiing apparatus, with the DNA double helix also there, but hardly noticed. Similarly, Peter Doherty's 2006,^[8] *The Beginner's guide to winning the Nobel Prize* has an impish child on the cover riding a tricycle.

They all make for enjoyable reading for they present the gossipy, amusing and whimsical side of science (Agre, 2006).^[1] Most to them try to make it light hearted reading, even as they stress important points, probably in an attempt to make it palatable. The blogs are the best in this, as are the journalistic pieces. One

of the latter variety I found most enjoyable was one which, after carrying out a detailed analysis, found that the secret formula of becoming a Nobel Laureate was to be 61 years old + get born in spring + be male + be an American + be from Harvard University + be married + not wearing glasses + shave regularly (BBC.com 2012).^[6]

This is not a further attempt in that direction.

Alfred Nobel and his Will

A brief outline of the originator of the Nobel and his Will would be appropriate before I come to the topic proper. It will afford a glimpse into his personality, what his Will stresses and what the Nobel stands for, and, therefore, what motivates the Nobel Committee to select the one from many potentially worthy recipients.

Alfred Nobel, in whose name this prize has been instituted, was an interesting and complex personality. He was a bachelor with literary interests, had great energy, ascetic habits, proneness to depressive bouts; he was a pacifist with a pessimistic outlook towards mankind (Frängsmyr, 1966):^[10]

Nobel's complex personality puzzled his contemporaries. Although his business interests required him to travel almost constantly, he remained a lonely recluse who was prone to fits of depression. He led a retired and simple life and was a man of ascetic habits, yet he could be a courteous dinner host, a good listener, and a man of incisive wit. He never married, and apparently preferred the joys of inventing to those of romantic attachment. He had an abiding interest in literature and wrote plays, novels, and poems, almost all of which remained unpublished. He had amazing energy and found it difficult to relax after intense bouts of work. Among his contemporaries, he had the reputation of a liberal or even a socialist, but he actually distrusted democracy, opposed suffrage for women, and maintained an attitude of benign paternalism towards his many employees. Though Nobel was essentially a pacifist and hoped that the destructive powers of his inventions would help bring an end to war, his view of mankind and nations was pessimistic.

He was, further, a benevolent misanthrope (a misanthrope is one who hates or mistrusts humankind), a loner with 'more than one screw loose in his head', but at the same time 'a super idealist':

Alfred Nobel also viewed himself with detachment or shall we say philosophical skepticism. He often described himself as a loner, hermit, melancholic or misanthrope. He once wrote: 'I am a misanthrope and yet utterly benevolent, have more than one screw loose yet I am a super-idealist who digests philosophy more efficiently than food'. Even from this description, it is clear that this

misanthrope was also a philanthropist, or what Nobel called a super-idealist. It was the idealist in him that drove Nobel to bequeath his fortune to those who had benefited humanity through science, literature and efforts to promote peace (Frängsmyr, 1966).^[10]

His wide-ranging study in philosophy and interest in poetry added to his idealistic and hermetic temperament, which is very well-reflected in his Will. It is worthwhile noting here the contents of his will connected with the Nobel Prize:

*The whole of my remaining realizable estate shall be dealt with in the following way: the capital, invested in safe securities by my executors, shall constitute a fund, the interest on which shall be annually distributed in the form of prizes to those who, during the preceding year, shall have conferred **the greatest benefit to mankind**. The said interest shall be divided into five equal parts, which shall be apportioned as follows: one part to the person who shall have made the most important discovery or invention within the field of physics; one part to the person who shall have made the most important chemical discovery or improvement; one part to the person who shall have made the most important discovery within the domain of physiology or medicine; one part to the person who shall have produced in the field of literature the most outstanding work in an ideal direction; and one part to the person who shall have done the most or the best work for fraternity between nations, for the abolition or reduction of standing armies and for the holding and promotion of peace congresses. The prizes for physics and chemistry shall be awarded by the Swedish Academy of Sciences; that for physiological or medical work by the Caroline Institute in Stockholm; that for literature by the Academy in Stockholm, and that for champions of peace by a committee of five persons to be elected by the Norwegian Storting. It is my express wish that in awarding the prizes no consideration whatever shall be given to the nationality of the candidates, but that the most worthy shall receive the prize, whether he be a Scandinavian or not (Nobelprize.org. undated;^[16] emphasis added).*

The rest of what is written in the will are, well, details, interesting no doubt, but *obiter dicta* here. However, the concept of '*the greatest benefit of mankind*' must be noted, and I will come back to that in a short while.

Indians, and Psychiatrists, with Nobel

Of 9 Nobel prizes connected with India, only 5 have gone to Indian citizens: Rabindranath Tagore in 1913 for literature, C.V Raman in 1930 for physics, Mother Teresa in 1979 for peace, Amartya Sen in 1998 for economic sciences, and recently, Kailash Satyarthi in 2014 for Peace. One can debatably add R.K. Pachauri, who was Chair of the Intergovernmental Panel on Climate Change, which got the Peace prize in 2007. If you think of Nobel Laureates of Indian origin or settlement, you could add Subrahmanyam Chandrasekhar for Physics in 1983,

Har Gobind Khorana for Physiology or Medicine in 1968 (You could debatably also add V.S. Naipaul's Nobel for Literature in 2001, since his forefathers came from India, though I wonder how legitimate would this really be. For then, all American Nobels would belong to some other country too).

No Indian has ever got a Nobel in physiology or medicine. Only Har Gobind Khorana got it in 1968, but, as noted, he was an American of Indian origin. Needless to say, no Indian from the field of psychiatry has ever got a Nobel.

Now let us see how many psychiatrists or those in psychiatry-allied branches, have got the Nobel:

1. Julius Wagner-Jauregg an Austrian psychiatrist won the Nobel Prize in Physiology or Medicine in 1927. His Nobel award was for his discovery of the therapeutic value of malaria inoculation in the treatment of dementia paralytica. The technique was known as malariotherapy; it was dangerous, killing about 15% of patients, and so no longer in use.
2. Egas Moniz was a Portuguese neurologist and the developer of cerebral angiography. He is regarded as one of the founders of modern psychosurgery. He devised leucotomy and the procedure enjoyed a brief vogue; in 1949 he received the Nobel Prize, 'for his discovery of the therapeutic value of leucotomy in certain psychoses', although the procedure fell into rapid disuse.
3. Erik Kandel, an American neuropsychiatrist, was a recipient of the 2000 Nobel Prize in Physiology or Medicine for his research on the physiological basis of memory storage in neurons, and for finding that changes of synaptic function are central for learning and memory. He shared the prize with Arvid Carlsson and Paul Greengard, all three getting it 'for their discoveries concerning signal transduction in the nervous system' (Press Release, 2000^[21]) (also see 4, 5 below).
4. Arvid Carlsson, a Swedish pharmacologist, was awarded for his work with the neurotransmitter dopamine and its effects in Parkinson's disease, and for the development of L-Dopa. His further work on dopamine demonstrated the mode of action of drugs in schizophrenia (Press Release, 2000).^[21]
5. Paul Greengard, an American neurophysiologist best-known for his work on the molecular and cellular function of neurons, was awarded the Nobel for discoveries about how dopamine and a number of other neurotransmitters exerted their action in the nervous system (Press Release, 2000).^[21]
- 6.7.8. John O'Keefe, a cognitive neuroscientist based in London, shared the 2014 Nobel Prize in Physiology or Medicine with the wife-husband team of May-Britt Moser and Edvard I. Moser, both Norwegian neuroscientists 'for their discoveries of cells that constitute a positioning system in the brain' (Press Release, 2014),^[22] or, to put it simply, the brain's inner GPS.

Nine Nobels, having a near or distant connection with India. Eight Nobels, having a near or distant connection with psychiatry. It is heartening that the number has gone up by 1 for India and 3 for psychiatry-allied branches in 2014. Is it not intriguing, however, that the number of Nobels that India has produced as an area and psychiatry and allied branches have produced as a discipline is much the same? And if we were to see how many mainstream psychiatrists have got the Nobel, it is just two: Wagner-Jauregg way back in 1927, and Kandel in 2000; and if we were to see how many Indian citizens working from India have got the Nobel in Medicine, it is none. *A dismal record.* If someone were to ask me what is the one thing which needs to change to have more Nobel Laureates in India as a country and in psychiatry as a discipline, I would answer: For India, it is change of mindset, for psychiatry, it is precision.

The only reason why I have written this section is to draw attention to the scarcity of Nobels in Psychiatry as a discipline and from India as a country, as also to draw attention to a blank from India in Medicine or Psychiatry.

Background of the Topic

Sometime back, 2007 to be precise, there was a paper that there would be an Indian Nobel Laureate in medicine, and possibly in psychiatry, by 2020 (Singh, 2007).^[24] This was reiterated in a recent revision of that article (Singh, 2014).^[25] This may arouse some good-humoured smirks and eye-rolling disbelief amongst the more cerebral, and some others may wish to dismiss such soothsaying as non-science, if not nonsense. However, I wish to address here those who feel there can possibly be some substance in this, or at least are ready to consider what it means, and involves.

Let us, for the time being, not concentrate on the timeline, because that can lead the whole discussion along a tangent. Let us first concentrate on the following five points below that attempt to pinpoint what is involved in producing:

1. A Nobel laureate in the sciences in general
2. A Nobel laureate in medicine in particular
3. A Noble laureate in psychiatry: What is the challenge and the opportunity with so less a number in the branch?
4. A Nobel in physiology/medicine from India: What do we need to do to produce one, what type and level of research excellence are needed? What needs to change? What role each one of us can play in both these?
5. A Nobel from India in psychiatry: What do we need to do, short- and long-term? What do we need to avoid? What role each one of us will play here? Can we set up an Action Plan?

A Nobel laureate: Greatest benefit of mankind

Let me continue from where I left with regard to what I consider the most important criterion in the Will of Alfred Nobel: 'Greatest benefit on mankind'. This seems a fit enough topic to write another spoof over because it seems such an amorphous concept; but for those who wish to go beyond and understand it, this is the essence of the Nobel. *The greatest benefit of mankind*. Just pause a bit to absorb what this means:

The greatest benefit of mankind.

Firstly, it means if you are very busy looking after your benefit, you may not reach that goal at all. The higher goal must somehow be a motivating factor in your research pursuit, both in the selection of topic and the integrity of approach. Somewhere deep within it also must be a strong motivating factor in your personality and makeup. But even before all this, you must make a realistic evaluation of yourself and know that you are bright. Really bright. And have the ability to wait for rewards to happen, and not adopt dubious means or short cuts to get them.

Secondly, it involves a certain asceticism wherein you forgo a number of mundane pleasures, creature comforts, pleasures of power and pelf as you work really long hours at your research. And work with single-minded devotion to a well-identified cause, unmindful of distractions and obstacles. A certain persistence bordering on obstinacy, a crazy persistence (*Junoon*) is one of the very first must-haves.

In anyone who is so aspired and persistent, the continuous question that he must ask himself is:

1. Is his/her work of nature that can bring about the *benefit* of mankind, not necessarily his own?
2. Is his work such that it has the potential to bring about the *greatest* benefit of mankind either by itself or as more work continues in that direction?

These are the two prime considerations for any researcher to first ask himself/herself before he/she launches into the nature of work done. Let us understand what this involves.

Benefit of mankind

Therefore, what can cause destruction of mankind, even if the most sophisticated, cannot get a Nobel. Chemical warfare weapons, producers of landmines, different types of weapons of warfare, atomic and other bombs, are out. The basic research that spawned this may get it, but the maker/s of such technology cannot.

Greatest benefit of mankind

Which means, those that cause minimal benefit and greater destruction cannot qualify: For example, non-biodegradable plastics, non-organic fertilizers/pesticides etc., (Note that DDT got it, but as a method to get rid of arthropods and therefore benefit mankind, not for its hazardous side-effects which got known only later). The ones which qualify are: (1) Those which cause the greatest benefit of mankind by themselves, e.g., polio vaccine; or (2) as more work continues in that direction, e.g., tubercle bacillus, *heliobacter pylori* etc., even Einstein's work.

A certain streak of asceticism helps. Even as you do all this, you must be ready to accept that you may never get the Nobel not because you do not deserve it, but someone, in the judgement of peers, deserves it better. And yet do things because they are worth doing, not because you may win a prize. The best summary of this position is the verse from the Bhagwad Gita:

*Karmanyevadhikaraste ma phaleshu kadachana
Ma karmaphalaheturbhurma te sangostvakarmani* (BG, Ch. 2, Verse 47^[4]).

(You have the right to action alone but never to its fruits. Let not the fruits of action be your motive, nor should there be attachment to inaction).

Most Nobel winners express surprise and disbelief when they receive the prized telephone call in a famous foreign accent. That is because they do work unmindful of the reward. In fact, they probably get it because they are so focused on their work that it leaves them no time to think of this, or other, rewards.

Coming to further nuances of the asceticism I promote is a couplet of a ghazal by the Urdu Poet Dalip Tahir (Tahir):^[29]

*Dastoor ibadat ka duniya se niralā ho
Ek haanth mein mala ho, ek haanth mein pyala ho*

(The principle of worship I expound is different from that of the world. In one hand, I hold the rosary, in the other a glass of wine).

In other words, while the best of work is needed, equally important is the greatest of recreation. To this, one must add humility and the ability of not taking oneself too seriously. Nobel Laureate Mullis (1998),^[15] who won the Nobel for Chemistry in 1993 for his 'invention' of PCR, the PCR, adds that dimension when he ends his last essay on environmental issues ('The Age of Chicken Little' p209) in his book, *Dancing naked in the mind field* thus:

The appropriate demeanor for a human is to feel lucky that he is alive and to humble himself in the face of the immensity of things and have a beer. Relax. Welcome to Earth. It is a little confusing at first. That's why you have to come back over and over again before you can learn to really enjoy yourself.

The sky is not falling (Mullis, 1998).^[15]

Let me, then, go ahead and summarise this section as below:

Rule No 1: Know if you are really bright. Not an inflated but a realistic assessment. Be crazy about something sufficiently enough to give up all else for it if need be. And be satisfied with less creature comforts, being ready to forgo them for long stretches of time. Finally, be ready to accept that you may not get the prize, but do a research solely because it is worth doing. And enjoy it all the way.

A Nobel laureate in medicine

It is pertinent to remember that most Nobel prizes have gone to pure, not applied research. And most prizes have gone to discoveries, not inventions. In other words, if you are more interested in applied or inventive research, unless it is epoch-making, your chances reduce. A careful perusal of information here (All Nobel Laureates in Physiology or Medicine, undated^[2]) is an eye-opener and a must for anyone who wants to plot his further journey towards a Nobel.

What is equally important is that discoveries that answer basic unanswered questions that then can lead to relevant technological advance and improvement in quality-of-life stand the best of chances. For example, discovery of microbes, mechanism of cellular function, cell organelle and nuclear functioning, biochemical reactions at the cellular-intercellular and intracellular level – these are most popular reasons for a Nobel to be awarded.

In other words, if you aspire for a Nobel or want to create such an environment in your institution, you must promote basic/pure research into unanswered questions, not just applied research. Clinical trials of the highest order with the most citations will not get you the prize. But original research into the cellular mechanism of cancerous cells will. And it not enough to reiterate known findings. What this means is that the best of teaching or the best review article with the greatest of citations, cannot get you the prize. But an original finding like G protein can (given in 1994 to Alfred G. Gilman and Martin Rodbell. Please do not connect it to discovery of the 'G' spot. Although that reward, according to some, may be more worthy than the Nobel!).

Talking of clinical trials, those that establish a new therapy or make great advances in current therapy, can. I am talking of the usual clinical trials of

numerous drugs etc., that engages so much of research even today, mainly due to industry's influence.

The thumb rule, then, is: *Engage in basic research and find answers to hitherto unanswered questions.*

Secondly, theory not supported with quantitative data cannot get a Nobel. The great Freud, although nominated 32 times because of his profound theories, could not get a Nobel — not that he cared — because his theories were not supported by scientifically validated data and his 'work was of no proven scientific value' (Nominations for the Nobel Prize in Physiology or Medicine, undated^[18]) What this means is that if his theories are verified and proven today, the individual who does so surely will. Freud also would have then qualified but would not get it, because the Nobel is not awarded posthumously. In this, there is a great challenge for those psychoanalytically inclined to arouse themselves from their 'dogmatic slumbers'.

If inventions and procedures fascinate you, look to establish those which have the potential to benefit the whole of mankind, even if the future may prove it was a false lead — e.g., the Nobel to Moniz for 'prefrontal leucotomy' or Wagner-Jauregg for malariotherapy. Why was it given is because it had the potential, since proven false, of transforming the lives of many who suffered from intractable psychoses and dementia paralytica, respectively.

The essence is this: any discovery/invention that has the potential to solve nagging problems of medicine has the potential of winning the Nobel. Let us take examples to clarify what this means. Anyone who finds out what causes *the* switch that converts normal cells into cancer cells, anyone who find its contributory causes, is a good candidate for the Nobel. Anyone who finds out similarly about what causes the switch from normal to disease, and similarly a switch back to normal, its cellular and organal/glandular/immune/endocrine and cerebral mechanisms is similarly a strong candidate. Anyone who finds a definitive cause for a certain disease and/or its treatment is a similar candidate. Witness, for example, the Nobel for discovering *Helicobacter pylori's* contribution to peptic ulcer (Nobel given in 2005 to Barry J. Marshall and J. Robin Warren), and the later resultant treatment undergo a profound shift thereby. Any discovery that has such dramatic effects in the direction of mankind's welfare immediately becomes a likely recipient, irrespective of the affiliation, nationality or age of the researcher. Also worth noting here is that it is only individuals who get the prize, except for the Peace prize, which can go to institutions. Of course, the benefits to an institution, which has Nobel Laureates, are tremendous. That is also the reason why Universities like Harvard, Columbia, Cambridge, Chicago, MIT, University of California at Berkeley, Oxford, Stanford, Yale etc., are so respected, apart from the standards of their teaching and the environs/heads that promote

excellence (interesting data on this is at Nobel Laureates and Research Affiliations, undated).^[17]

Rule No 2: Do basic research trying to answer unanswered nagging questions in medicine that others neglect because they are discomforting. Or, find treatments that change the whole manner a disease has been hitherto treated.

A Nobel laureate in psychiatry

From the above, it is easy to now know why there have been so few Nobel Laureates in psychiatry. Firstly, because our branch is at an interim stage of development as a science (Singh and Singh, 2009).^[27] We are still searching for precise biological correlates for our disorders, we still do not have a single biomarker for any of our conditions, we do not have precise lab tests for our disorders (Singh, 2013).^[26] We are struggling with establishing precise diagnostic and treatment criteria.

If this is a cause for concern, it is also a great opportunity for future Nobels in psychiatry.

What does this mean? Anyone who finds precise biological correlates for our disorders, who finds their biomarkers or their precise lab tests, is a prime candidate for a Nobel in psychiatry. In other words, if you aspire for one, you know the field you got to work in.

If you find *the* cause for schizophrenia, a Nobel is assured. Similarly, for Bipolar disorders and the rest. Now you know why so many centres of research excellence all over the world are working in that direction. Hopefully not only for the Nobel, but also why not if it comes their way while carrying out the welfare of mankind?

If you are more applied science oriented, you can look at establishing definitive treatments for definite psychiatric disorders. If you find *the* treatment for schizophrenia or bipolar disorder etc., your Nobel is assured.

The Nobel laureates till now in the field of psychiatry, and allied fields of neurosciences, have worked at a more modest, though significant, level. Kandel got it not for his other work, but for work in learning in the giant snail *Aplysia*. Arvid Carlsson for work on dopamine, L-Dopa and drug action in schizophrenia, Paul Greengard for dopamine and other neurotransmitters' action in the nervous system, John O'Keefe, May-Britt Moser, Edvard I. Moser recently for cells that constitute a positioning system in the brain, Moniz earlier for the false lead of prefrontal leucotomy. What must be noted is all these are for either cellular/molecular work on the neuron/synapse or for work on the brain.

What, however, remains a cause for concern is that a field like psychiatry, which has so many worthwhile brains with so much outpouring of theories and research, just has had a couple of Nobel Laureates.

Why?

Because, as a field, we have been more obsessed with theorizing. With justifying our imprecisions in the name of complexity of the human psyche and condition. With questioning our connections with the mainstream of medicine, and even at times with science itself. With numerous forays, whether into psychoanalysis or behaviourism or humanism, which have either neglected quantitative data or biology. The problem is not with the forays; the problem is with neglect of data and biology. There is no respite from these two for our branch to make any significant progress as a scientific and medical discipline. Or to get more Nobels.

If you are interested, therefore, know that a number of Nobels are waiting to be won in psychiatry. Do original research alone, and in fields that impact numerous individuals where treatment is unsatisfactory and the psychosocial morbidity is enormous, e.g., schizophrenia, depression, psychosomatic disorders etc.; and remain engaged with only finding answers to the nagging but unanswered questions in the field. At the cellular, molecular, or radio imaging level of the brain, the neuron and the nervous system.

This does not leave out the rest, of course. Unanswered questions of other psychiatric disorders, and psychiatry-related fields like the neurobiology of well-being, longevity, creativity etc., are also strong candidates.

Rule no 3: Choose wisely where to put your efforts. Choose fields like fundamental research into the causes of psychiatric disorders especially schizophrenia, depression, bipolar disorders. Or their definitive treatments. Or work at the cellular or molecular level of the neuron and the brain, or in brain radio imaging. If you choose other allied fields, work with finding quantitative data and to pinpoint their precise biological correlates.

Indian Nobel laureate in medicine

A useful primer here is a write-up by Mashelkar (2006).^[14] What do we need to do in India to produce a Nobel Laureate, what type and level of research excellence are needed? Having understood what are the opportunities and basic requirements, we can immediately realize that it is difficult but not impossible for anyone having requisite capability to work in that direction. How do we produce an Indian Noble laureate in medicine and/or psychiatry?

Some attitudinal changes

Banish colonial mindset

We need to look into certain concerns that apply to India. Some basic changes are needed. Firstly, belief in the Indian that he can get it. This will involve shrugging off the colonial mentality ingrained by centuries of foreign rule that has made Indians believe that anything trend-setting in science must come from the West. It has till now, but that can change, if we firstly believe we can do it. That will involve a major preoccupation with original rather than replicative research, the latter, sadly, being the norm today. But even before that it will involve a greater emphasis on original rather than repetitive learning in schools and colleges. And simultaneously, of not basking in old glories, of our great traditions in spirituality, yoga, ayurveda etc., but finding their modern confirmation by experimentation and biology. Yoga research, in particular, has a great potential to win a Nobel, provided its precise biological correlates are discovered, and a standardised precise treatment schedule is formulated for different medical conditions, especially lifestyle diseases. And the same applies to Ayurveda research.

Reinterpret theories of Maya, karma, sanyasa, etc

This will involve giving up an excessive preoccupation with life-negating interpretations of concepts such as *Maya*, *karma* theory and *sanyasa*. All these are *explanatory* models for the misery of the human condition, not *justifications* for the continuation of that misery. They became convenient means to survive in hostile conditions of foreign rule. Like we take cover by taking shelter during a torrential rain. When hostile conditions stop, it is not appropriate to remain cooped up in a shelter.

These concepts have a life promoting interpretation, which is ill understood, and which needs to be furthered. *Maya* means not being enamoured of earthly pleasures because they are ephemeral, and there are larger connections to be established. Which is what a good Nobel aspirant has to do when he forgoes mundane pleasures for larger goals. *Karma* talks of action, and that our actions determine our condition: our past actions determine our present and our present action will determine our future condition. It is a precise affirmation of what an individual needs to do. There is never an emphasis on giving up *karma* or action. The concept of *karmaphalatyaga* (also interpreted as *niskama karma*) is not *karma tyaga*, but *karmaphala tyaga*. That is, not abandoning *karma* or action, but its fruits. In other words, performing actions for the sake of actions, not for fruits you may potentially enjoy. The researcher must work to do quality research, not because he desires the pleasures that would follow after getting a Nobel. In fact, the true *karmayogi* abandons the fruits, in other words, gives it away, since he wants to remain true only to selfless action. Perfect attitude for a potential Nobel. And *sanyasa* or renunciation, is not for the householder. It is for a select few who decide to abandon mundane preoccupations to lead a wholly spiritual life. While a *sanyasi* attitude is one that makes one search

for profound truths, not tempted by mundane considerations. Even while not being a *sanyasi*, one can have a *sanyasi's* attitude towards life. Again, perfect attitude for a potential Nobel (Do not, however, forget the asceticism I talked of earlier while quoting the Ghazal and our friend Mullis).

This positive interpretation of Indian traditional thought is imperative.

Promote research excellence

Administrators

Working towards a Nobel in Medicine from India will also involve a strenuous effort to promote research excellence and *only* research excellence. Administrators may or may be excellent researchers, but they must be trained to recognize and promote research excellence where they find it, and protect and nurture those who have such abilities. For such need to be 'protected' and 'nurtured'. Protected from the mediocre who may harass them, nurtured so they have the minimum of administrative and teaching work and get optimum facilities for sophisticated research, including grants, apparatus, investigative techniques. It would be ridiculous to expect original research in biology of neuropsychiatric conditions if functional magnetic resonance imaging or it latest upgrade is not available. Or the researcher is not allowed to apply for necessary grants. Or is bogged down by so much teaching and other departmental work that he is too drained out to concentrate on any research.

Government

Equally important is for the government and other grant sanctioning authorities to lay down clear-cut guidelines for promoting research excellence, on the lines of, for example, UK's Research Excellence Framework 2014 (REF 2014).^[23] The UGC does grant a number of major and minor research grants that allow scholars to take leave and work unhindered on research, which is commendable (University Grants Commission).^[30] But there is still no Indian Body that concentrates purely on Research Excellence. This needs to be set up immediately.

One can understand India is still grappling with problems of communicable diseases, supplying clean water, food, combating illiteracy, social discrimination, reducing poverty, etc. All this is necessary, of course. But that does not mean *all efforts* need to be directed *only* there. The need to promote excellence is equally important, and in that to promote excellence in research, not just to stem brain drain, but as *the* way forward. And never take satisfaction in some token grants and appeasing speeches that bureaucracy makes from time to time. It needs a firm blueprint implemented by an autonomous body headed by the best in the field.

The answers to what needs to change, what role each one of us can play in both these, is clear. For Indians as a whole, change of mindset; for Administrative

Heads and Heads of Departments, promoting research excellence alone. For governments, giving priority to promoting research excellence by concrete steps.

What role each one of us can play in our Departments? If you believe you are one such, know the task cut out for you. If you know someone who has this potential, counsel and promote him to the best of your ability, knowing that at times such individuals can be difficult to manage. Give them the space, time, funds and facilities to come out with the best.

Rule No 4: For Indians, give up the colonial mindset that everything trend-setting in science comes only from the West. And life-negating interpretations of concepts like maya, karma, and sanyasa. For departmental heads, to protect and nurture those with research excellence. For governments, to set up an autonomous Research Excellence Councils to expressly and exclusively cater to promoting research excellence alone, with a sizeable fund to put this into practice.

Indian Nobel in psychiatry: 11-point action plan

For the would-be Nobel aspirant from Indian psychiatry, the task ahead can be put in the form of an 11-point action plan, to be put into practice after accepting the above 4 rules.

1. *Decide early, do sustained individual but collaborative work:* Remember only individuals get the Nobel. So you are most entitled. Not your Institution, not your Head. They benefit, but you get (As an aside, we may note that Heads often benefit from the research work of their juniors. This has happened with the Nobel as well. Some of you will recollect the example of Banting and McLeod, Noble laureates for discovery of Insulin. Best, Banting's junior, was not considered. Banting was so incensed with the Nobel Committee for neglecting Best that he shared half his money with him. One more reason for Heads to promote research excellence! Who knows you may get it by merely being a good facilitator! Be sure to be magnanimous enough to share the prize-money, though!! Well??). Of course, even though individuals get the Nobel, do not forget to collaborate with co-researchers, for scientific research is collaborative work. But decide early which field you will work in and do not compromise with it under any circumstances, except of course when you believe you must move on to another. All this involves highly individual decisions and individualised nature of work though it is also collaborative.
2. *Discourage life-negating principles:* Quickly get rid of life-negating attitudes that are ingrained in the Indian mind-set. If you believe how do we get rid of deeply ingrained attitudes, remember brain plasticity. And remember what appears life-negating is actually life-sustaining if properly interpreted. Do that interpretation and move on.
3. *Quality enviroins:* Work in quality enviroins. Choose your department wisely. The Head and traditions of a department matter a lot. Be where research excellence is *in the air* as though, you can sniff it. If patriotic considerations are important,

and I believe they are, search for one such in India. And just try and move in there, regardless of geography and consequent lifestyle modifications. If such patriotic considerations are not important, or you can convince yourself that they are not, just try and move to one of the best institutions abroad that nurture such, and that 'let alone' researchers to pursue their work.

4. *Matrimony*: Be careful whom you marry or have as a life partner. If the person is excessively dependent, nagging, demanding of time and money, high maintenance, and most important, has dislike for research type of work and long hours at non-high remunerative activity, that partner may be a big obstacle.
5. *Head, heart and challenge*: Pick up a field where the greatest challenge exists. And where your head and heart is. If you are not convinced about the need for greater work on schizophrenia because you feel it has no future, no use forcing yourself to work there (Head). If you just do not like working with schizophrenic patients although you do not mind it, it's also no use (Heart). Remember these are long-term, almost life long, commitments. And while picking up a field, do not neglect 'the greatest benefit of mankind' clause.
6. *Long hours*: Be prepared for long hours of solitary work, and interaction with colleagues in the field. *And often with only those in the field*. If that exhausts or irritates you, or arouses insecurities, better get rid of such attitudes as soon as possible.
7. *Unanswered questions, fundamental research*: Do research that tries to answer questions that others neglect or others take for granted will never be answered, at least in their lifetime. The courage and ability to ask basic and fundamental questions is the first need. The second is to go forth and find the answers. The courage to chart the uncharted and the conviction that it is worthwhile is an essential attribute. Work at the neuronal or brain or nervous system level - cellular, molecular, radio imaging, genetic - whichever motivates you.
8. *Science, science, science*: Never doubt the value of scientific research and its tools. It may at times prove inadequate, and be imprecise; but it is not basically incapable of studying phenomena howsoever intricate, complex or 'metaphysical' they may seem, or others may claim, e.g., mysteries of the 'mind' and complexities of 'mind' functioning. All such entities will yield knowledge to the persistent seeker, provided he is earnest enough and competent with his scientific methodology. This conviction can never be abandoned.
9. *Recognised grants*: Seek and apply for research grants from recognised agencies. Research supporting government bodies, Research Foundations and Trusts which promote unhindered research excellence. Funds that come with a 'tag' may compromise the quality of your research and are best kept away from.
10. *Personal sacrifices*: Be ready for Vitamin D deficiency due to lack of sun

exposure, for diabetes or hypertension due to lack of exercise and stress from non-recognition. All these need not happen of course *if* a few precautions are taken. Remember the asceticism of the Couplet and Mullis.

11. *Personal sacrifices continued*: Be prepared for jests and jeers from colleagues, and a divorce or two from a spouse who demands a better lifestyle and your time and attention. All this can happen *in spite* of the best of precautions you take.

Is it worth it, then? You decide. If you wish to leave your footprints on 'the sands of time', the decision is easy.

In Closing

If even one of you gets charged to start this essentially lonely journey, the purpose of this talk will have been met. If one amongst you gets the Nobel, I will be there to applaud you from whatever world I may be in, this or the hereafter, provided of course the senses and the limbs are intact. And if one amongst you gets it and declines it, like Sartre did, for he believed that no individual should be converted into an institution (Holt, 2003;^[12] Ostrling, 1964),^[19] I will bow my head in honour, and feel blessed to know that one such indeed exists even in this grossly narcissistic and self-propagating society.

I thank you, ladies and gentlemen.

Concluding Remarks [Figure 1: Flowchart of the Paper]

This paper discussed five points: What is needed to be (1) A Noble Laureate; (2) A Nobel Laureate in Medicine; (3) A Nobel Laureate in Psychiatry; (4) A Nobel Laureate in Physiology/Medicine from India; and finally (5) A Nobel Laureate from India in psychiatry. It is summarised in the form of 4 Rules and an 11-point action plan:

1. To have a Nobel in Science, Rule No 1: Know if you are really bright. Not an inflated but a realistic assessment. Be crazy about something sufficiently enough to give up all else for it if need be. And be satisfied with less creature comforts, being ready to forgo them for long stretches of time. Finally, be ready to accept that you may not get the prize, but do a research solely because it is worth doing. And enjoy it all the way.
2. To have a Nobel in Physiology or Medicine, Rule No 2: Do basic research trying to answer unanswered nagging questions in medicine that others neglect because they are discomfoting. Or, find treatments that change the whole manner a disease has been hitherto treated.
3. To have a Nobel in Psychiatry, Rule no 3: Choose wisely where to put your efforts. Choose fields like fundamental research into the causes of psychiatric

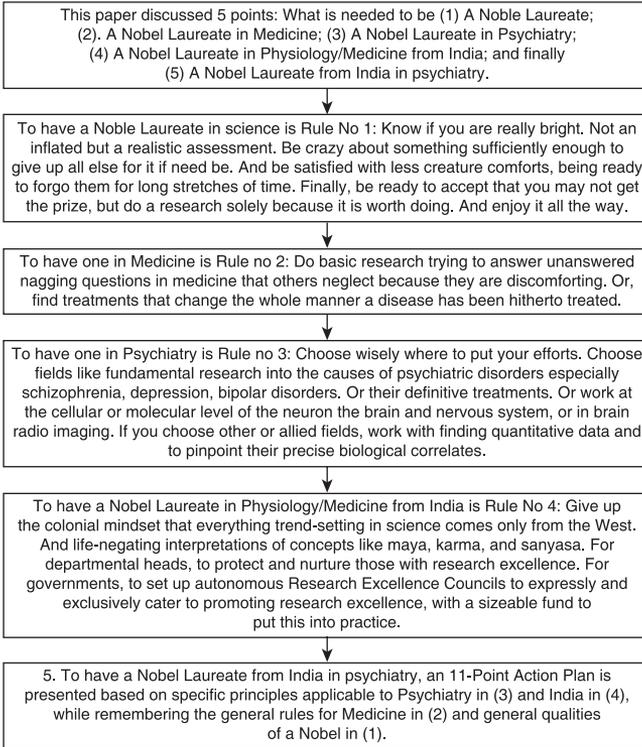


Figure 1: Flowchart of the paper

disorders especially schizophrenia, depression, bipolar disorders. Or their definitive treatments. Or work at the cellular or molecular level of the neuron and the brain, or in brain radio imaging. If you choose other allied fields, work with finding quantitative data and to pinpoint their precise biological correlates.

4. To have a Nobel in Physiology or Medicine from India, Rule No 4: For Indians, to give up the colonial mindset that everything trend-setting in science comes only from the West. And life-negating interpretations of concepts like *maya*, *karma*, and *sanyasa*. For departmental heads, to protect and nurture those with research excellence. For governments, to set up autonomous Research Excellence Councils to expressly and exclusively cater to promoting research excellence alone, with a sizeable fund to put this into practice.
5. To have a Nobel Laureate from India in psychiatry, an 11 Point Action Plan is presented based on specific principles applicable to Psychiatry from (3) and India (4), while remembering the general rules for Medicine in (2) and general qualities of a Nobel in (1).

Take Home Message

1. Make a realistic assessment whether you are really bright and also that you can forgo creature comforts for long stretches if need be. Also, understand what the greatest benefit of mankind means, and be ready to work for it, even if you never get the Nobel.
2. Pick up persistent nagging unanswered questions of science/medicine that others neglect. Work in quality environs, not overawed nor shadowing other Nobels.
3. Number of Nobels can be won in Psychiatry if basic research at the cellular, molecular, neuronal, glandular, genetic and radio imaging levels is carried out in psychiatric disorders and therapies. Never neglect quantitative data and biology.
4. For an Indian Noble in medicine, there is need to dump the colonial mindset and life-negating interpretations of the Indian tradition, and initiate a movement to reward research excellence alone.
5. For an Indian Noble in psychiatry, both points (3) and (4) are valid, after assessing that one has (1), and has identified what to do from (2).

Conflict of interest

None declared.

Declaration

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

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Questions that this Paper Raises

1. How difficult, or easy, is it to change collective mind-sets?
2. How does research excellence get nurtured where mediocrity is rewarded?
3. How can psychiatry become more precise? Should it?
4. What types of centres need to be set up in India to promote fundamental research in medicine and physiology?
5. Prophecy and wishful thinking is fine, but can one really have a Nobel in Medicine and/or Psychiatry from India by 2020?

About the Author



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