

## The Dunning-Krueger effect in Neurosurgery

*“The fool doth think he is wise, but the wise man knows himself to be a fool.”*

*- William Shakespeare*

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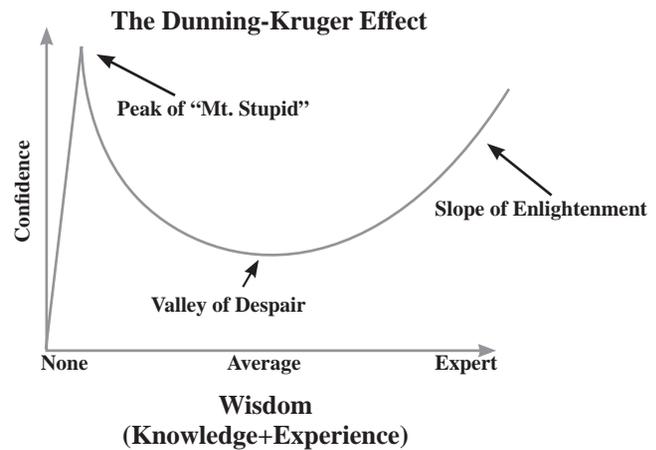


Figure 1: the DK effect showing the peak of confidence in the people with least wisdom and low confidence in the experts.<sup>6</sup>

Scenario: the morning rounds are over and it is time for counselling. Of all the cases to be discussed there is one with poor GCS, on a ventilator, multiple comorbid conditions and with medically poor outcome. During the counselling there is a person, a relative who is a health worker in a village and they start asking questions regarding the final outcome and prognosis. In spite of all the explanations and display of scans and results he/she argues that, the outcome must be good, the complications can be managed, he/she has dealt with such in the past, there are always better medicines to treat, he/she has searched the internet, has many doctors in the family and there are many obvious lapses in the treatment. They talk of many medical terms without any in depth knowledge and give hearsay accounts of treatment. The relatives as expected look towards that person and believe in whatever he/she says. That person is overtly overconfident with regard to their minimum qualification and the specialist accordingly is thus less experienced.

Although there are many examples, I think that this is the common situation for the Dunning-Krueger (DK) effect in neurosurgery.

The effect as describe by the authors “propose that those with limited knowledge in a domain suffer a dual burden: Not only do they reach mistaken conclusions and make regrettable errors, but their incompetence robs them of the ability to realize it”.<sup>1</sup>

This study gave the example of a certain robber of a bank who was caught through the surveillance camera and had the perception that rubbing lemon juice on his face could make him invisible to the camera. They then tested their hypothesis on undergraduate psychology students and found that those who scored the least had high overestimation of themselves and those that score the highest underestimated their competence.

The DK effect is rampant in today’s world and effects all organizations be it medical or non- medical.<sup>2,3,4</sup> This is a cognitive bias with greater perception of their cognitive ability leading to a superiority complex without self-awareness. It has been wrongly associated with “stupid” and low IQ. Classically this leads to high confidence in those with less experience and low confidence in those with expertise. The unskilled do not realize their shortcomings, are not aware of complications, have limited knowledge, do not introspect and thus are highly confident in their decisions. With this limited perspective they seem to be highly skilled, experts and thus give their suggestions whenever needed or not. The experts having seen, known, studied and experienced are aware of the shortcomings, their capabilities, know that each complication cannot be dealt with, believe in the limitations of medical sciences, have seen unexpected results and thus have low estimate of them.

Thus during the beginning of a career we may be very confident of our training, knowledge, expertise and thus may attempt to do major surgeries and when failed will give various reasons, proof, suggestions to show that the procedure or decision or technique was rightly done. Later as we become senior with our experience and knowledge, we go with caution, think twice before surgery, areslow/ deliberate, and always ask or doubt ourselves of the decisions realizing that medical science is vast. We may be always seen in doubt or low confidence, even though the results are the best.

### **How to reduce the DK effect:**

The DK effect affects all of us. We as humans are limited to our knowledge and thus are deficient in the knowledge of many fields. Although we are experts in one area, we may be a novice in other subjects and thus all humans are susceptible to this syndrome. The best neurosurgeon in the world may be the worst musician or writer or poet. Yet within ones subject one must be aware of the knowledge, the shortcomings, personal ability, judgement skills, experience and exposure to avoid falling to the DK effect. Some ways to reduce DK effect are by (adapted) 5

#### **Do not assume:**

keep yourself updated and read more which will show the real depth of the subject and will prevent you assuming that you are the expert.

#### **Take feedback:**

always take feedback from your colleagues, juniors, seniors and other people around to know your performance. Take criticism wisely and improve on your deficits.

#### **Be inquisitive:**

always question your decision and confirm by reading, asking, discussions so that you give the best advice or do the best treatment.

Finally it easy to see the DK effect in others but not in oneself, so it is imperative that one first rules out this effect personally before looking for it in others.

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