

PARETO'S PRINCIPLE - FROM STATISTICS TO PSYCHIATRY

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Vilfredo Pareto was an Italian economist who also brought major contributions to the fields of mathematics, sociology, and philosophy. In 1896 he showed that 20% of the population in Italy owned 80% of the country's wealth and resources. This observation soon became pervasive in almost every aspect of life (nature, business, society) so much so that an American engineer of Romanian descent, Joseph M. Juran, formulated the principle and named it after Pareto. The principle states that for an uneven distribution, 80% of the effects are the result of 20% of the causes. Other concrete examples of this observations could be: 80% of a store's profit is made by 20% of the products, 80% of one's work accounts for 20% of one's results, 80% of the employers contribute to only 20% of the company's profit, "80% of STDs are transmitted by 20% of the population" [1], 80% of the information in a book can be reached by reading 20% of the pages, and the list can go on indefinitely. This 80/20 ratio is nothing else than a conventional name to suggest the tendency to a lack of equilibrium, the ratios can be anything close to 80/20 (e.g. 80/30, the percentages do not need to add-up to 100%).

On the other hand, the probability theory tells us that it is impossible to attribute to chance all these situations where the 80/20 rule applies and compels us to look for a deeper meaning [2]. This meaning resides in the Chaos theory (CT) which, in a counterintuitive manner, speaks about an

underlying predictable, non-linear, order of processes. "'Chaos" is an interdisciplinary theory stating that within the apparent randomness of chaotic complex systems, there are underlying patterns, constant feedback loops, repetition, self-similarity, fractals, self-organization, and reliance on programming at the initial point known as *sensitive dependence on initial conditions.*" [3]. In contrast to the 80/20 rule which is a snapshot of a certain situation, "The butterfly effect", in CT, is a dynamic process which states that an initial minor change in a non-linear system will determine unpredictable effects.

Literature approaching the 80/20 rule or CT in psychiatry is very scarce, nearly absent when it comes to Autism Spectrum Disorders (ASD).

Arnold Chee from the National Institute of Education in Singapore wrote a paper where he used the CT to explain why a minor interruption in the stereotypic behavior of an autistic child can lead to an impressive meltdown.

But could there be a link between the 80/20 rule/CT and the sometimes impressive ability of high functioning autistic individuals to observe patterns in otherwise disorganized processes? In his book about the 80/20 law, Richard Koch distinguishes between 2 ways of tackling this rule: the 80/20 analysis and the 80/20 reflection.

While the 80/20 analysis refers to collecting data and applying a quantitative

reasoning to it (obviously with some resource involvement), the 80/20 reflection suggests an estimative approach of data (with a subjective/intuitive component).

Could it be that traits like hyper-systematization, hyper-attention, and hyper-memorization in autistic individuals allows them to perform rapid collection and interpretation of data, thus to carryout instant 80/20 analysis? In the face of the information revolution, individuals are supposed to make use of their 4 judging functions the brain uses to make decisions (Extraverted thinking, Introverted thinking, Extraverted feeling, Introverted feeling) in order to discern between useful and not so useful information.

These judging functions can manifest in different degrees depending on a multitude of factors. While high functioning autistic individuals are potentially more likely to operate mostly in an "Extraverted thinking - mode" which is based on facts and logical reasoning, neurotypical individuals are highly susceptible to interference from the other 3 functions.

In statistics, the Pareto analysis is a way to identify those 20% of determinants one should focus on and the graph for this analysis is called a Pareto diagram which is

similar to a bar chart. Now imagine you had a Pareto diagram application embedded in your own mind each time you analyzed a process, wouldn't that make you the king of progress?

In his book about the 80/20 rule, Richard Koch also talks about using this rule in time management, after all it seems like there is no such thing as lack of time, but instead we are wasting 80% of it. Call it Pareto's principle, the 80/20 rule or the 80/20 law, we obviously stand in front of an intriguing paradigm that is still to be discovered and applied in a variety of medical fields, especially in psychiatry, but also in psychotherapy.

Keywords: Autism, Chaos Theory, Pareto's rule, 80/20 rule.

REFERENCES

1. <https://www.statisticshowto.datasciencecentral.com/pareto-principle-the-8020-rule/>
2. Principiul 80/20. Cum sa obtii mai mult cu mai putin, Richard Koch, Meteor Press
3. https://en.wikipedia.org/wiki/Chaos_theory
4. https://www.researchgate.net/publication/283150883_Using_Chaos_Theory_as_a_Framework_to_Understand_the_Autistic_Mind