

## Pareto principle and compulsive buying disorder- an analysis

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### **Abstract**

The proposed research work is with the aim of analyzing the compulsive buying disorder (CBD) in the context of Pareto principle. The methodology adopted is Hypothesis testing. It was noticeable during the literature review that the correlation Pareto Principle and compulsive buying disorder has not been attempted realistically, thus it was found that such a study would be not only enriching and useful but also interesting. Therefore an attempt to this effect is being made through this research work. The findings will give an insight on to the relevance of practicable methods to deal with cases of CBD and may serve as input in improving efficiency, ensuring transparency in social life and further research on the subject.

**Key words:** compulsory buying disorder, compulsory spending, financial stability, Pareto principle, depression.

### **Main paper**

#### **1. Introduction**

1.1. It was in 1896, while working for University of Lausanne the renowned Italian economist Vilfredo Pareto noted an 80/20 connection, and propounded the theory or 80/20 rule... This was later on published in his work 'Cours d'économie politique' where it was shown that 80% of the property was owned by 20% of the population. Subsequently it was a management consultant and known as one of the quality gurus Joseph M Juran who suggested this principle, which became the Pareto principle. [Box, George EP, Meyer R Daniel (1986). "An Analysis for Unreplicated Fractions Factorials". Technometrics]. The axiom stated that, it can be reasonably concluded that a random analysis of events provide a real relationship of 20% grounds for 80% effects, which can be utilized in a modified form as 80% of sales are associated with 20% clients. [Marshall, Perry (October 10, 2013). "The 80/20 Rule of Sales: How to find

your best customers". Entrepreneur] This principle is silently related to Pareto efficiency. Probably he developed these concepts from the economic points of view of population and circulation of assets. Many natural phenomena have been shown empirically exhibiting this distribution.

1.2. It is not unusual that we find our self in a dichotomy, wherein despite unfavourable consequences a person tries to follow the same course of action. Isn't there a necessity to alter the plans or course of action? Definitely yes, but we do not do so. Why is it, a common phenomenon? It is as a result of a cognitive dissonance, called compulsive behavior. Generally speaking, maintaining a repeated behavior despite negative outcomes is called compulsive behavior. One such conduct is compulsive buying, which is characterized by disproportionate fixation. This may also be characterized by absence of control with shopping or poor impulse control. On instances it has been noted that compulsive behavior has resulted in marital conflict resulting into discord or financial problems. A study carried out recently has identified that just about 6% of all American settled in USA have compulsive buying behavior. Notwithstanding this analysis, with the evolution of e-commerce which is relatively quicker and uncomplicated commerce, compulsive buying is likely to increase in respect of men also. This may distort the figure given above.

1.3. Compulsive buying disorder or oniomania is a case of compulsive behavior. [OMD. (March 5, 2000). Retrieved from <http://cancerweb.ncl.ac.uk>.] Here the individual has a fascination or fixation with purchases or shopping which causes unprofitable or damaging consequences. It is a personality disorder and classified as ICD-10(F63.8) an impulsive control disorder.

1.4. Compulsive spending or shopaholism is a condition which is likely to cause financial concerns, relational conflict, and personal distress. According to a study carried out in 2015, extraversion and neuroticism are linked to shopping addiction. To name a few they include compulsive shoppers, collector shoppers, image shoppers, codependent shoppers, bargain shoppers and trophy shoppers.

## **2. Literature Review.**

2.1. Advent of importance attributed to cognitive sciences began as an intellectual movement in the 1950s, which is often referred to as the cognitive revolution. It is achieved by meticulously correlating events with outcomes. Reduction of the psychological stress of cognitive dissonance is a function of the magnitude of dissonance caused by the existential inconsistency between two contradictory beliefs held by the person; or by the contradiction between the person's beliefs and an action he or she has taken. Action is taken to refer to the output of a system and in humans it

is something which is accomplished through motor response like, spatial planning and movement, speech production, and complex motor movements.

2.2. The 80/20 rule was brought out in 1896 by economist Vilfredo Pareto in his work 'Cours d'économie politique'. This was later on proposed by management guru Joseph M Juran who suggested it as Pareto principle or the law of the vital few or the principle of factor sparsity. This principle has been since then been applied in lot many areas. A study on its application has been observed on the subject of Federal income taxes in USA. [Curtis Dubay (May 4, 2009). 'The Rich Pay More Taxes: Top 20 percent Pay Record Share of Income taxes'. Heritage.org] [Laura Sanders (April 6, 2018). Another research identified has been on meritocracy in 2018. [Emerging Technology from the arXiv (March 1, 2018)] On Pareto principle and computing a study has been carried out in 2002 and thereafter. [Rooney, Paula (October 3, 2002)] Application of Pareto principle in sports especially in athletics has been attempted. [Jeff Zimmerman (June 4, 2010).] Study on its application in occupational health and safety has been undertaken. [Woodcock, Karthyn. (2010)] [Introduction to Risk based Decision Making. (Jan 14, 2002)]. Similarly a research has been undertaken on the relationship of this principle in TQM, ABC-analysis, XYZ-analysis and logistics. Dunedin study has been committed to the analysis of this principle to crimes. Further in the case of superspreading, epidemics, and in mathematics study on this principle and its application have been carried out.

2.3. Earliest recorded identification of CBD or Oniomania has been in 1924 by Emil Kraepelin. [BLACK, DONALD W (February 1, 2007) A review of compulsive buying disorder' World Psychiatry.6 (1)] It was not given much importance and was not considered as a mental illness as late as 21<sup>st</sup> century. Onset of CBD as identified by studies carried out finds that it occurs mostly in teenagers and women who account for 90% of the target population who are in their second to fourth decade of the lives. As per data 1.8 to 8.1 % of adults have CBD, which generally emerges in early adulthood and later on identified as a problem later on in life. [Abramovitz, Jonathan S, Houts, Arthur C. (2006) 'Concepts and controversies in Obsessive Compulsive disorder' Newyork, Springer] Studies carried out on its root causes indicate perfectionism, impulsiveness, compulsiveness, dishonesty, insecurity, yearning positive stimulus finds that these are generally associated with this challenge. It may be assumed that on the basis of such inferences about social status, companies have been found to engage in aggressive neuromarketing strategy. Self medication is found to be undertaken by further purchases, which only lead to additional cycles of impulse purchasing. [Chakraborty, SK, Chakraborty D. (2006)'Culture Society and leadership' ICFAI University press]

2.4. Based on analysis of literature available on the subject we have not been able to identify a research work carried out on the relationship between Pareto Principle and CBD. Hence it was noticeable that the correlation Pareto Principle and compulsive buying disorder is a topic which requires attention and application. Thus it was found that such a study would be not only enriching and useful but also interesting. Therefore an attempt to this effect is being made through this research work.

### **3. Hypothesis.**

3.1. For evaluation of any thought process on its efficacy and generality a scientific analysis is required. In this case also, to make the research appropriate and acceptable to various situations a scientific approach has been utilized. For initiating the study in to a scientific approach selecting a hypothesis encompassing all the desired characteristics and factors was found to be necessary. Based on the focus of study the general statement of research selected has been; "Pareto Principle in relation to compulsive buying disorder". It is more often than not a prognostic assertion which can possibly be tested scientifically.

### **4. Methodology**

4.1. The methodology used in formulation of this paper is largely qualitative and to a very miniscule portion quantitative. Since the object of this research is to arrive at a relation between For the purpose of obtaining a realistic data, questionnaire was circulated amongst various age groups and occupation through internet and some cases based on the educational level through surveys. Questionnaire is at appendix 1 attached at the end of the paper. A significance level of one has been taken, which is fairly accurate.

4.2. Based on the focus of study following hypothesis has been formulated: -

- (a) Pareto principle or the 80/20 rule can be applied in compulsive buying disorder.
- (b) It is a personality disorder and classified as ICD-10(F63.8) an impulsive control disorder.
- (c) It is generally found in people having irresistible-uncontrolled craving for leisure pursuit resulting in excessive, expensive retail activity, which results in personal, social and financial difficulties.

4.2. After formulation of general statement the next step is to frame specific question. For the research work the specific question formulated is as given below: -

*“Can we realistically consider that Compulsive Buying Disorder follows Pareto principle?”*

4.3. The hypothesis may be tested through various tests, such as Chi-square test,  $t$  – Test,  $F$  – test, ‘ $z$ ’ test etc, depending upon the nature and object of research enquiry. In this case we will be utilizing  $z$  test as the conditions are met. In this research work,

(a) **Hypothesis.** *“Can we realistically consider that Compulsive Buying Disorder follows Pareto principle?”*

(b) Let us assume that: -

(i) Null Hypothesis is  $H_0 = P = P_0 = 0.01$ . i.e., the two proportions namely CBD and Pareto principle are same is Claimable: then alternate hypothesis

$$H_a = P = P_a \neq 0.01$$

(ii) Under the assumption that  $H_0$  is true, we formulate a test statistic.

$$z = \frac{(p_1 - p_2) - 0}{\sqrt{p(1-p)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Which is approximately distributed normally

(c)  $p_1$ ,  $p_2$  and  $n_1$ ,  $n_2$  are the two proportions we are comparing

(d) The critical value of  $z$  at 1 % level of significance is found out and tested.

## 5. Analysis.

5.1. Pareto principle cannot be stretched to further areas like meritocracy as Alessandro Pluchino at University of Catania writes “Maximum success never coincides with maximum talent such factors are results of chance.”[Emerging Technology from the arXiv (March 1, 2018). Technology Review.com] In computing, 80% of certain software can be written in 20% of the time and hardest 20% of the code takes 80% of the time. Similar is the case in sports, betting and occupational health and safety. This principle has many applications in quality control [50 MINUTES.COM (August 17, 2015).] It is the basis for key tools used in Quality control, Six Sigma, ABC-Analysis and XYZ- Analysis. Same rationale is in the case of utilizing health resources and super spreading. [Sawyer and Claxton, Bradely and Gray. (March 13, 2019). ‘How health expenditures do varies across the population’.] [Galvani, Alison, P May, Robert M (2005). Nature 438(7006):293-295.] In Dunedin study has brought out that 80% of the crimes are conducted by 20% of criminals. We can apply this rule in customer complaints, delays in schedule, and profit analysis.

5.2. Even though compulsive buying is not listed as an addiction in DSM-5 it is analogous to certain behavioural addictions like binge eating, compulsive spending and gambling [Lawrence LM, Ciorciari J, Psychiatry Res Neuroimaging; 221(1):97-103] Neuropsychological performance, impulsivity, ADHD symptoms, and novelty seeking in compulsive buying disorder, Psychiatry Res. 200(2):581-587] It has been considered that compulsive spending addictions develops in individuals who have been deprived of economic independence in their growth stage. Certain other distinctiveness of compulsive buying is impulsive purchase, euphoria experience, to compensate depression or anxiety, emotional void. It is generally found to be followed by a feeling of guilt especially when the payment is done by cash rather than cards. Credit cards often induce a person spend more than the requirement caused by the fact that it generates a positive feeling of purchase. So in effect we may infer that consumer buying disorder (CBD) is more prevalent in developed countries and developing countries which have achieved a threshold. In real life compulsive purchasers may tend to hoard items or stock more than necessity.

5.3. 'Hoarding in a compulsive buying sample' J Behave Ther Exp Psych; 45(11):2754-63]. Everyone does shopping to meet the domestic or personal requirements, so when does it become compulsive buying. 5.8% of Americans are considered to be compulsive buyers. It is seen that many a times a person has uncontrollable urge to purchase more than his requirement merely out of passion or habit. This may be as a result of negative emotions, or having problems with relationship or finance. It is considered that compulsive buying goes through four main stages which are; anticipation (thought process), preparation (planning), shopping (activity), spending, leading to regret.

5.4. In the beginning the person gets his thought process mislead him to make a desire. Then if the mind is able to understand the futility of such an activity, compulsive buying does not originate. On the contrary, if that does not materialize, a thought process on the planning of executing the purchase is activated. Now the affected person gets the 'thrill of the hunt' or 'high of purchase activity'. Once the act of purchasing is completed person gets into the regressive feeling of having committed a wasteful expenditure. A person can correct himself at stages of identification. When the unspent balance in your pay check gives an insecurity feeling, or for that matter habitually over draws from bank for purchases that you do not need then a person is at risk of having CBD.[ Adapted from: Faber R., O'Guinn T. (1992). "A Clinical Screener for Compulsive Buying" Journal of Consumer Research.19:459]

5.5. On a presumptive analysis we find that there is another term which is closely related to CBD; which is compulsive shopping. This can be stated as a psychological ailment which is an insalubrious fascination with shopping which has the propensity to affect the everyday life of the individual. Such an obsession can lead to restlessness, anxiety, unnecessary purchases and feeling the need to purchase frequently. Certain studies indicate that it is an addiction that activates 'pleasure receptors', like say, drugs. It is listed as an impulse control disorder by WHO. Strange enough, compulsive shoppers are often having the tendency throw away their purchases. [Taleb Nasim, (2007), Black Swan. Pp 229-252]

5.6. For examining the main hypothesis a process of identifying by other hypotheses, which are elements of research is considered in this research work and endorsed.

H<sub>10</sub>" Population distribution on compulsive behaviour follows Pareto principle"

H<sub>20</sub>" Population distribution on compulsive shopping follows Pareto principle"

H<sub>30</sub>"Population distribution on compulsive spending follows Pareto distribution"

H<sub>40</sub>"Population affected by CBD follows Pareto distribution".

H<sub>50</sub>"Population affected by CBD having a feeling of guilt after the payment for purchases is made".

H<sub>60</sub>"Financial stability of persons affected by CBD follows Pareto distribution".

#### 5.5. Analysis of Hypothesis-H<sub>1</sub>.

(a) **Hypothesis.** "Population distribution on compulsive behavior follows Pareto principle"

(b) **Tests of Significance.** Let us assume that: -

(i) Null Hypothesis is  $H_0 = P = P_0 = 0.01$ . i.e., the two proportions namely CBD and Pareto principle are same is Claimable: then alternate hypothesis

$$H_a = P = P_a \neq 0.01$$

(ii) Under the assumption that  $H_0$  is true, we formulate a test statistic.

$$z = \frac{(p_1 - p_2) - 0}{\sqrt{p(1-p)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Which is approximately distributed normally

(c)  $p_1$ ,  $p_2$  and  $n_1$ ,  $n_2$  are the two proportions we are comparing

(d) The critical value of  $z$  at 1 % level of significance is found out and tested.

During the survey of the population approximately numbering 17800, ninety percent of the respondents had a fair idea on the complexities of compulsive behaviour and



approximately thirty five percent on the probable existence of compulsive shopping disorder at some point of time or the other.

**Table: 1**

**Tabulated response of population on awareness of compulsive behaviour, compulsive shopping**

<u>Se</u> <u>r</u> <u>N</u> <u>o</u>	<u>Target</u> <u>Populatio</u> <u>n</u>	<u>Number</u> <u>of</u> <u>responde</u> <u>nts</u>	<u>Compuls</u> <u>ive</u> <u>Behaviou</u> <u>r</u>	<u>Compul</u> <u>sive</u> <u>Shoppi</u> <u>ng</u>	<u>Com</u> <u>pulsi</u> <u>ve</u> <u>Spen</u> <u>ding</u>	<u>Don'</u> <u>t</u> <u>Kno</u> <u>w</u>
1	School Students	2700	652	324	324	1436
2	Graduates	2900	1072	625	725	246
3	Post Graduates	2000	919	660	1260	966
4	Casual Labour	1200	302	24	224	290
5	Organize d Labour	1000	171	40	140	71
6	Medium Farmers	1000	125	90	90	74
7	Faculty	1300	51	182	182	76
8	Social Activists	5000	412	1500	2100	262
9	Researche rs	700	9	189	589	115
		17800	3723	3604	4204	3536

**Source: Telephonic, Internet & what's app survey: period 2019-2021**

$$z = \frac{(3723/17800) - (3560/17800)}{\sqrt{[(3723+3560/15689+17800)] (2/17800)}}$$

$$= 1.7612$$

We are testing whether compulsive behaviour follows Pareto principle. By using a one percent alpha level we intend to reduce the chances of Type I error. Solving the formula, we get:  $z = 1.7612$ . The z-score associated with a one percent alpha level / 2 is 2.576. Now we move on to compare the calculated z-score with the tabulated z-



score. In this case the calculated value of 'z' **1.7612** is less than the tabulated value of 'z' **2.576** at one percent level of significance. Therefore the claim is accepted, which means that our assertion that compulsive behaviour follows Pareto principle is supported.

#### 5.6. Analysis of Hypothesis-H<sub>2</sub>.

During the survey of the population approximately numbering 17800, ninety percent of the respondents had a fair idea on the complexities of compulsive behaviour and approximately thirty five percent on the probable existence of compulsive shopping disorder at some point of time or the other while attempting to take a decision.

$$z = \frac{(3604/17800) - (3560/17800)}{\sqrt{[(3604+3560/17800)] (2/17800)}} = 0.4761$$

We are testing whether compulsive shopping follows Pareto principle. By using a one percent alpha level we intend to reduce the chances of Type I error. Solving the formula, we get:  $z = 0.4761$ . The z-score associated with a one percent alpha level / 2 is **2.576**. Now we develop on to compare the calculated z-score with the tabulated z-score. In this case the calculated value of 'z' **0.4761** is less than the tabulated value of 'z' **2.576** at one percent level of significance. Therefore the claim is accepted, which means that our assertion that compulsive shopping follows Pareto principle is supported.

#### 5.7. Analysis of Hypothesis-H<sub>3</sub>.

(a) Hypothesis. *"Population distribution on compulsive spending follows Pareto distribution"*

$$z = \frac{(4204/17800) - (3560/17800)}{\sqrt{[(4204+3560/17800)] (2/17800)}} = 6.9005$$

We are testing whether compulsive shopping follows Pareto principle. By using a one percent alpha level we intend to reduce the chances of Type I error. Solving the formula, we get:  $z = 6.9005$ . The z-score associated with a one percent alpha level / 2 is **2.576**. Now we develop on to compare the calculated z-score with the tabulated z-score. In this case the calculated value of 'z' **6.9005** is more than the tabulated value of 'z' **2.576** at one percent level of significance. Therefore the claim

is rejected, which means that our assertion that compulsive spending follows Pareto principle is not supported.

#### 5.7. Analysis of Hypothesis-H<sub>4</sub>.

(a) Hypothesis. “Population affected by CBD follows Pareto distribution”

**Table:2**

Tabulated response of population on awareness and affected by CBD

<u>S</u> <u>e</u> <u>r</u> <u>N</u> <u>o</u>	<u>Target</u> <u>Population</u>	<u>Nu</u> <u>mbe</u> <u>r</u> <u>of</u> <u>resp</u> <u>ond</u> <u>ents</u>	<u>Occu</u> <u>rrenc</u> <u>e</u> <u>of</u> <u>CBD</u>	<u>Don'</u> <u>t</u> <u>Kno</u> <u>w</u>	<u>Occ</u> <u>urr</u> <u>enc</u> <u>e</u> <u>of</u> <u>CB</u> <u>D</u>	<u>Fee</u> <u>ling</u> <u>of</u> <u>Gui</u> <u>lt</u>	<u>Not</u> <u>having</u> <u>Financial</u> <u>Stability</u>
1	School Students	2700	324	2436	324	58	209
2	Graduates	2900	725	1175	725	170	1001
3	Post Graduates	2000	860	1140	860	190	192
4	Casual Labour	1200	224	1200	224	0	0
5	Organized Labour	1000	140	932	140	20	60
6	Medium Farmers	1000	90	910	90	50	70
7	Faculty	1300	182	1118	182	19	165
8	Social Activists	5000	2100	3900	2100	106	1088
9	Researchers	700	489	215	489	92	423
	Total	17800	3704	14094	3704	705	3008

Source: Telephonic, Internet & what's app survey: period 2019-2021

$$z = (3704/17800) - (3560/17800) / \sqrt{(3704+3560/17800) (1 -$$

$$[(3704+3560/17800)] (2/17800) = (0.2081 - 0.2) / \sqrt{[(0.4081 \times 0.5919) \times 0.000112]}$$

$$= 1.5577$$

We are testing whether CBD follows Pareto principle. By using a one percent alpha level we intend to reduce the chances of Type I error. Solving the formula, we get:  $z = 1.5577$ . The z-score associated with a one percent alpha level / 2 is  $2.576$ . Now we develop on to compare the calculated z-score with the tabulated z-score. In this case the calculated value of 'z'  $1.5577$  is less than the tabulated value of 'z'  $2.576$  at one percent level of significance. Therefore the claim is accepted, which means that our assertion that compulsive spending follows Pareto principle is supported.

#### 5.8. Analysis of Hypothesis-H5.

(a) **Hypothesis.** *“Population affected by CBD has a feeling of guilt after the payment for purchases are made”*

$$z = (3704/17800) - (705/3704) / \sqrt{(3704/17800 + 705/3704) \left(1 - \frac{1}{3704}\right)} =$$

$$(0.2081 - 0.1903) / \sqrt{(0.3984 \times 0.6016) \times (0.000562 + 0.000190)}$$

$$= 2.3177$$

We are testing whether population on affected by CBD and feeling of guilt after spending follows Pareto principle. By using a one percent alpha level we intend to reduce the chances of Type I error. Solving the formula, we get:  $z = 2.3177$ . The z-score associated with a one percent alpha level / 2 is  $2.576$ . Now we develop on to compare the calculated z-score with the tabulated z-score. In this case the calculated value of 'z'  $2.3177$  is less than the tabulated value of 'z'  $2.576$  at one percent level of significance. Therefore the claim is accepted, which means that our assertion that population on affected by CBD and feeling of guilt after spending follows Pareto principle is supported.

#### 5.9. Analysis of Hypothesis-H6.

(a) **Hypothesis.** *“Financial stability of persons affected by CBD follows Pareto distribution”*

$$z = (3704/17800) - (3008/5274) / \sqrt{(5274/17800 + 3008/5274) \left(1 - \frac{1}{5274}\right)} =$$

$$= 89.25$$

We are testing whether the financial stability of population on affected by CBD follows Pareto principle. By using a one percent alpha level we intend to reduce the chances of Type I error. Solving the formula, we get:  $z = 89.25$ . The z-score associated with a one percent alpha level / 2 is  $2.576$ . Now we develop on to compare the calculated z-score with the tabulated z-score. In this case the calculated value of 'z'

89.25 is more than the tabulated value of 'z' 2.576 at one percent level of significance. Hence we reject the null hypothesis. Therefore the claim is rejected, which means that our assertion that financial stability of people having CBD is challenged follows Pareto principle is not supported.

## **6. Findings**

### **6.1. Focus of Review**

6.1.1. It is not unusual that we find our self in a dichotomy, wherein despite unfavourable consequences a person tries to follow the same course of action. Isn't there a necessity to alter the plans or course of action? Definitely yes, but we do not do so. Why is it, a common phenomenon? It is as a result of a cognitive dissonance, called compulsive behavior. Generally speaking, maintaining a repeated behavior despite negative outcomes is called compulsive behavior. We often find people with negative thoughts always; like a feeling of insecurity or expecting negative consequences, which are compulsions fuelled by obsessions. One such conduct is compulsive buying, which is characterized by disproportionate fixation. This may also be characterized by absence of control with shopping or poor impulse control. On instances it has been noted that compulsive behavior to have resulted in marital conflict resulting into discord or financial problems. A study carried out recently has identified that 6% of all American settled in USA have compulsive buying behavior. Of these 80% are women. Notwithstanding this analysis, with the evolution of e-commerce which is relatively quicker and uncomplicated commerce, compulsive buying is likely to increase in respect of men.

### **6.2. Related views**

6.2.1. It was in 1896 that economist Vilfredo Pareto brought out the 80/20 rule, in his work 'Cours d'economie politique'. Later on management guru Joseph M Juran suggested it as Pareto principle or the law of the vital few or the principle of factor sparsity. Since then there has been lot many areas where this principle has been applied. A study on its application has been observed on the subject of Federal income taxes in USA. Another research identified has been on meritocracy in 2018. On Pareto principle and computing a study has been carried out in 2002 and thereafter. Application of Pareto principle in sports especially in athletics has been attempted. Study on its application in occupational health and safety has been undertaken. Studies have been undertaken on the application of this principle in engineering control theory, system science discipline, and betting's. Similarly research has been undertaken on the relationship of this principle in TQM, ABC-analysis, XYZ-analysis and logistics. Dunedin study has been committed to the analysis of this principle to

crimes. Further in the case of superspreading, epidemics, and in mathematics study on this principle and its application have been carried. Hence a research work carried out on the relationship between Pareto Principle and compulsive buying disorder does not exist.

### **6.3. Review Scope and Process**

6.3.1. For evaluation of any thought process on its efficacy and generality a scientific analysis is required. In this case also, to make the research appropriate and acceptable to various situations a scientific approach has been utilized. For initiating the study in to a scientific approach selecting a hypothesis encompassing all the desired characteristics and factors was found to be necessary. Based on the focus of study the hypothesis selected has been; "CanPareto Principle be adopted in Compulsive buying disorder?" For the reader the word hypothesis is often understood as an assumption, but it is not so for the researcher. It is more often than not a prognostic assertion which can possibly be tested scientifically.

### **6.4. New Insights**

6.4.1. During the survey of the population approximately numbering 17800, ninety percent of the respondents had a fair idea on the complexities of compulsive behaviour and approximately thirty five percent on the probable existence of compulsive shopping disorder at some point of time or the other while attempting to take a decision.

6.4.2. From the analysis as summarized below, it has been established that compulsive behavior and compulsive spending follows Pareto Principle. At the same time compulsive spending has not been found to follow the principle. Whereas population affected by CBD follows Pareto distribution and the feeling of guilt after payment of purchases are made and the financial stability of persons affected by CBD has been found challenged. Hence we can safely conclude on the basis of above analysis that Compulsive Buying Disorder follows Pareto principle and the hypothesis is accepted.

6.4.4. During the analysis of the response to the questionnaire we find certain prominent groupings and behavioural patterns. They are;

6.4.4.1. People in the late teens have seemed to be affected largely by the compulsive shopping disorder. The question to be seen is whether such phenomena is characterized by cognitive dissonance or group behavior accentuated by the influence of social media.

- 6.4.4.2. Influence of social media or visual media is quite prominent across the spectrum of the society and is an influencing factor in decision making whether to purchase an item or not, or even the behavior associated with CBD.
- 6.4.4.3. Economic indicator is an important factor in developing CBD.
- 6.4.4.4. Younger generation is generally tuned to utilize digital facility in transactions, but equally tuned are the more educated section of the society, who also has unknowingly developed a dichotomy in this aspect.
- 6.4.4.5. Digital transaction generally yields to CBD as compared to physical exchange and online purchasing has a larger spread than anticipated.
- 6.4.4.6. Population of the middle lot seems to be affected by the guilt of over spending on many occasions.
- 6.4.4.7. Minority pathology or mass problem is an accepted dissociation with CBD.
- 6.4.4.8. Majority of the people affected by CBD considers shopping as a status symbol.
- 6.4.4.9. CBD affected persons have a poor financial health, require constant external support and may even go to the extent of resorting to shop lifting.
- 6.4.4.10. There is an anxiety ever present in the CBD cases unless provided with an opportunity to purchase.
- 6.4.4.11. Uncontrollable urge to purchase and illogical urge to possess an item in the first instant is a characteristic of younger people.
- 6.4.4.12. Many consider shopping as a remedy for stress, anxiety and depression.
- 6.4.5. Marketing agencies can many a time resort to understanding such a pattern for developing a product. Similar adjustments can be carried out by startup firms. The adjustments to be carried out by innovation or modifications at the decline stage of the life cycle of a product can be targeted based on the affected population. Similarly we can find probable cause and effective treatment of CBD without even letting the individual know that the person is actually suffering from this psychological sway.

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## Questionnaire

### Personal Particulars (\*Optional)

Name\*-----, Age -----Occupation-----

## Questionnaire

(Data is being collected for an academic research work)

Please tick the answer you consider to be appropriate

1. How often do you go for shopping? **Once or Twice a month/as per requirement/ six to seven times a month.**
2. On a TV program or Social media when advertisements are repeated, **you like to watch them or take a break.**
3. What % of your income do you spend on shopping? **40%/ 60%/150%**
4. Do you carry cash/card while shopping? **both/cash/card**
5. Do you tend to purchase more when you are carrying only card? **Yes/No**



6. Do you find yourself attracted to on line purchase? **Yes/No**
7. How often do you find that you have guilty feeling after shopping?  
**Rarely/sometimes/often**
8. In a week how much time do you spend in shopping mall? **4 hours/10 hours/30 hours**
9. Do you have a minority pathology or mass problem? **Yes/No**
10. Do you consider that high frequency of shopping is a status symbol? **Yes/No**
11. Have you found yourself preoccupied with buying? **Yes/No**
12. Do you feel dissatisfied all the time? **Yes/No**
13. How do you rate yourself on financial stability? **Stable/do not know/unstable**
14. How often do you have to borrow money to meet your routine expenditure?  
**Rarely/sometimes/often**
15. Have you ever indulged in shop lifting? **Never/few times/occasionally**
16. Do you feel that if you have money left in your account, you should spend it?  
**Yes/sometimes/No**
17. Do you think other people will judge you high, if they come to know that you spend a lot? **Yes/No**
18. Do you buy things you can't afford? **Yes/No**
19. Does buying makes you feel better? **Yes/No**
20. Do you feel anxious on days when you do not go shopping? **Yes/No**
21. Do you feel anxious or depressed? **Yes/No**
22. If yes, do you consider shopping a remedy? **Yes/No**
23. Do you have an uncontrollable urge for buying? **Yes/No**
24. When a new product comes into the market do you feel that if you don't buy it, you will lose the chance to buy the item? **Yes/No**

Place: -----

Date: -----

Signature