



An Analysis of Quality of Life Constraints in Algeria Using the Pareto Principle (80/20)

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Abstract:

This study aims to analyze the determinants and constraints of quality of life in Algeria at both macro and micro levels, through diagnosing the most influential factors hindering the achievement of an adequate standard of living. The study adopts a quantitative analytical approach with an empirical dimension, based on field data collected from a representative sample of various segments of Algerian society. In this context, the Pareto chart is employed as a methodological tool to classify and rank causes according to their frequency and relative significance. Furthermore, the 20/80 rule (Pareto principle) is applied to test the hypothesis that the majority of quality-of-life problems are concentrated within a limited number of economic and social factors. The study seeks to provide a structured interpretive analysis that highlights intervention priorities, thereby contributing to guiding policymakers toward more targeted and effective strategies for improving quality of life.

Key Words: Quality of life, Pareto chart, Pareto analysis, 20/80 rule, Algeria, economic and social determinants.

JEL Classification : I31, D63, C88, O55

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Introduction:

Recent studies on individual perceptions of Quality of Life (QoL) reveal a significant disparity, reflecting diverse criteria for assessing levels of well-being. Individuals exhibit a lack of convergence in evaluating their living conditions; while some perceive themselves as enjoying a high level of stability and well-being, others view their lives as lacking the essential components of quality. Meanwhile, a third group categorizes their experience as average. Furthermore, this subjective assessment may be based on a single factor or a specific set of socio-economic and environmental determinants within their respective systems.

This disparity in the perception of Quality of Life (QoL) reflects a fundamental problematic concerning the measurement of individual and collective well-being. Consequently, this concept has garnered increasing attention from researchers and policymakers as a primary indicator for evaluating development and the quality of socio-economic growth. Furthermore, the concept of Quality of

Life has evolved into an analytical approach integrated within modern economic models, aimed at achieving a deeper understanding of the determinants of well-being and enhancing levels of happiness and stability in societies.

Nations vary in their capacity to achieve high levels of Quality of Life (QoL); while some societies have successfully and continuously improved well-being indicators, others face structural and institutional constraints that hinder such progress. This disparity is particularly pronounced in developing nations, which continue to strive for a balance between economic growth and the improvement of social and living conditions.

In this context, Algeria serves as a representative case reflecting this disparity, as levels of Quality of Life (QoL) are characterized by heterogeneity across different social groups and geographical regions. Moreover, despite the available resources and potential, the country's economic characteristics do not accurately reflect the actual level of citizens' well-being, which raises inquiries into the nature of the constraints hindering the attainment of a high quality of life.

In this regard, this research study seeks to address the following problematic: To what extent can the Pareto Principle (80/20 Rule) contribute to identifying the most significant Quality of Life (QoL) constraints in Algeria and prioritizing their resolution?

Sub-questions: The main problematic gives rise to several sub-questions, as follows:

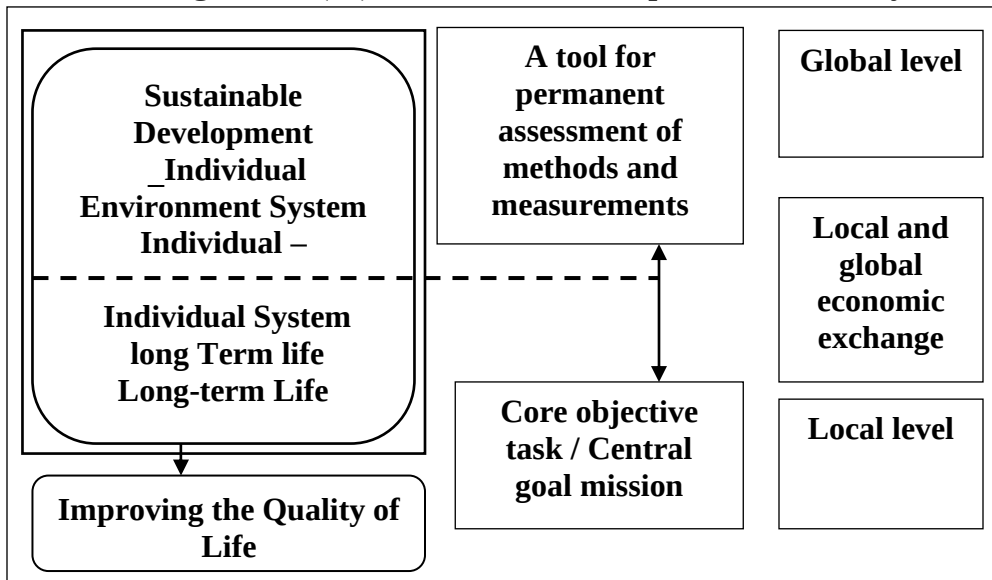
- What is the conceptual definition of Quality of Life, and what are its theoretical dimensions and the indicators adopted for its measurement?
- What are the most prominent socio-economic and institutional determinants affecting the level of Quality of Life in Algeria?
- To what extent do these determinants contribute to hindering the attainment of high levels of well-being and Quality of Life?
- Can the Quality of Life constraints in Algeria be classified according to their degree of impact and priority?
- To what extent can the Pareto Principle (80/20 Rule) be employed as an effective analytical framework to identify the most influential factors and prioritize their resolution?

Study Hypotheses: This study is based on a set of hypotheses formulated as follows:

- Quality of Life (QoL) is a multi-dimensional concept linked to economic, social, health, and institutional indicators, and is influenced by the developmental context of each society.
- There is a set of structural and institutional constraints in Algeria that negatively affect the level of Quality of Life to varying degrees.
- Not all factors affecting Quality of Life are equal in terms of their degree of impact; some factors contribute more significantly to the decline of well-being levels compared to others.

- Quality of Life constraints can be prioritized according to their degree of impact and priority, allowing for the identification of the most sensitive and influential factors.
- The Pareto Principle (80/20 Rule) can constitute an effective analytical framework to explain the imbalance between causes and effects, whereby a limited percentage of constraints accounts for the majority of the degradation in Quality of Life.
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Figure No. (01): Sustainable Development and Quality of Life



Source: Borsdorf, A. (1999). Quality of Life in Alpine Towns: With Examples from Innsbruck and Bregenz. *Revue de Géographie Alpine*, 87(1), 163.

I. Theoretical and Analytical Foundations of Quality of Life According to the Pareto Principle (80/20)

Borsdorf Axel (1999) asserts that sustainable development is fundamentally linked to both "Environment-Human" and "Human-Human" systems within a single, integrated framework that ensures long-term human existence. He indicates that a primary objective of sustainable development is to mitigate conflicts within the "Human-Human" system. Furthermore, he views sustainable development as a dynamic open system capable of adapting to uncertain events and influences that provide feedback to the system. Consequently, sustainable development is regarded as a tool rather than an end in itself; instead, the enhancement and improvement of Quality of Life (QoL) should be established as the ultimate goal of sustainable development, linked to both local and global growth levels. (Figure No. 01) briefly illustrates the relationship between sustainable development and Quality of Life as follows:

1. The Theoretical Framework of Quality of Life: Liao (2009) indicated that the concept of Quality of Life (QoL) has generally been used to assess individual well-being through specific subjective and objective indicators. Furthermore, it was noted that the origins of the Quality of Life concept can be traced back to 1960 in the United States, where the evaluation of life quality was based on living standards through the estimation of Gross Domestic Product (GDP) per capita. Drawing on (Fouad Abdullah & Yahya Abdel-Mohsen, 2015), Quality of Life (QoL) is defined as a 'subjective perception of personal happiness and satisfaction with oneself and the significant domains of an individual's existence.' It is emphasized that the element of subjectivity is fundamental here, as an individual's self-assessment of their level of happiness and life satisfaction serves as the primary criterion for evaluating the quality of life they lead. It represents a manifestation of general life well-being for a human being and the specific factors influencing their life in particular.

Al-Basri and Fatima Jamal (2017) also reviewed other conceptualizations of Quality of Life, encompassing an individual's access to essentials such as clothing, food, water, and housing. These factors are typically determined by individual income levels, the prevailing environment, and social class affiliation. Accordingly, Quality of Life can be more precisely defined as a 'complex and integrated process involving the fulfillment of the entire spectrum of material and non-material needs and resources for both the individual and the family.' It is further noted that these needs are characterized by a dynamic, non-static nature, evolving in tandem with societal development and progress.

2. Happiness and Life Satisfaction:

Happiness is closely related to Quality of Life, but the two concepts should not be treated as identical. Happiness generally refers to affective or emotional experiences, whereas life satisfaction refers to an individual's cognitive evaluation of his or her life as a whole. Life satisfaction therefore represents an overall judgment of one's life in relation to personal expectations, aspirations and circumstances.

The distinction between happiness and life satisfaction is important in Quality of Life research because individuals may experience positive or negative emotions at particular moments while simultaneously holding a different overall evaluation of their lives. Life satisfaction consequently provides an important subjective dimension for assessing Quality of Life and complements objective indicators such as income, health, education, employment and environmental conditions.

The WHOQOL perspective also emphasizes individuals' perceptions of their position in life and their expectations, standards and concerns (WHO, 2012). Consequently, the present study retains Life Satisfaction as a distinct dimension of Quality of Life, while treating Happiness as a broader related concept. This distinction reduces conceptual overlap and provides a clearer theoretical basis for the empirical analysis.

The OECD incorporates subjective well-being into its multidimensional framework for measuring people's well-being and considers life satisfaction an important indicator of how individuals evaluate their lives (OECD, 2024). Thus, the inclusion of Life Satisfaction among the dimensions examined in the present study is consistent with contemporary international approaches to the measurement of well-being.

3. Quality of Life Indices:

By defining an indicator as a marker that points, provides information, describes, and estimates specific phenomena over time, economic indicators—most notably the Gross Domestic Product (GDP)—have been traditionally employed to measure levels of Quality of Life (QoL) and reflect economic growth. However, the exclusion of social and environmental factors rendered GDP an insufficient metric for assessing societal well-being, thereby necessitating the adoption of social indicators as a more effective and comprehensive measure.

Drawing on The OECD's report titled 'How's Life?', which posits that eight domains encompass Quality of Life (QoL) as follows:

- **Health:** Recognized as one of the most vital factors.
- **Work-Life Balance:** Considering that time is the only shared resource among individuals.
- **Education:** A fundamental human need.
- **Social Connections:** An individual's social network significantly contributes to their **well-being**.
- **Security:** Pertaining to individual personal safety.
- **Environment:** Identified as one of society's greatest challenges.
- **Civic Engagement:** Involvement in civic and political life.
- **Subjective Well-being:** Encompassing life satisfaction and happiness.

It can be asserted that the dimensions of Quality of Life (QoL) in most research revolve around these established concepts, complemented by the contributions of researchers worldwide who introduce new indicators to facilitate the effective measurement of QoL. Moreover, according to Julius Sim et al. (2011), reference is made to global indicators measuring the well-being of populations, proposed by international agencies, institutes, and laboratories. This is in addition to standardized models employed to measure the quality of life in developed nations, such as CASP-19, which evaluates QoL based on four key domains: Control, Autonomy, Pleasure, and Self-realization.

4. The Pareto Principle (80/20) and Its Economic Applications:

The Pareto Principle, commonly known as the 80/20 Principle, is associated with the Italian economist Vilfredo Pareto. The principle is based on the observation that a relatively small number of causes may account for a substantial proportion of observed effects. Over time, Pareto analysis has been adopted as a practical analytical tool for identifying and prioritizing the factors that contribute most significantly to a problem or outcome.

In economic and managerial analysis, the Pareto Principle is mainly used as a prioritization tool. It can be applied when a phenomenon is influenced by several

causes and decision-makers need to determine which factors deserve greater attention and resources. Importantly, the 80/20 relationship should not be interpreted as an exact or universal numerical law. Its analytical value lies in identifying the concentration of effects among a limited number of causes.

Pareto analysis is also widely used in quality management. A Pareto chart ranks categories according to their frequency or relative contribution and displays their cumulative percentages. This allows researchers and decision-makers to identify the categories that account for the largest share of an observed problem and to establish priorities for intervention.

The application of the Pareto Principle to Quality of Life is justified by the multidimensional nature of the concept. Individuals may face several constraints simultaneously, including economic, health, educational, social and environmental constraints, as well as subjective constraints related to life satisfaction. Treating all constraints as equally important may make it difficult to determine which areas should receive priority.

Accordingly, Pareto analysis provides an appropriate analytical bridge between the multidimensional theoretical framework of Quality of Life and the empirical objective of the present study. It allows the researcher to identify and prioritize the constraints that account for the largest proportion of the observed responses.

In the present study, the Pareto Principle is therefore used as a prioritization and decision-support tool, rather than as an assumption that exactly 20% of the constraints must necessarily account for exactly 80% of the effects. The objective is to identify the “vital few” constraints that require greater attention and distinguish them from less influential constraints.

5. Trends in Quality of Life:

Given the broad conceptualization of Quality of Life (QoL) and humanity's constant aspiration for advanced levels of well-being and prosperity—coupled with varying individual interpretations—Hussein Al-Hilu (2016) identified four trends explaining QoL:

- **Philosophical Trend:** Asserts that QoL is an equal right to life and prosperity, highlighting various domains that require quality for a person to lead a fulfilling life.
- **Social Trend:** Focuses on objective life indicators such as educational levels, housing quality, employment, professional status, and social relationships.
- **Medical Trend:** Reflects the increased focus of physicians and health specialists on enhancing QoL for patients and providing moral support.
- **Psychological Trend:** A holistic construct aimed at satisfying individuals' basic needs; satisfaction arises from fulfillment, while dissatisfaction results from unmet needs due to the prevailing QoL level.



6. Measuring Quality of Life:

Undoubtedly, one of the most critical factors that contributed to the evolution of economics and its various branches is the capacity for a comprehensive understanding of the economic problem, the establishment of a holistic definition, and the formulation of a theoretical and literature-based framework that clearly delineates an agreed-upon definition. However, the subject of our research regarding the essence of Quality of Life (QoL)—for which no single, universal definition has been established, and which encompasses a variety of diverse definitions—has made identifying measurement methodologies a complex task for researchers in this domain.

Abdel Karim Obeid (2016) states that the effective measurement of Quality of Life (QoL) depends on an accurate description of the 'good life' and the identification of quality levels. He adds that available metrics rely on principles of both subjective and objective assessment. Furthermore, he points out that efforts to measure QoL treat it as a multi-dimensional concept, incorporating an individual's perception of life satisfaction—referred to as Subjective Quality of Life. Conversely, the characteristics of the individual's living conditions are measured objectively, known as Objective Quality of Life.

It is worth noting that researchers' focus has fluctuated between emphasizing the measurement of subjective aspects of life while neglecting objective aspects, or vice versa.

Regarding the assessment of Quality of Life (QoL), Mazúchová et al. (2017) stated that it centers on the 'quality of life space,' which has now become a relatively independent and interdisciplinary field of research. It encompasses various aspects, such as health, psychological and physical well-being, and mental and social dimensions. Furthermore, the authors add that even demographic, socio-economic variables—including age, gender, education, social status, culture, and values—are integral to the evaluation of Quality of Life.

II. Algeria Monograph

The study of Algeria's monograph is an essential step toward understanding the geographic, demographic, economic, and social characteristics that distinguish the country. These data points contribute to analyzing development levels and assessing the populations' Quality of Life (QoL). Quality of Life indicators are not solely linked to income or economic growth; they are also influenced by living conditions, health and educational services, infrastructure, and the social environment. Thus, identifying Algeria's characteristics is a necessity for understanding the reality of the Quality of Life and its development prospects.

Table No. (01): Algeria Monograph

Feature	Description
Official Name	People's Democratic Republic of Algeria
Political System	Republic
Area	2,381,741 km ²
Capital	Algiers
Major Cities	Algiers, Oran, Annaba, Constantine
Population	Approximately 48 million (2026 estimate)
Official Languages	Arabic, Tamazight
Religion	Islam
Currency	Algerian Dinar (DZD)
Official Working Days	Sunday to Thursday
Time Zone	GMT +1

Source: Official Website of the Algerian Ministry of Foreign Affairs.

III. Constraints to Quality of Life in Algeria

Quality of Life (QoL) is a multidimensional concept influenced by a wide range of interconnected economic, health, social, educational, environmental, and subjective factors. Therefore, identifying the constraints to a high quality of life is a complex task, as individuals may evaluate their living conditions differently according to their socioeconomic circumstances, personal experiences, and expectations. Liao (2009) emphasizes the importance of considering both objective indicators and subjective perceptions when assessing Quality of Life, as these two dimensions may not always correspond.

In addition, the assessment of Quality of Life encompasses several dimensions related to individuals' physical health, psychological well-being, social relationships, living environment, and other aspects of their everyday lives. The WHOQOL-BREF, for example, was developed as a multidimensional instrument for assessing Quality of Life and was tested internationally for its psychometric properties (Skevington et al., 2004).

In the Algerian context, several constraints may constitute barriers to individuals' well-being and prosperity. These constraints are interconnected, meaning that difficulties in one dimension may influence other aspects of Quality of Life. From this perspective, the main dimensions considered in this study include economic conditions, income, health, social life, education, the environment, and life satisfaction.

Economic constraints may include limited economic opportunities, unemployment, financial insecurity, and unfavorable economic conditions. Such constraints may reduce individuals' ability to meet their basic needs, access essential services, and improve their living standards. Economic conditions are therefore closely related to the overall assessment of Quality of Life.

Income constraints are particularly important because income constitutes a fundamental determinant of individuals' material living conditions. Insufficient

income may restrict access to adequate housing, healthcare, education, and other essential goods and services. Consequently, income represents an important dimension in the assessment of Quality of Life.

Health constraints may involve difficulties in accessing healthcare services, as well as physical and psychological conditions that negatively affect individual well-being. Health is an essential component of Quality of Life because poor health may limit individuals' ability to work, study, maintain social relationships, and participate actively in society. This multidimensional consideration of health is consistent with the WHOQOL approach to Quality of Life assessment (Skevington et al., 2004).

Similarly, social constraints may arise from social isolation, weak social support, limited participation in community life, or difficulties in maintaining satisfactory social relationships. These factors can influence individuals' perceptions of their well-being and satisfaction with their lives.

Educational constraints may affect Quality of Life by limiting individuals' opportunities to acquire knowledge, develop skills, access employment, and improve their socioeconomic conditions. Education can therefore contribute to both individual development and improved living standards.

Furthermore, environmental constraints, including inadequate housing conditions, pollution, insufficient infrastructure, and limited access to clean and safe surroundings, may negatively affect physical health and subjective well-being. Liao's (2009) findings illustrate the relevance of environmental quality as one of the domains through which both objective conditions and subjective perceptions of Quality of Life can be examined.

Finally, subjective dimensions, particularly life satisfaction, should not be overlooked. Individuals living under similar objective conditions may evaluate their Quality of Life differently depending on their expectations, aspirations, perceptions, and personal experiences. The OECD likewise treats subjective well-being as an important complement to objective measures of economic, social, and environmental conditions.

Overall, the constraints to Quality of Life in Algeria should not be considered isolated factors. Rather, they form an interconnected system in which economic and income conditions may affect access to healthcare and education, while social and environmental conditions may influence health and life satisfaction. Therefore, adopting a multidimensional approach that combines objective living conditions with subjective perceptions provides a more comprehensive framework for understanding the barriers to improving Quality of Life in Algeria. This approach is consistent with the broader literature emphasizing the complementary role of objective and subjective indicators in Quality of Life assessment (Liao, 2009; Skevington et al., 2004).

IV. Methodology

1. Questionnaire Design:

The researcher designed the questionnaire based on a contextual understanding of the research topic and the documented references cited in this study. The questionnaire items were specifically tailored to reflect the nature of life in Algeria. Demographic variables—including gender, age, marital status, and social class of the respondents—were presented at the beginning of the questionnaire. The design relied on a set of life indicators as follows:

- Health Indicator
- Income Level Indicator
- Social Life Indicator
- Life Satisfaction Indicator
- Environment Indicator
- Education Indicator
- Economic Life Indicator

2. Survey Implementation:

Following the description of the questionnaire design, the focus shifted to the selection of the study sample, ensuring it aligned with the specific objectives of the research. Since Algeria was selected as the case study, it was treated as the target population from which a random sample of individuals was drawn. It is important to note that the study's purpose is not strictly for descriptive statistical analysis; thus, traditional statistical methods for determining an exact sample size were not utilized. Instead, the research aimed to survey the largest possible number of participants to achieve the highest level of representation for the study population.

3. Data Analysis:

The most crucial pillar in various research studies is the handling of data obtained through diverse survey methods, encompassing collection, tabulation, and the mechanism of transforming it into results that facilitate understanding the research problem and achieving analytical objectives. This analysis cannot be attained without employing a range of methods and techniques proposed by various disciplines, including economics, econometrics, and statistics. To achieve the study's objectives through the analysis of the collected data, the analytical tool embodied in the Pareto Principle was utilized. A brief explanation of this tool is provided below:

4. Pareto Chart:

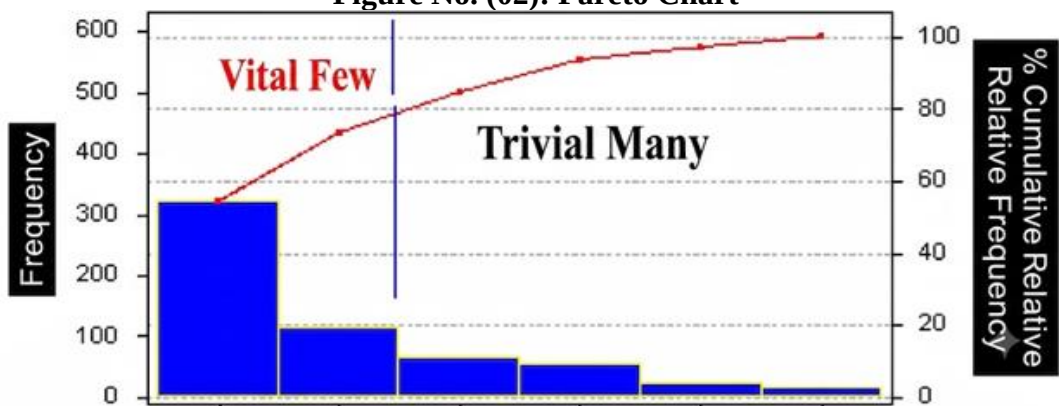
Named after the Italian economist Vilfredo Pareto, this chart is a simple graphical tool that ranks problems and defects from the most frequent to the least frequent. With a single glance, it highlights the most significant problem and its relative impact compared to others, enabling a strategic concentration of efforts to resolve it. The Pareto Chart classifies problems and defects into two fundamental categories:

- **The Vital Few:** A small number of causes that account for the majority of the effects.
- **The Trivial Many:** A large number of causes that collectively have a minimal impact.

4.1. Pareto Chart:

Its consists of both horizontal and vertical axes. Problems and defects are plotted along the horizontal axis, while their respective percentages are represented on the vertical axis. The items are arranged in descending order of importance—from the highest percentage on the left to the lowest on the right. This configuration establishes a hierarchy of importance, allowing for the immediate prioritization of solutions for issues that exert the most significant impact (Zeinab Allawi, 2013).

Figure No. (02): Pareto Chart



Source: Adapted by the author from Juran (1951).

The Pareto Principle is utilized across diverse domains of life, including individuals' daily routines, the environment, and technology, with a particular focus on the economic sphere. The following table highlights some practical applications of the Pareto Principle within the field of economics:

Table No. (02): Application Domains of the Pareto Principle (80/20)

Application of Pareto Principle in Economics	Percentage Description
01. Economic Units	• 80% of work is achieved by 20% of employees. • 20% of employees provide 80% of production. • 20% of project stages consume 80% of all resources. • 20% of meetings yield 80% of good ideas.
02. Quality	• 80% of effects can be explained by 20% of causes. • 20% of defects account for 80% of all problems.
03. Marketing	• 80% of profits come from 20% of the unit's customers. • 80% of sales come from 20% of products. • 80% of complaints originate from 20% of customers. • 80% of sales are generated by 20% of the sales staff.
04. Inventory	• 20% of inventory occupies 80% of storage space. • 80% of raw materials are sourced from 20% of suppliers.

Source: (Wissam, Ahmed, 2013).

4.2. Constructing the Pareto Chart:

Based on the work of (M. Majid, 2012), a Pareto chart is constructed using bars that represent the distribution of scarce resources to achieve the maximum possible return. It is also used to display the relative importance of problems to identify the starting point for problem-solving and recognize root causes. Constructing a Pareto chart requires the following steps:

- Utilize check sheets or brainstorming for data collection.
- Arrange data from the smallest to the largest category.
- Calculate the total sum.
- Calculate the percentage of each category relative to the total.
- Calculate the cumulative percentages.
- Divide the vertical axis to indicate frequency.
- Draw a bar for each category, where the height represents the frequency.
- Draw a second vertical axis scaled from 0 to 100.
- Plot the cumulative percentages.

It is crucial to note that the application of the Pareto Principle begins with a foundational phase of data collection through established techniques such as brainstorming. In this study, however, a questionnaire was utilized to align with the research objectives and Pareto's analytical requirements. While questionnaires typically involve reliability testing (such as Cronbach's Alpha) to ensure consistency, this study treated the questionnaire solely as a tool for gathering data to prepare the Pareto chart. Ultimately, applying this principle will identify the most critical quality of life constraints in Algeria—the 'Vital Few' that exert an 80% impact on overall well-being.

4.3. Data Preparation:

Following the selection of a sample consisting of 270 individuals, respondents were instructed to rank the seven quality of life constraints from one to seven based on their perspective. Subsequently, the frequencies of each constraint were counted and arranged in descending order. These frequencies were then tabulated into numerical data to serve as the primary inputs for constructing the Pareto chart.

V. Results

1. Sample Description: The sample was characterized based on the descriptive variables included in the questionnaire:

- **Gender Variable:** To distinguish respondents by gender (Male/Female).
- **Age Variable:** Reflects the ages of the sample individuals (average age).
- **Marital Status Variable:** To indicate the respondent's current legal status (Married, Single, Divorced).
- **Social Class Variable:** To differentiate among sample members and examine how individuals self-identify across three classes (Rich, Middle-class, or Underprivileged).

Table No. (03): Description of the Study Sample

Variable	Classification	Frequency	Percentage
Gender	Male	230	85%
	Female	40	15%
Age	Average	39	-
Marital Status	Single	165	61%
	Married	90	33%
	Divorced	15	06%
Social Class	Rich	05	02%
	Middle-class	197	72%
	Underprivileged	73	26%

Source: Prepared by the researcher based on the survey results.

Based on Table No. (03), the following can be concluded:

- Within a sample of 270 individuals, males accounted for 230 participants compared to a 15% representation for females, indicating that the vast majority of the sample is male.
- The average age of the sample members was 39 years.
- Among the 270 respondents, single individuals held the highest proportion at 61%, meaning most participants are unmarried. The marriage rate reached 33%, while the divorce rate stood at 06%.
- The majority of the 270 sample members (72%) classified themselves as middle-class. Meanwhile, 26% of respondents viewed themselves as underprivileged, with only 5 individuals identifying as wealthy according to their self-assessment.

Table No. (04): Frequency Count of Each Constraint

Quality of Life Constraints	Frequency Count	Descending Rank
Economic Life	82	01
Income	71	02
Environment	42	03
Health	29	04
Life Satisfaction	20	05
Social Life	15	06
Education	11	07
Total	270	-

Source: Prepared by the researcher based on the survey results.

The table above was prepared based on the questionnaire responses provided by the respondents. It was observed that the 'Economic Life' constraint was the most frequent, with a frequency of 80 occurrences, followed by the 'Income' constraint with 71 occurrences. Conversely, the least frequent constraint was 'Education' at 11 occurrences. These ranking results underscore the pivotal role of economic life in Algeria and its impact on quality of life levels and societal well-

being. Similarly, the 'Income' factor, which appeared 71 times, emphasizes the significance of net income levels for Algerians in achieving a happy life.

Table No. (05): Data Preparation for Constructing the Pareto Chart

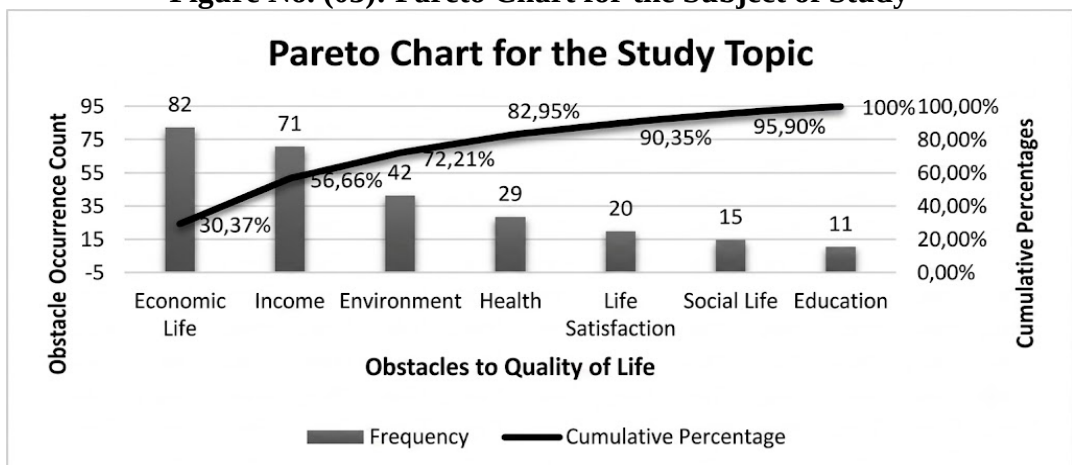
Quality of Life Constraints	Frequency Count	Cumulative Total	Percentage of Total	Cumulative Percentage
Economic Life	82	82	30.37%	30.37%
Income	71	153	26.29%	56.66%
Environment	42	195	15.55%	72.21%
Health	29	224	10.74%	82.95%
Life Satisfaction	20	244	7.4%	90.35%
Social Life	15	259	5.55%	95.90%
Education	11	270	4.07%	100%
Total	270	-	100%	-

Source: Prepared by the researcher based on the survey results.

The above table illustrates the process of transforming raw data into primary information for the construction of a Pareto chart, based on the survey results of 270 respondents regarding quality of life constraints in Algeria. The table is structured as follows:

- **First Column:** Represents the seven quality of life constraints identified as barriers to the well-being of Algerians.
- **Second Column:** Represents the frequency of each observed constraint.
- **Third Column:** The cumulative total, calculated by adding subsequent values to the initial figure.
- **Fourth Column:** Reflects the percentage of each constraint relative to the overall total.
- **Fifth Column:** The cumulative percentage calculated based on the individual percentages. The construction of the Pareto chart primarily relies on two critical factors: the frequency counts and the cumulative percentages.

Figure No. (03): Pareto Chart for the Subject of Study



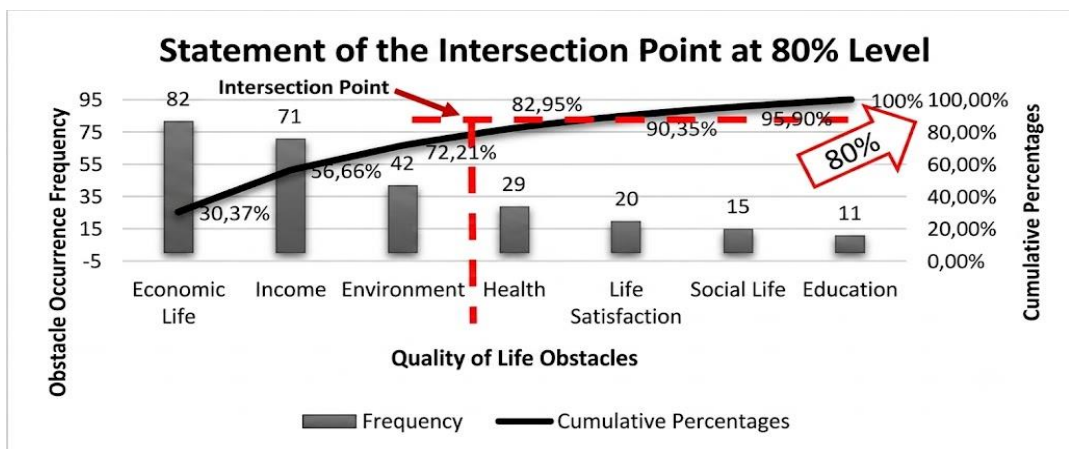
Source: Prepared by the researcher based on the outputs of Excel 2024

Figure No. (03) illustrates the Pareto chart constructed for the study's purposes using Excel 2024. The chart consists of three axes, including the horizontal axis, which represents the seven quality of life constraints: Economic Life, Income, Environment, Health, Life Satisfaction, Social Life, and Education. These factors are represented by bars, where the height of each bar corresponds to the frequency count reported by the respondents. For instance, the 'Environment' factor occurred 29 times, which is reflected by a bar height of 29 units

The chart features two vertical axes. The **left vertical axis** represents the frequency of each quality of life constraint, determining the height of each bar. For instance, the 'Income' constraint was cited 71 times by the sample members, resulting in a bar that reaches the value of 71 on the left axis.

The **right vertical axis** represents the cumulative percentages, starting with the most frequent constraint—'**Economic Life**' (82 occurrences). Its percentage is calculated relative to the total sample size of 270 ($82/270 = 30.37\%$). Subsequent percentages are added progressively to reach a final cumulative total of 100%. This calculation is fundamental to the Pareto chart, as it allows for plotting points for each cumulative percentage. These points are then connected to form a curve, which is essential for identifying the 'Vital Few' and applying the 80/20 principle

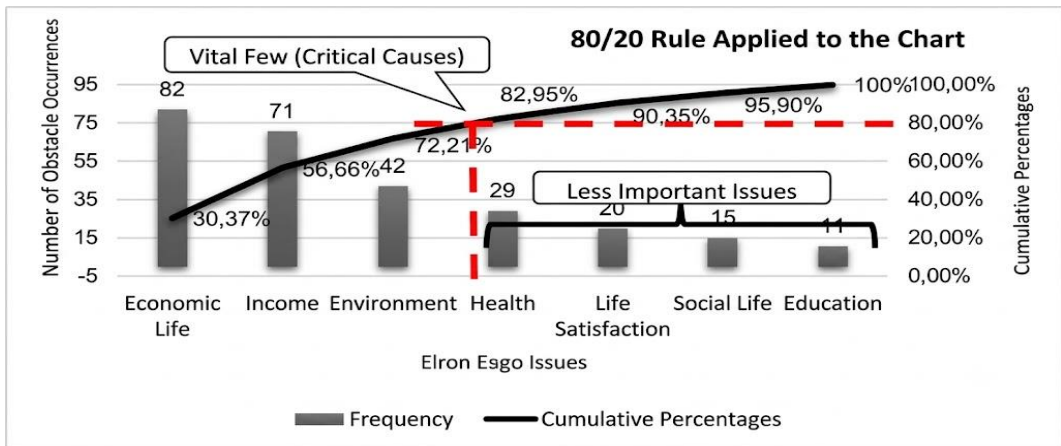
Figure No. (04): Application of the 80/20 Rule Concept



Source: Prepared by the researcher based on the outputs of Excel 2024.

Figure No. (04) illustrates the application of the Pareto 80/20 rule, specifically demonstrating how the law is handled graphically. This is achieved by identifying the 80% mark on the cumulative percentage scale and drawing a horizontal line from this point on the right vertical axis (cumulative percentages) until it reaches the intersection point with the curve, as shown in Figure No. (04).

Figure No. (05): Identifying the Significant Few (the Vital Few), i.e., the most influential constraints on the quality of life in Algeria.



Source: Prepared by the researchers based on the outputs of Excel 2024.

To demonstrate Pareto's Law, the researchers drew a horizontal line parallel to the x-axis at the 80% level on the y-axis. The intersection point of this line with the curve was then projected onto the horizontal axis to form a dividing line between the 'Vital Few' (the most influential constraints) and the 'Trivial Many'. Consequently, the constraints located to the left of the projection line represent the most significant and impactful factors on quality of life levels. Conversely, those to the right are considered the least influential on the degree of Algerian quality of life compared to other factors.

VI. Discussion

Figure No. (05) illustrates the constraints hindering the sample members, representing Algerian society, from attaining premium quality of life levels characterized by well-being and prosperity. By applying Pareto's Law to categorize these obstacles into highly influential constraints versus those with lesser impact, the study concludes that 80% of Algerian quality of life challenges stem from the first three constraints located to the left of the 80/20 point line: Economic Life in the first degree, individuals' Income levels in the second degree, and the Environment in the third degree.

1. Constraint No. 01 – Economic Life:

The reality of economic life in Algeria has been classified as the primary factor limiting the well-being of Algerian society, as it falls to the left of the 80/20 rule projection line. In this context, 'Economic Life' encompasses the impact of economic indicators on daily life, such as the general price level and its effect on purchasing power. It also includes varying unemployment rates, inflation indicators, and the continuous depreciation of the Algerian currency relative to international exchange rate fluctuations. Furthermore, it highlights the difficulty many Algerians face in balancing consumption and saving. These variables

collectively underscore why economic conditions represent the foremost barrier to prosperity.

2. Constraint No. 02 – Income Levels:

It is well-known to economists that a primary macroeconomic objective is the fair distribution of national income. Consequently, Algerian society exhibits significant disparities in income levels, prompting an inquiry into GDP per capita on both a daily and monthly basis. As this barrier represents the second most significant cause of diminished quality of life, it reflects potential dissatisfaction with current income levels or perhaps a lack of diverse income sources necessary for a prosperous life. Ultimately, the income factor plays a vital role in fulfilling the requirements for a happy and stable life.

3. Constraint No. 03 – The Environment:

The environment is considered one of the most critical topics to which countries worldwide give utmost importance, following a history of global neglect. This significance is highlighted by the strong association between environmental issues and the concepts of sustainable development. The geographical and spatial environment in which Algerian citizens live has a profound impact on their security and psychological comfort. The ranking of the environment as the third major issue among the seven constraints signifies the environmental challenges faced by the majority of the population. These include the cleanliness of residential areas and the urban fabric, pollution levels, and the noise factor, which directly affects individual well-being at varying degrees.

4. Interpretation of Results:

The Pareto chart aims to identify and address the core problem by focusing on the most significant and influential causes, thereby intensifying efforts toward their resolution. In this study, it was found that the primary constraints limiting quality of life in Algeria are Economic Conditions, Income Levels, and the Environment. Accordingly, state institutions and individuals must consolidate their efforts to improve economic conditions. Furthermore, raising individual incomes must occur in tandem with accelerating development and production to ensure sustainable growth without unproductive inflation. None of this can be achieved without prioritizing environmental preservation. While the remaining four constraints—Health, Life Satisfaction, Education, and Social Life—are classified as having a lesser impact according to Pareto's Law, they nonetheless continue to influence the overall quality of life in Algeria.

Conclusion:

This study aimed to investigate the constraints on the quality of life in Algeria by employing the Pareto Chart method, a widely used problem-solving approach in management, economics, and various other fields. Specifically, the research relied on the 80/20 principle to identify and prioritize the most influential constraints hindering life prosperity in Algeria. The analysis successfully pinpointed the primary obstacles that respondents believe prevent them from attaining a high-standard quality of life, summarized as:

- Economic Conditions
- Income Level
- The Environment Furthermore, the Pareto technique identified factors with a lesser impact on the quality of life in Algeria, namely:
 - Health
 - Life Satisfaction
 - Social Life
 - Education

The benefit of Pareto analysis is not limited to identifying the most significant issues-quality of life constraints- but also includes identifying the least significant ones to enable sound decision-making and the consolidation of efforts toward resolving the most frequent problems. In summary, the Pareto chart helped identify the primary constraints within the study's scope. The study's conclusions are summarized as follows:

- Algeria possesses the foundations for a high-standard quality of life.
- Several barriers stand between Algerians and prosperity.
- Economic conditions, income levels, and the environment were considered the most significant obstacles to quality of life.
- To achieve a respectable quality of life, efforts must focus on finding solutions for these high-impact constraints.

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