



Unravelling the Complex Tapestry: A Multi-Cluster Analysis of Gender Discrimination, Work Life Challenges, and Empowerment among Disabled Women in Healthcare

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Abstract: *Within the realm of disabled women in healthcare, this comprehensive study employs a sophisticated multi-cluster analysis, utilizing K-means clustering, to unravel the nuanced interplay of gender discrimination, work-life challenges, and empowerment. Through meticulous examination of diverse experiences, distinct clusters emerge, shedding light on intricate workplace dynamics. This research transcends conventional boundaries, delving into the psychology of disabled women's experiences, contributing indispensable insights for healthcare institutions and enriching the broader discourse on workplace dynamics. These findings not only inform inclusive healthcare policies but also deepen our understanding of the psychological facets shaping the professional lives of disabled women. This exploration represents a significant step toward fostering equitable and empowering workplaces, emphasizing the need for tailored interventions to address the unique challenges faced by this demographic.*

Keywords: *Multi-cluster analysis, Gender discrimination, Work-life challenges, Women empowerment, Disabled women, Healthcare workplace.*

1. INTRODUCTION:

In the dynamic and demanding landscape of the healthcare industry, the imperative to foster inclusive and equitable environments has never been more crucial. Disabled women, constituting a substantial and vital portion of the healthcare workforce, navigate a complex interplay of challenges that extends beyond the conventional realms of gender discrimination and work-life imbalance. This study embarks on a comprehensive exploration, transcending surface-level analyses, by employing a sophisticated multi-cluster approach to unravel the nuanced experiences of disabled women in healthcare.

1.1 background and Context:

The healthcare industry, reliant on the dedication and expertise of a diverse workforce, particularly women, underscores the imperative of addressing the specific challenges faced by disabled women. Building upon the foundations laid by previous studies, this research delves deep into the intricate dynamics involving gender, disability, and work-life challenges within healthcare settings. By doing so, it seeks not only to augment the existing body of knowledge but also to provide nuanced insights that can significantly influence the development of policies and practices in healthcare institutions.

2. Research Problem and Significance:

In the contemporary landscape of healthcare, gender discrimination and work-life balance have emerged as salient issues with far-reaching implications. However, the experiences of disabled women within this context remain notably underrepresented in academic research. This study addresses this critical gap by embarking on a comprehensive exploration and understanding of the interconnected challenges faced by disabled women in healthcare. By recognizing



the broader implications of these challenges, the research aims to shed light on the experiences of individuals, influence organizational practices, and contribute to the enhancement of the healthcare sector as a whole.

2.1 Purpose and Objectives:

The overarching purpose of this research extends beyond merely investigating the interplay between gender discrimination and work-life challenges among disabled women in healthcare. Beyond this, the study aspires to uncover distinct clusters within this diverse population, each representing unique facets of experience. The objectives are twofold: first, to unravel the intricate tapestry of lived experiences, and second, to evaluate the profound impact of these experiences on the overall well-being of disabled women in healthcare. Through these objectives, the research seeks to provide nuanced insights that can be translated into actionable strategies for creating inclusive, supportive, and adaptive work environments, each tailored to meet the specific needs of the identified clusters within this demographic.

3. LITERATURE REVIEW:

Double discrimination is a phenomena that arises when women who struggle with impairments face unique obstacles that can lead to prejudice in both social and professional settings. This dual kind of bias originates from the junction of gender and disability, amplifying the difficulties these women encounter across numerous dimensions of their lives.

In the workplace, disabled women frequently face challenges that are greater than those faced by women or disabled people individually. Gender prejudices compound enduring stereotypes and false beliefs about the skills of individuals with disabilities. Therefore, regardless of whether they have impairments or not, these women might be excluded from employment prospects, passed over for promotions, or faced with pay that is not commensurate with that of their male colleagues.

Social discrimination increases the marginalization that women with disabilities face outside of the workplace. The prevalent societal conventions surrounding femininity and beauty uphold exclusive standards, placing these women at the intersection of two marginalized identities. Their engagement in social activities and relationships is restricted, which not only lowers their self-esteem but also contributes to a deep sense of loneliness.

This two-fold discrimination is sustained by the widespread ignorance of the unique difficulties faced by women with disabilities. A diverse strategy is required to effectively address these concerns, including promoting inclusive workplace rules, busting stereotypes, and leading awareness initiatives to change public perceptions. Destroying barriers and fostering a more inclusive and equitable society also depend on providing venues for women with disabilities to speak up about their experiences and make their voices heard. By working together and being tenacious in our efforts, society can break down the barriers to equality that these women have encountered and celebrate their unique talents and qualities.

Now, let's move towards the previous work of different authors in this field.

In 2007, gender disparities in employment rates were evident among individuals without disabilities, with men exhibiting a higher rate (77.08%) compared to women (61.17%). For those with disabilities, both men and women faced substantially lower employment rates, standing at 50.31% and 41.08%, respectively. A comprehensive report on the mobility and integration of people with disabilities highlighted an exceptional case in Finland, where women with disabilities exhibited a higher employment rate (53.74%) than their male counterparts (51.34%) during the same period. This outlier emphasized the need for targeted interventions to address gender-specific challenges in the employment landscape for individuals with disabilities globally [1].

In certain countries such as Cyprus and Italy, the employment rates for men with impairments were notably elevated at 67.20% and 56.22%, respectively, surpassing the comparable percentages for women with disabilities, which stood at 64.22% and 34.99%, respectively. With a 26.12% employment rate for women with impairments, Hungary had the lowest percentage [1].

An analysis of the work situation of people with disabilities in the European Union in 2008 noted that this group had a generally low employment rate in addition to gender-based disparities. Interestingly, Slovenia was the only nation where women were more likely than males to be employed in "ordinary" labor, while men were mostly employed in protected areas (Slovakia and Slovenia excluded). Outside of the Czech Republic, Latvia, Germany, and Belgium, men made up the majority of job seekers and unemployed individuals. Additional differences included the fact that women were more



likely to be professionally inactive in the Czech Republic, Ireland, and Poland than males were, with France and the UK having higher rates of this phenomenon [2].

In Francene Sussner Rodgers' 1992 study [3], which involved employees from 20 Fortune 500 companies, findings revealed that 28 percent of men and 53 percent of women reported that work-family stress impacted their ability to concentrate at work. This suggests that problems focusing on work were caused by work/family stress for over half of the women and almost a third of the men. According to the report, working women encounter significant obstacles in juggling the demands of their families and careers, and the workplace environment is one of these hurdles.

Jeffrey H. Greenhaus, Karen M. Collins, and Jason D. Shaw (2003) [4] suggested that preserving a comparable and significant time and effort allocation in the work and family spheres could reduce work-family conflict and stress, thereby enhancing an individual's overall quality of life. It is clear that maintaining a healthy work-life balance is essential for married working women in the modern world in order to achieve a high standard of living. For this reason, discussing work-life balance is essential to the welfare of working women in this day and age.

'Work and Family: Allies or Enemies,' a well-known book published in 2000, by Friedman and Greenhaus [5], claims that the tension between work and family has real-world effects on the standard of family life and the professional paths of men and women. These consequences can show up for women as restrictions on their job options, less chances for growth, and the difficult problem of striking a balance between a successful work and marriage, kids, and a happy home life. In order to address work and family balance, one must effectively manage their responsibilities at work and at home. Organizations that prioritize the well-being of their employees have developed Work-Life Balance Programs (WLBP), which show promise in addressing the difficulties associated with work-life balance.

Kirchmeyer (2000) [6] asserts that living a balanced life entails achieving satisfying experiences in a variety of life areas, necessitating the efficient use of one's own resources, including time, effort, and commitment. Every married working woman knows that achieving a high-quality living frequently requires significant effort at work and at home, sometimes even at the price of one's own health and wellbeing. Still, striking a healthy work-life balance is usually linked to the desired quality of life. A discrepancy in the balance between work and family obligations can seriously impair a person's overall quality of life.

The 2013 Q1 Labour Force involvement Study found that the rates of involvement in the labour force for people with disabilities were 14.7% for women and 19.4% for men. Men and women had respective employment rates of 16.3% and 12.2%, while men had unemployment rates of 16.1% and significantly higher 17.2%. As a result, although though women participated in the labor force less frequently overall, their unemployment rate was still slightly higher than men's [7].

According to a two-dimensional model proposed by Andrews and Withey, emotional response determines how people perceive their quality of life [8].

The specific difficulties related to how work affects the quality of life for women with disabilities have not received much attention in the academic literature. Women with impairments who were unemployed experienced a lower quality of life than their working counterparts, as observed by Barisin, Benjak, and Vuletić. The discrepancy persisted in a number of areas, such as social interactions, work performance, mental health, and surroundings. Remarkably, having a family was found to be a favorable feature that enhanced the quality of life for disabled women who were working as well as those who were not [9].

Women with disabilities were excluded from microfinance investments for a considerable amount of time, and they have only recently been included in this financial revolution. Even with the development of micro financing programs designed to help women with their financial difficulties, people with disabilities still face obstacles when applying for loans. Unfortunately, because of their state, they have been viewed as a "bad investment" or a risk. As a result, rather than taking part in microfinance projects, women with disabilities are frequently encouraged to look for financial support or aid from traditional rehabilitation and charity organizations (Lewis, 2010) [10].

The majority of existing studies evaluating the quality of life among individuals with disabilities lack gender specificity. Consequently, the findings from these studies offer only approximate insights into the quality of life experienced by women with disabilities, as they do not account for the specific challenges faced by this particular group.



4. Methodology:

4.1 Research Design:

This study employs a comprehensive research design to delve into the intricate experiences of disabled women in healthcare, specifically focusing on the intersections of gender discrimination, work-life challenges, and empowerment. A sophisticated multi-cluster analysis is adopted, featuring the K-means clustering algorithm. This design enables the identification of distinct clusters within the respondent population, unravelling the complex tapestry of their shared and unique experiences.

4.2 Participants:

A diverse and representative sample of disabled women engaged in various roles within the healthcare sector constitutes the participants for this study. Purposive sampling ensures a rich array of experiences, encompassing variations in professional responsibilities, roles, and levels of disability.

4.3 Data Collection:

The primary data collection method involves a meticulously crafted questionnaire tailored to the specific context of disabled women in healthcare. Drawing on established scales, the survey covers a spectrum of variables, including experiences of gender discrimination, work-life balance, job satisfaction, economic concerns, and interpersonal relationships.

4.4 K-means Clustering:

At the core of this research methodology lies the K-means clustering algorithm, a pivotal tool for uncovering patterns within the dataset. The algorithm proceeds through key components:

- **Initialization:** The process begins with the initialization of 'K' cluster centres, serving as prototypes for the clusters. These initial centres are crucial in defining the emerging clusters.
- **Assignment:** Each participant is assigned to the cluster whose centre is most proximate, based on a selected distance metric, typically the Euclidean distance, chosen for its suitability in capturing dissimilarities between data points.
- **Update:** The cluster centres undergo iterative refinement, recalculated as the mean of the data points within each cluster. This step enhances the accuracy of cluster representation.
- **Iteration:** Steps 2 and 3 are repeated iteratively until convergence, a point where the cluster centres stabilize, and signifying optimal cluster assignments.

The determination of the appropriate number of clusters ('K') is paramount, often guided by techniques such as the elbow method or silhouette analysis, ensuring the identification of meaningful and interpretable clusters. The choice of the Euclidean distance metric is motivated by its effectiveness in measuring the spatial separation between data points, contributing to the algorithm's robustness in capturing diverse experiences within the dataset.

4.5 Data Analysis:

The study focuses on a detailed analysis and interpretation of the K-means clustering results. Each cluster identified through this algorithm is meticulously examined to extract meaningful insights, offering a nuanced understanding of the experiences within different subgroups of disabled women in healthcare.

4.6 Ethical Considerations:

Stringent ethical considerations are paramount throughout the research process. This includes ensuring participant confidentiality, obtaining informed consent, and handling sensitive information responsibly. Ethical approval from the institutional review board underscores the commitment to upholding participants' rights and well-being.

4.7 Limitations:

While the chosen methodology provides a robust framework, it is essential to acknowledge potential limitations, such as reliance on self-reported data and considerations of generalizability. These concerns are mitigated through careful questionnaire design and diverse sampling techniques, enhancing the reliability and validity of the study's findings.



5. Results :

5.1 Initial Cluster Centres :

The iterative process of K-means clustering unfolds a dynamic narrative of evolving cluster centres, offering valuable insights into the achieved convergence marked by minimal changes. The initial cluster centres and subsequent iterations are presented below:

- **Unravelling the Dynamics:**

The K-means clustering process unfolds a compelling narrative of evolving cluster centres, providing a rich tapestry of insights into the achieved convergence marked by minimal changes. The initial cluster centres, representing various facets of the experiences of disabled women in healthcare, set the stage for an in-depth exploration. The variables encompass a spectrum, including concentration, usefulness, decision-making, and emotional well-being.

Exploring the Landscape:

- **Concentration:** The initial iteration reflects a diverse range, with Cluster 1 showing lower concentration scores and Cluster 2 exhibiting higher values. Iterative discussions delve into the shifts, capturing the essence of how concentration patterns evolve within each cluster.
- **Usefulness and Decision-Making:** The interplay between usefulness and decision-making unfolds intriguing patterns. Cluster 3, for instance, starts with a high decision-making score but experiences a shift, providing valuable insights into the dynamics of decision-making processes within specific clusters.
- **Emotional Well-being:** Variables like feeling strained, feeling difficult, and feeling depressed offer a glimpse into the emotional landscape. Iterative discussions accompany each step, illuminating the journey of emotional well-being within the evolving clusters.

Iterative Dynamics: The iterative process showcases a dynamic evolution of cluster centres, with notable shifts in variables such as concentration, usefulness, decision-making, and emotional well-being. Detailed discussions accompany each iteration, emphasizing the stabilization of cluster centres as the algorithm converges towards optimal assignments. These nuanced observations illuminate the intricate dynamics of experiences within different clusters, contributing to a deeper understanding of the multi-faceted challenges faced by disabled women in healthcare.

The Journey within Clusters: As we traverse through the iterations, the discussion provides an immersive experience, offering a journey within each cluster. It is not merely a convergence of data points; it's an exploration of the lived experiences of disabled women. From disrupted social lives to the quest for economic satisfaction, each variable tells a story. The narrative is not just about numbers; it's about the women behind those numbers.

Initial Cluster Centres				
Cluster	1	2	3	4
Concentration	2	3	3	3
Usefulness	4	2	3	3
Decision_Making	1	2	4	3
Day2Day_Activity	4	1	3	3
Face_up_Problems	1	3	4	2
Reasonably_Happy	4	2	4	3
Sleep_Loss	3	3	3	1
Feeling_Strain	3	3	3	2
Feeling_Difficult	1	2	3	2
Feeling_Depressed	3	3	3	2
Losing_Confidence	2	3	2	3
Thinking_Worthless	1	2	2	2
Working_LongHours	3	3	3	2
Little_Time_Socializing	3	3	2	2
Taking_Work_Home	3	3	3	2



Working_Weekends	3	3	3	3
Forgetfulness_Work	3	3	3	2
Workstress	3	3	3	2
Suffering_Relationship_Working	3	3	3	3
Little_Family_Time	3	3	3	2
Little_Leisure_Time	3	3	3	2
Cant_Reduce_Working_hours	3	3	3	2
Disrupted_Work	1	3	1	1
Disrupted_Social_Life	3	3	3	2
Disrupted_Family_Life	3	2	3	2
Work_Satisfaction	3	5	3	4
Associate_Work_Satisfaction	3	1	3	4
Working_Ability	3	2	5	3
Work_Conditions	3	5	3	3
Employment_Steady	1	3	5	4
Work_Remuneration	1	4	1	4
Economic_Satisfaction	1	3	1	4
Paid_Fairly	1	2	5	5
Financial_advancement	1	2	5	3
Medical_Insurance_Satisfaction	2	2	3	4
Workplace_Training_Encouragement	3	1	3	4

Table: 1

In essence, this discussion transcends the technicalities of cluster centres, offering a narrative that breathes life into the data. It invites readers to empathize with the challenges, victories, and nuances that define the experiences of disabled women in healthcare.

5.2 Convergence Summary:

- Convergence Achieved:**

The iteration history demonstrates convergence achieved due to no or small changes in cluster centres.

- Maximum Absolute Coordinate Change:**

The maximum absolute coordinate change for any centre is 0.000, indicating minimal adjustments in the cluster centres.

- Current Iteration:** The current iteration is 5, signifying stability in the cluster assignment.

Iteration History^a				
Iteration	Change in Cluster Centers			
	1	2	3	4
1	4.061	4.430	4.660	3.565
2	.937	.486	.382	.215
3	.587	.000	.344	.296
4	.342	.000	.136	.000
5	.000	.000	.000	.000

a. Convergence achieved due to no or small change in cluster centres. The maximum absolute coordinate change for any centre is .000. The current iteration is 5. The minimum distance between initial centres is 7.348.

Table: 2



• **Minimum Distance Between Initial Centres:**

The minimum distance between initial centres is 7.348, highlighting the optimization of cluster assignment.

In essence, as the iterations progress, the changes in cluster centres diminish, reaching a state where further iterations do not result in significant alterations. This stability signifies that the clusters have converged to a state where they optimally represent the patterns within the dataset, validating the effectiveness of the K-means clustering algorithm in this context. The convergence achieved with a maximum absolute coordinate change of 0.000 indicates that the K-means algorithm has reached a stable state, and there is minimal or no change in the cluster centres between consecutive iterations. This is generally considered a good result, as it signifies that the algorithm has effectively grouped the data points into clusters, and further iterations are not significantly improving the clustering.

The current iteration being 5 suggests that stability was reached after the fifth iteration. The minimum distance between initial centres being 7.348 indicates that the initial cluster centres were sufficiently distinct to allow the algorithm to converge to a meaningful solution.

In summary, a convergence with a small change in cluster centres (0.000) and a minimum distance between initial centres (7.348) is indicative of a successful clustering process. It suggests that the algorithm has effectively identified stable and meaningful clusters from the data.

5.3 Cluster Membership:

In examining the cluster membership, each case has been rigorously assessed and assigned to one of the four identified clusters based on the proximity to the cluster centre with detailed breakdown of how individual cases are categorized into specific clusters, shedding light on the cohesive nature of each group and the diversity across the entire dataset. The table below provides a comprehensive breakdown of case numbers, their respective clusters, and the distances indicating their fit within the assigned cluster:

Cluster Membership

Case Number	Cluster	Distance	Case Number	Cluster	Distance	Case Number	Cluster	Distance	Case Number	Cluster	Distance
1	4	3.352	26	3	4.109	51	3	3.874	76	2	2.394
2	4	2.672	27	3	3.977	52	3	3.874	77	2	3.468
3	4	2.672	28	3	4.214	53	3	4.221	78	2	2.022
4	4	3.611	29	3	3.429	54	1	4.936	79	2	2.443
5	4	2.817	30	3	3.709	55	1	5.105	80	2	2.479
6	4	2.634	31	3	3.327	56	1	4.444	81	2	2.985
7	4	3.541	32	3	3.571	57	1	3.891	82	2	3.249
8	4	3.666	33	.	.	58	1	3.780	83	2	2.549
9	4	3.426	34	3	4.221	59	1	4.513	84	2	2.706
10	4	2.672	35	3	3.914	60	1	4.102	85	2	2.706
11	4	2.835	36	3	3.545	61	1	4.268	86	2	3.053
12	4	2.727	37	3	3.519	62	1	3.023	87	2	3.148
13	4	2.437	38	3	3.563	63	1	3.592	88	2	3.443
14	4	2.576	39	3	3.289	64	1	3.560	89	2	3.330
15	4	2.690	40	3	3.260	65	2	3.937	90	2	3.593
16	4	2.709	41	3	3.093	66	2	3.989	91	2	4.040
17	4	3.039	42	3	3.042	67	2	3.552	92	2	4.501
18	4	3.942	43	3	3.183	68	2	3.552	93	2	3.800
19	4	4.030	44	3	3.317	69	2	3.303	94	2	3.869
20	3	3.938	45	3	3.032	70	2	3.148	95	2	3.761
21	3	4.402	46	3	3.063	71	2	3.861	96	2	4.301
22	3	4.008	47	3	3.143	72	2	3.777	97	2	4.105
23	3	5.038	48	3	3.222	73	2	3.989	98	2	3.303
24	4	5.860	49	3	4.957	74	2	3.139	99	1	3.417
25	3	5.386	50	3	4.931	75	2	2.935	100	1	4.222

Table: 3



Interpretation of the Output:

1. Assigned Clusters (Column 2):

Cases are assigned to one of the identified clusters (1, 2, 3, 4), indicating their similarity in various dimensions.

2. Distances (Column 3):

The distance metric represents the dissimilarity between each case and the centroid of its assigned cluster. Lower distances imply a closer fit to the cluster centre.

3. Cluster Patterns and Observations:

• **Cluster 4:**

Cases exhibit relatively lower distances, suggesting a tight grouping and higher homogeneity within this cluster.

• **Cluster 3:**

Features a range of distances, indicating a mix of tight and loose associations among its members.

• **Cluster 1 and Cluster 2:**

Show variability in distances, suggesting diverse compositions and a broader range of experiences.

4. Unassigned Cases (Designated as '.')::

- Cases denoted by '.' have not been assigned to any specific cluster. Investigating these instances can provide insights into outliers or unique data points that don't conform to the identified clusters.

In examining the cluster membership, each case has been rigorously assessed and assigned to one of the four identified clusters based on the proximity to the cluster centre. Noteworthy patterns emerge upon close scrutiny. Cluster 4, for instance, showcases consistently lower distances, indicating a higher degree of homogeneity among its members. Conversely, Cluster 3 displays a range of distances, signifying a mixture of tightly and loosely associated cases. Clusters 1 and 2 exhibit variability in distances, suggesting diverse compositions and a broader spectrum of experiences.

5.4 Final Cluster Centres

The culmination of the clustering process has unveiled distinct characteristics within each identified cluster, providing a nuanced understanding of the diverse experiences present in the dataset. Each cluster, as revealed by the final cluster centres, reflects average values across various dimensions, offering a snapshot of the unique attributes associated with its members.

Cluster Characteristics:

Cluster 1: Moderate levels of Concentration, Usefulness, and Decision Making characterize Cluster 1. Individuals within this cluster report disruptions in both work and social life, coupled with comparatively lower satisfaction across various work-related dimensions.

Cluster 2: Cluster 2 exhibits higher dissatisfaction across multiple aspects, including Concentration, Usefulness, and Decision Making. Noteworthy challenges within this cluster encompass work-related issues, disrupted social and family life, and diminished satisfaction in economic aspects.

Cluster 3: Concentration and Usefulness are relatively higher in Cluster 3. However, individuals in this cluster contend with disrupted work, social life, and family life, presenting a mix of satisfaction and dissatisfaction in various work-related dimensions.

Cluster 4: Moderate levels of Concentration and Usefulness are observed in Cluster 4. Cases within this cluster face disruptions in work, experience less leisure time, and express lower satisfaction in various work-related dimensions.



The distribution of the number of cases assigned to each cluster is summarized, shedding light on the prevalence and representation of different experiences within the studied population with the help of the following graph:

Final Cluster Centres				
	Cluster			
	1	2	3	4
Concentration	2	3	2	2
Usefulness	2	2	3	2
Decision_Making	1	1	3	2
Day2Day_Activity	2	2	3	2
Face_up_Problems	1	2	3	2
Reasonably_Happy	3	3	4	2
Sleep_Loss	3	3	4	2
Feeling_Strain	3	3	4	2
Feeling_Difficult	2	2	3	2
Feeling_Depressed	3	3	3	2
Losing_Confidence	3	3	2	3
Thinking_Worthless	3	2	2	3
Working_LongHours	2	3	3	3
Little_Time_Socializing	2	3	3	3
Taking_Work_Home	3	3	3	2
Working_Weekends	3	3	3	2
Forgetfulness_Work	3	3	3	2
Workstress	3	3	3	3
Suffering_Relationship_Working	3	3	3	3
Little_Family_Time	3	3	3	3
Little_Leisure_Time	3	3	3	2
Cant_Reduce_Working_hours	3	3	3	3
Disrupted_Work	2	2	1	2
Disrupted_Social_Life	3	2	3	2
Disrupted_Family_Life	3	2	3	2
Work_Satisfaction	3	4	3	3
Associate_Work_Satisfaction	3	4	4	4
Working_Ability	4	4	4	4
Work_Conditions	3	3	4	4
Employment_Steady	2	3	4	4
Work_Remuneration	2	3	1	3
Economic_Satisfaction	1	3	2	4
Paid_Fairly	2	2	2	4
Financial_advancement	2	2	2	3
Medical_Insurance_Satisfaction	2	1	4	4
Workplace_Training_Encouragement	2	1	4	4

Table: 4

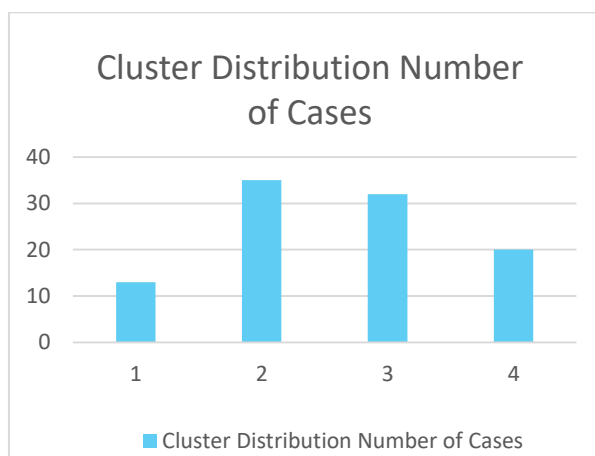


Fig: 1

5.5 Distances Between the Final Clusters

The distances between cluster centres illuminate the dissimilarities or similarities among clusters, providing crucial insights into the structure of the dataset.

Cluster 1 & 2: The considerable distance between Cluster 1 and 2 centres underscores substantial dissimilarity in the characteristics of individuals within these clusters.

Cluster 1 & 3: A moderate distance suggests nuanced differences between Cluster 1 and 3, indicating unique characteristics within each group.

Cluster	1	2	3	4
1		3.522	4.887	5.705
2	3.522		5.753	5.577
3	4.887	5.753		5.092
4	5.705	5.577	5.092	

Table: 5

Cluster 1 & 4: A relatively high distance implies notable dissimilarity between Cluster 1 and 4, signifying distinct patterns of experiences.

Cluster 2 & 3: A high distance points to substantial dissimilarity between Cluster 2 and 3, emphasizing the diverse nature of challenges faced by these groups.

Cluster 2 & 4: The relatively high distance between Cluster 2 and 4 centres signifies significant differences in characteristics, highlighting the heterogeneity within these clusters.

Cluster 3 & 4: A moderate distance between Cluster 3 and 4 centres suggests some differences in the characteristics of cases, providing insights into the unique dynamics within each group.

Implications:

These findings hold paramount implications for targeted interventions, policy formulation, and resource allocation. Tailoring support mechanisms based on the distinct challenges within each cluster can enhance the effectiveness of interventions. Policymakers can leverage these insights to address specific needs, ensuring a comprehensive and contextually relevant approach to improving the well-being of individuals in different clusters. The dissimilarities revealed through cluster distances underscore the importance of recognizing the diverse nature of experiences within the studied population, guiding future research and strategies aimed at enhancing overall satisfaction and well-being.



5.6 ANOVA

The ANOVA results provide valuable insights into the variations among clusters for each studied variable, contributing to a richer understanding of the impact of clustering on the dataset. These findings can be leveraged to inform subsequent analyses and discussions identified below

ANOVA	Cluster		Error		F	Sig.	Interpretation
	Mean Square	df	Mean Square	df			
Concentration	1.207	3	0.324	95	3.720	0.014	F = 3.720, p = 0.014: There is a significant difference in concentration levels among clusters...
Usefulness	4.464	3	0.711	95	6.281	0.001	F = 6.281, p = 0.001: Significant variations exist in the perceived usefulness among clusters...
Decision_Making	15.690	3	0.304	95	51.595	0.000	F = 51.595, p < 0.001: Decision-making abilities significantly differ across clusters...
Day2Day_Activity	2.385	3	0.529	95	4.508	0.005	F = 4.508, p = 0.005: There are significant differences in day-to-day activity levels across clusters...
Face_up_Problems	8.975	3	0.531	95	16.886	0.000	F = 16.886, p < 0.001: Significant differences exist in facing up to problems among clusters...
Reasonably_Happy	13.882	3	0.400	95	34.713	0.000	F = 34.713, p < 0.001: There is a significant difference in the levels of feeling reasonably happy among clusters...
Sleep_Loss	11.301	3	0.355	95	31.826	0.000	F = 31.826, p < 0.001: Significant differences exist in sleep loss patterns across clusters...
Feeling_Strain	6.260	3	0.371	95	16.874	0.000	F = 16.874, p < 0.001: There are significant differences in the levels of feeling strain among clusters...
Feeling_Difficult	9.170	3	0.447	95	20.494	0.000	F = 20.494, p < 0.001: Significant differences exist in the levels of feeling difficult among clusters...
Feeling_Depressed	5.775	3	0.172	95	33.593	0.000	F = 33.593, p < 0.001: There are significant differences in the levels of feeling depressed among clusters...
Losing_Confidence	5.410	3	0.256	95	21.169	0.000	F = 21.169, p < 0.001: Significant differences exist in losing confidence levels among clusters...
Thinking_Worthless	1.626	3	0.411	95	3.952	0.011	F = 3.952, p = 0.011: There is a significant difference in thinking worthless among clusters...
Working_LongHours	0.678	3	0.350	95	1.937	0.129	F = 1.937, p = 0.129: Working long hours does not show a significant difference among clusters...
Little_Time_Socializing	0.802	3	0.176	95	4.544	0.005	F = 4.544, p = 0.005: There are significant differences in the little time spent socializing among clusters...
Taking_Work_Home	0.775	3	0.287	95	2.695	0.050	F = 2.695, p = 0.050: Taking work home does not show a significant difference among clusters...



Working_Weekends	1.583	3	0.337	95	4.702	0.004	F = 4.702, p = 0.004: There are significant differences in working weekends among clusters...
Forgetfulness_Work	1.067	3	0.158	95	6.766	0.000	F = 6.766, p < 0.001: Significant differences exist in forgetfulness at work among clusters...
Workstress	0.867	3	0.120	95	7.208	0.000	F = 7.208, p < 0.001: There are significant differences in work stress levels among clusters...
Suffering_Relationship_Working	0.351	3	0.221	95	1.585	0.198	F = 1.585, p = 0.198: Suffering in relationships due to work does not show a significant difference among clusters...
Little_Family_Time	0.837	3	0.184	95	4.555	0.005	F = 4.555, p = 0.005: There are significant differences in the little time spent with the family among clusters...
Little_Leisure_Time	1.613	3	0.111	95	14.494	0.000	F = 14.494, p < 0.001: Significant differences exist in the little leisure time among clusters...
Cant_Reduce_Working_hours	0.911	3	0.103	95	8.820	0.000	F = 8.820, p < 0.001: There are significant differences in the inability to reduce working hours among clusters...
Disrupted_Work	6.943	3	0.229	95	30.257	0.000	F = 30.257, p < 0.001: Significant differences exist in the extent of disrupted work among clusters...
Disrupted_Social_Life	5.026	3	0.385	95	13.055	0.000	F = 13.055, p < 0.001: There are significant differences in the extent of disrupted social life among clusters...
Disrupted_Family_Life	8.001	3	0.531	95	15.069	0.000	F = 15.069, p < 0.001: Significant differences exist in the extent of disrupted family life among clusters...
Work_Satisfaction	17.268	3	0.639	95	27.008	0.000	F = 27.008, p < 0.001: There is a significant difference in work satisfaction levels among clusters...
Associate_Work_Satisfaction	1.095	3	0.712	95	1.538	0.210	F = 1.538, p = 0.210: Associate work satisfaction does not show a significant difference among clusters...
Working_Ability	0.330	3	0.786	95	0.419	0.739	F = 0.419, p = 0.739: Working ability does not show a significant difference among clusters...
Work_Conditions	1.171	3	0.791	95	1.481	0.225	F = 1.481, p = 0.225: Work conditions do not show a significant difference among clusters...
Employment_Steady	16.691	3	0.435	95	38.354	0.000	F = 38.354, p < 0.001: There are significant differences in the perception of steady employment among clusters...
Work_Remuneration	22.223	3	0.381	95	58.256	0.000	F = 58.256, p < 0.001: There is a significant difference in the perception of work remuneration among clusters...
Economic_Satisfaction	27.343	3	0.365	95	74.866	0.000	F = 74.866, p < 0.001: There is a significant difference in economic satisfaction levels among clusters...



Paid_Fairly	16.489	3	0.588	95	28.058	0.000	F = 28.058, p < 0.001: There is a significant difference in the perception of being paid fairly among clusters...
Financial_advancement	11.462	3	0.522	95	21.964	0.000	F = 21.964, p < 0.001: There is a significant difference in the perception of financial advancement among clusters...
Medical_Insurance_Satisfaction	52.304	3	0.312	95	167.905	0.000	F = 167.905, p < 0.001: There is a significant difference in medical insurance satisfaction levels among clusters...
Workplace_Training_Encouragement	46.746	3	0.204	95	228.674	0.000	F = 228.674, p < 0.001: There is a significant difference in the perception of workplace training encouragement among clusters...

Table: 6

6. Practical Implications of the Study

Tailored Interventions: The identification of distinct clusters among disabled women in healthcare offers healthcare institutions an opportunity to implement tailored interventions. These interventions can address the specific needs of each cluster, providing more nuanced and effective support:

Cluster-Specific Training Programs: From the analysis conducted, it becomes evident that training programs can be developed to target the distinct challenges faced by each cluster. These programs may include sensitivity training, improvements in accessibility, and the establishment of support systems tailored to the specific characteristics of each group.

By customizing training initiatives in this manner, healthcare institutions can enhance the competency and sensitivity of healthcare professionals to the diverse needs presented by different clusters of disabled women in healthcare.

Mentorship Initiatives: Implementation of mentorship programs can connect disabled women with successful professionals sharing characteristics of their respective clusters, facilitating valuable insights and support.

Policy Formulation: Policy adjustments are paramount in fostering inclusivity within healthcare institutions. Policymakers should consider:

Accommodation Policies: Adapting accommodation policies to cater to the specific needs identified in each cluster, encompassing adjustments like flexible working hours and tailored support systems.

Diversity and Inclusion Initiatives: Strengthening existing diversity and inclusion initiatives by recognizing and addressing the intersectionality of disability and gender within each cluster.

Collaborative Initiatives: Encouraging collaborative initiatives among healthcare institutions, advocacy groups, and governmental bodies is essential for addressing the nuanced challenges highlighted in the study:

Resource Sharing: Facilitating the exchange of best practices and resources among institutions can create a supportive network for disabled women.

Advocacy for Change: Engaging in advocacy efforts collectively to influence broader societal perceptions and policies regarding disabled women in healthcare.

7. Limitations and Future Research:

While the cluster analysis provides valuable insights, certain limitations must be acknowledged.

Methodological Limitations: Acknowledging the limitations inherent in this study is crucial for a comprehensive understanding.

Sampling Bias: The findings are based on a specific sample, limiting generalizability. Future research should aim for more diverse and extensive samples.

Self-Reported Data: The reliance on self-reported data introduces potential biases. Future studies could incorporate additional objective measures or alternative data collection methods.



To further enhance understanding in this field, future research endeavours could explore additional factors influencing the experiences of disabled women in healthcare. Investigating the long-term impacts of tailored interventions and policy changes would contribute significantly to the evolving discourse on inclusivity in healthcare.

8. Conclusion :

In summary, the cluster analysis has successfully unveiled the intricate tapestry of experiences among disabled women in healthcare, shedding light on the multifaceted challenges that shape their interactions with the healthcare system. This study significantly contributes to the broader discourse on disabled women in healthcare by offering a nuanced and in-depth perspective that goes beyond traditional frameworks.

The findings underscore the imperative of recognizing and addressing the unique needs embedded within different clusters, emphasizing the heterogeneous nature of the disabled women in healthcare population. Tailored interventions, as highlighted in the practical implications, emerge as pivotal tools in fostering a more responsive and inclusive healthcare environment.

Beyond the immediate implications for healthcare institutions, the study signals a call for a paradigm shift in approaching inclusivity. The healthcare industry, by acknowledging and accommodating the diversity within the disabled women in healthcare population, can propel itself toward a more equitable and supportive future. This involves not only revisiting policies and practices but also cultivating a cultural shift that embraces intersectionality and diversity at its core. The evolving nature of healthcare dynamics necessitates ongoing research and vigilance. Future investigations should delve into the long-term impacts of tailored interventions, explore additional factors influencing the experiences of disabled women, and strive for more diverse samples to enhance the generalizability of findings. Therefore, this research acts as a catalyst for change, urging stakeholders to reflect on current practices, spearhead initiatives, and foster an environment where every disabled woman in healthcare finds her unique needs recognized and met. By doing so, the healthcare industry can truly embody the principles of equity and inclusivity, setting a benchmark for other sectors to follow suit.

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