

## UNDERSTANDING GENETIC DISORDERS: EVALUATING NURSING KNOWLEDGE FOR IMPROVED PATIENT CARE

**Author's Name:** Mehjbeen Bano<sup>1</sup>, Dr. Jogendra Sharma<sup>2</sup>, Ramesh Kumar Jangir<sup>3</sup>, Sunita Kumari<sup>4</sup>

**Affiliation:**

1. Nursing Tutor, College of Nursing, Govt Medical College, Uttar Pradesh, India.
2. Principal, Govt. College of Nursing, Jaipur, Rajasthan, India
3. Lecturer, Govt. College of Nursing, Jaipur, Rajasthan, India
4. Lecturer, Govt. College of Nursing, Jaipur, Rajasthan, India

**Corresponding Author Name & E-Mail:** Mehjbeen Bano, mehjbeenbano9@gmail.com

### ABSTRACT

*Background: Genetic disorders, such as Down syndrome, thalassemia, and hemophilia, pose significant health challenges worldwide. Nurses play a crucial role in genetic counseling, early diagnosis, and patient education. Assessing their knowledge is essential for improving healthcare services. Objective: This study aims to assess the knowledge regarding selected genetic disorders among staff nurses working in a selected hospital in Jaipur, Rajasthan, with a view to developing an information booklet. Methodology: A descriptive research design was used with a sample of 100 staff nurses selected through a non-probability convenient sampling technique. Data were collected using a structured knowledge questionnaire, and statistical analysis was conducted using descriptive and inferential statistics. Results: The study findings revealed that 40% of staff nurses had poor knowledge, 37% had an average level of knowledge, and only 23% demonstrated excellent knowledge regarding genetic disorders. Significant associations were found between knowledge levels and demographic variables such as age, years of experience, in-service education, and previous work experience in a genetic ward. However, no significant association was found with gender, marital status, or educational qualification. Conclusion: The study highlights the need for educational interventions to enhance nurses' knowledge about genetic disorders. The development of an information booklet can serve as an effective tool to bridge the knowledge gap and improve patient care.*

**Keywords:** Genetic disorders, nursing knowledge, Down syndrome, thalassemia, hemophilia, genetic counseling.

## **INTRODUCTION**

Genetics plays a crucial role in human health, influencing susceptibility to various diseases and disorders. Genetic disorders, which arise due to alterations in an individual's DNA, can be inherited or occur due to mutations. These disorders range from chromosomal abnormalities like Down syndrome to single-gene disorders such as thalassemia and hemophilia. The increasing prevalence of genetic disorders, coupled with advancements in genetic testing and counseling, has highlighted the need for healthcare professionals, particularly nurses, to be well-versed in this domain. Nurses are often the first point of contact for patients and their families in healthcare settings. Their role in patient education, counseling, and early detection of genetic conditions is critical. Understanding genetic disorders enables nurses to provide better care, support genetic counseling efforts, and assist in early diagnosis, ultimately improving patient outcomes. Despite the growing importance of genetics in healthcare, studies indicate that many nurses lack adequate knowledge in this field, underscoring the need for targeted educational interventions.

The 21st century has seen a rise in non-communicable diseases, including genetic disorders, due to lifestyle changes, environmental factors, and increased exposure to radiation. In India, genetic disorders account for a significant proportion of childhood mortality and disability. Conditions like thalassemia, sickle cell anemia, and Down syndrome are prevalent, necessitating comprehensive knowledge among healthcare professionals. Consanguineous marriages, which are common in certain communities, also contribute to the higher incidence of genetic disorders. A lack of awareness about genetic testing and counseling further exacerbates the problem, leading to late diagnoses and poor management of affected individuals. As healthcare providers, nurses need to be equipped with accurate information to educate families and guide them in making informed healthcare decisions.

A study conducted in Saudi Arabia revealed that while awareness of genetic disorders was high, many individuals lacked knowledge about available health services and the importance of genetic counseling. Similarly, research in India has shown gaps in knowledge among healthcare professionals, with many nurses unaware of the latest advancements in genetic screening and management. These findings emphasize the need for structured training programs to enhance nurses' competencies in genetics.

## **OBJECTIVES OF THE STUDY**

1. To assess the knowledge regarding selected genetic disorders among staff nurses working in selected hospitals at Jaipur, Rajasthan.
2. To find out the association between knowledge regarding selected genetic disorders and demographic variables (such as age, gender, education, marital status, working experience, in-service education, and

previous experience in genetic wards) among staff nurses working in selected hospitals at Jaipur, Rajasthan.

3. To develop an information booklet on selected genetic disorders for staff nurses to enhance their knowledge and awareness.

## INCLUSION AND EXCLUSION CRITERIA

The inclusion criteria for selecting participants included staff nurses who were between the ages of 21-35 years or above, those currently working in Mahila Chikitsalya Sangneri Gate, Jaipur, Rajasthan, and those willing to participate in the study. On the other hand, the exclusion criteria comprised staff nurses who were unavailable at the time of data collection or those unwilling to participate in the study.

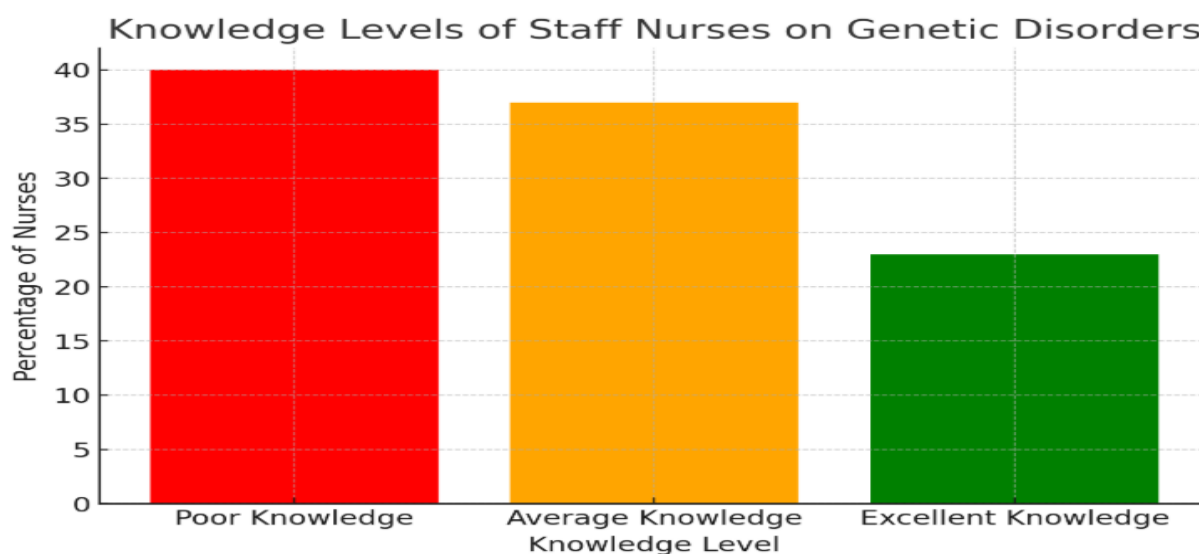
## METHODOLOGY

The study employed a **quantitative research approach** with a **descriptive research design** to assess the knowledge regarding selected genetic disorders among staff nurses in a selected hospital in Jaipur, Rajasthan. A **non-probability convenient sampling technique** was used to select a sample of **100 staff nurses**. Data collection was carried out using a **structured knowledge questionnaire**, and the validity of the tool was ensured through expert review. A **pilot study** was conducted to assess the feasibility of the study, and reliability was established using **Cronbach's alpha**, yielding a coefficient of **0.90**, indicating high reliability. Ethical considerations were maintained by obtaining informed consent from participants. Data were analyzed using **descriptive statistics** (frequency, percentage, mean, standard deviation) and **inferential statistics** (chi-square test) to determine associations between knowledge levels and demographic variables.

## MAJOR FINDINGS

The study aimed to assess the knowledge regarding selected genetic disorders among staff nurses working in a hospital in Jaipur, Rajasthan, to develop an information booklet for educational purposes. A total of 100 staff nurses participated in the study. The analysis revealed that 40% of nurses had poor knowledge, 37% had average knowledge, and only 23% demonstrated excellent knowledge regarding genetic disorders. The study showed that knowledge levels were significantly influenced by demographic factors such as age, years of experience, participation in in-service education programs, and prior work experience in a genetic ward. Younger nurses, particularly those aged 21-25 years, demonstrated lower levels of knowledge compared to older nurses with more experience. Nurses with more than 10 years of experience showed significantly better knowledge compared to those with fewer

years in practice. Similarly, nurses who had attended in-service educational programs on genetic disorders had significantly higher knowledge levels than those who had not. The data indicated that nurses with prior experience working in a genetic ward had better knowledge about genetic disorders than those who had never worked in such settings. However, gender, marital status, and educational qualifications were not significantly associated with knowledge levels. The results suggest that targeted educational programs and specialized training can significantly enhance nurses' understanding of genetic disorders, thereby improving patient care. Based on these findings, an information booklet on genetic disorders was developed to enhance the knowledge base of staff nurses. The study highlights the need for continuous medical education, specialized training modules, and integration of genetic disorder education into nursing curricula. Future studies should focus on evaluating the effectiveness of such interventions in improving clinical practice.



### **DISTRIBUTION OF KNOWLEDGE LEVELS AMONG THE STAFF NURSES**

## **CONCLUSION**

This study was conducted to assess the knowledge regarding selected genetic disorders among staff nurses working in a selected hospital in Jaipur, Rajasthan, with the aim of developing an information booklet. The findings indicate that while some nurses had a good understanding of genetic disorders, a significant proportion demonstrated poor or average knowledge. Among the 100 staff nurses surveyed, 40% had poor knowledge, 37% had average knowledge, and only 23% had excellent knowledge about genetic disorders such as Down syndrome, thalassemia, and hemophilia. The study identified key factors

influencing knowledge levels, including age, years of experience, previous in-service education, and experience in a genetic ward. Nurses with more years of experience and those who had attended training programs or worked in genetic wards had significantly higher knowledge levels. However, variables such as gender, marital status, and educational qualifications did not show a significant impact on knowledge levels.

The study highlights the importance of ongoing education and training for nurses to enhance their understanding of genetic disorders. Since nurses play a crucial role in patient education, genetic counseling, and early diagnosis, equipping them with adequate knowledge is essential to improving healthcare outcomes. The findings suggest that healthcare institutions should implement regular in-service training programs on genetic disorders and provide educational resources to bridge the knowledge gap. Developing an information booklet, as proposed in this study, can serve as a valuable tool to enhance nurses' understanding and ensure they are well-prepared to address genetic disorders in their professional practice. Furthermore, the study reinforces the need for integrating genetic disorder education into nursing curricula and professional development programs. Given the increasing prevalence of genetic disorders and the advancement of genetic testing and counseling, it is imperative that nursing professionals stay updated with the latest knowledge and best practices. By improving their knowledge, nurses can contribute more effectively to patient care, genetic counseling, and overall healthcare management.

In conclusion, the study underscores the critical need for structured educational interventions to enhance nurses' knowledge regarding genetic disorders. Hospitals and nursing institutions should prioritize continuous education programs to empower nurses with the necessary skills and knowledge. The development of an information booklet, along with targeted training programs, can significantly improve nursing practice and patient care related to genetic disorders. Future research can explore the effectiveness of such interventions in improving nurses' competencies and patient outcomes.

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