

## **Chapter – 6**

### **Conclusion**

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### **6.0 Introduction**

Research conclusion as answers to the formulated research questions are presented in the chapter supported with the outcome of testing of hypotheses. Managerial implications, limitations of the study, recommendations and directions for future research are included.

In the promotion of generic medicines doctors have been found to be amongst the key healthcare professionals whose support is paramount in recommendation of generic medicines to patients.

Many studies time and again across several countries have shown that doctors and pharmacists are the key personnel amongst the healthcare professionals for recommendation of generic products. Doctors' prescription in generic name replacing age old practice of prescribing brands is riddled with several challenges.

The purpose of the study was to evaluate knowledge, attitude and practice of medical practitioners in a primary, secondary and tertiary care hospitals in government and private hospitals in Dehradun District, Uttarakhand concerning generic drugs to identify factors that encourages or obstructs prescription of generic medicines.

### **6.1 Research findings**

In general, the research findings of the study support most of the proposed hypotheses as illustrated in Table 6.1.

Table 6.1  
Hypotheses test result

Hypothesis	Statement	Result	Conclusion
H 1	<i>Knowledge of generic medicines plays a significant role in influencing doctors in prescribing generic medicines.</i>	$r = .411$ , $N = 227$ , $p < .001$	Alternate Hypothesis Accepted
H 2	<i>Attitude towards generic medicines plays a significant role in influencing doctors in prescribing generic medicines.</i>	$r = .431$ , $N = 224$ , $p < .001$	Alternate Hypothesis Accepted
H 3	<i>Practice of doctors plays a significant role in influencing them in prescribing generic medicines.</i>	$r = .450$ , $N = 221$ , $p < .001$	Alternate Hypothesis Accepted
H 4	<i>There is no difference in practice of prescribing generic medicines amongst doctors serving at primary, secondary and tertiary healthcare centers.</i>	$H = 9.546$ , $N = 228$ , $p = .008$	Null Hypothesis Rejected
H 5	<i>KAP - knowledge (cognitive) of generic medicines, attitude (affective) towards generic medicines and practice (conative) has a significant influence on doctors in prescribing generic medicines.</i>	$r = .499$ , $N = 217$ , $p < .001$	Alternate Hypothesis Accepted

Knowledge of generic medicines plays a significant role in influencing doctors in prescribing generic medicines. There is no difference in knowledge of generic medicines amongst doctors serving at primary, secondary and tertiary healthcare centers,  $H = .087$ ,  $N = 227$ ,  $p = .957$  (H1.1 – Accept Null Hypothesis). No significant difference was found in knowledge of generic medicines in male & female doctors,  $H = .582$ ,  $N = 227$ ,  $p = .446$  (H1.2 – Accept Null Hypothesis), different employment status - self-employed, government hospital, private hospital,  $H = 4.313$ ,  $N = 227$ ,  $p = .116$  (H1.4 – Reject Alternate Hypothesis) and in different experience groups,  $H = 4.192$ ,  $N = 225$ ,  $p = 0.381$  (H1.7 – Accept Null Hypothesis). However, statistical

significant difference was seen in knowledge in different age groups - <30, 31- 40, 41- 50, 51- 60, >60,  $H = 10.276$ ,  $N = 227$ ,  $p = .036$  (H1.3 – Reject Null Hypothesis), knowledge in different levels of education - undergraduate degrees, post-graduate diploma/degrees & post post-graduate degrees,  $H = 9.781$ ,  $N = 225$ ,  $p = .008$  (H1.5 – Reject Null Hypothesis) and knowledge in doctors having non-surgical and surgical practice,  $H = 5.611$ ,  $N = 227$ ,  $p = .018$  (H1.6 – Reject Null Hypothesis). The Mean Rank is the highest in doctors aged above 60 years indicating higher level of knowledge of generic medicines followed by age group 50 – 60 years and lowest in 41-50 years. Doctors in govt. hospitals have the highest mean score indicating higher knowledge compared to others. Doctors with undergraduate degrees have the highest Mean rank indicating higher knowledge followed by post-graduate diplomas / degrees and post post-graduate degrees. Doctors having non-surgical practice seem to have better knowledge compared to doctors with surgical practice.

Attitude towards generic medicines plays a significant role in influencing doctors in prescribing generic medicines. There is no difference in attitude towards generic medicines amongst doctors serving primary, secondary and tertiary healthcare centers,  $H = 2.161$ ,  $N = 224$ ,  $p = .339$  (H2.1 – Accept Null Hypothesis). No significant difference was found in attitude towards generic medicines in male and female doctors,  $H = .007$ ,  $N = 224$ ,  $p = .933$  (H2.2 – Reject Alternate Hypothesis), in different age groups -<30, 31- 40, 41-50, 51- 60, >60,  $H = 2.267$ ,  $N = 224$ ,  $p = .687$  (H2.3 – Accept Null Hypothesis), different levels of education - undergraduate degrees, post-graduate diploma/degrees & post post-graduate degrees,  $H = 3.955$ ,  $N = 224$ ,  $p = .138$  (H2.5 – Accept Null Hypothesis)), doctors having non-surgical and surgical practice,

$H = 1.596$ ,  $N = 224$ ,  $p = .206$  (H2.6 – Accept Null Hypothesis) and in different experience groups,  $H = 3.170$ ,  $N = 222$ ,  $p = 0.530$  (H2.7 – Accept Null Hypothesis). However, significant difference in attitude was found in doctors with different employment status -self-employed, government hospital, private hospital,  $H = 16.462$ ,  $N = 224$ ,  $p=0.001$  (H2.4 – Accept Alternate Hypothesis). Doctors in government hospital have been found to be having highest Mean Rank indicating positive attitude towards generic medicines.

Medicine prescribing practice of doctors plays a significant role in influencing doctors in prescribing generic medicines. There is no difference in prescription practice amongst doctors serving primary, secondary and tertiary healthcare centers,  $H = .510$ ,  $N = 221$ ,  $p = .775$  (H3.1 – Accept Null Hypothesis). No significant difference was found in practice of generic medicines in male and female doctors,  $H = .016$ ,  $N = 221$ ,  $p = .901$  (H3.2 – Accept Null Hypothesis), in different age groups - <30, 31- 40, 41- 50, 51- 60, >60,  $H = 4.139$ ,  $N = 221$ ,  $p=.388$  (H3.3 – Accept Null Hypothesis), in employment status - self-employed, government hospital, private hospital,  $H = 5.699$ ,  $N = 221$ ,  $p=.058$  (H3.4 – Reject Alternate Hypothesis), in different levels of education - undergraduate degrees, post-graduate diploma/degrees & post post-graduate degrees  $H = 2.169$ ,  $N = 221$ ,  $p = .338$  (H3.5 – Accept Null Hypothesis), doctors having non-surgical and surgical practice,  $H = 1.041$ ,  $N = 221$ ,  $p = .308$  (H3.6 – Accept Null Hypothesis) and in experience groups,  $H = 1.920$ ,  $N = 221$ ,  $p = 0.750$  (H3.7 – Accept Null Hypothesis).

KAP - knowledge (cognitive) of generic medicine, attitude (affective) towards generic medicines and practice (conative) have a significant influence on doctors in

prescribing generic medicines. There is difference in practice of prescribing generic medicines amongst doctors at primary, secondary, and tertiary healthcare centers.

It has been concluded with the findings from the study that knowledge, attitude and practice of generic medicines amongst medical practitioners influences them in prescribing medicines. Not much prescription of generic medicines specially from the private doctors can be explained by overall insufficient knowledge of generic drugs, attitude towards generic drugs, practice that favors prescribing branded medicines.

## **6.2 Managerial implications**

The study intended to explore and ascertain factors which have an influence on doctors in prescribing generic medicines and its relationship with the prescribing of generics. The focus of the study remained on knowledge, attitude and practice of medical practitioners towards generic medicines besides unearthing other associated contentious issues with the perspective of all the stakeholders such as patients, doctors, pharmacists, pharma companies, government policy so as to have a holistic approach in addressing the issue.

The findings provide valuable inputs that have a scope in developing a better understanding of the issue and development of policies / strategies by the government with an aim to increase patronage of generic medicines by medical practitioners. The findings also look at the standpoint of pharma companies on adaptation of marketing practices for promotion of generic drugs.

Enabling development of communication channels between government and doctors, government and chemists, government and patients / population, government and

pharmaceutical companies for open discussions concerning generic drugs with an aim to understand each other's view-points keeping patient in focus is a desired approach. Addressing of issues by the government bodies and making changes in policies such as generic drug registration process, classification of generics, branded generics and original brands, labelling of generics for easy identifiable, trade margins on generics.

### **6.3 Limitations of the Study**

- i. Articles published 2005 onwards were considered for review as they might be relevant keeping in view evolving practices in recent past. Some of the paid articles may not have been included in the search which limits comprehensive review of the subject. The review was an attempt to develop a broad based holistic view with selected studies across the globe.
- ii. Many policies, initiative, programs, schemes have been introduced in recent years which might have an effect on views of doctors, patients, population & chemists.
- iii. The study focuses on the subjects' responses and not their actual behavior while prescribing medicines.

### **6.4 Recommendations, the way forward...**

The extensive review of literature conducted on knowledge, attitude & practice towards generic medicines amongst doctors, population, patients & chemists & the research study conducted with a focus on doctors reveal valuable insight into acceptance & usage of generic medicines globally with India as a focal point explains causes of high or low patronage with generic drugs. The study provides an

understanding of the issues surrounding awareness, opinions, practice, promotion, recommendation, dispensation, acceptance & usage of generic drugs from the perspective of stakeholders such as medical practitioners, population, patients, chemists, pharmaceutical companies, government policy & regulation paving the way for further research specially in developing countries with a focus on medical practitioners whose recommendation of generic drugs is paramount.

Considering the outcome of the study and the viewpoints of all the stake holders following suggestions are being put forth that the government of India & the pharmaceutical companies may like to dwell on whilst strategizing promotion of generics benefitting society at large.

Educating doctors about generic medicines and building their confidence are the two major areas that may be addressed. Educational, regulatory, and marketing interventions with a focus on following areas is recommended to enhance wider acceptance & use of generic drugs:

- I. Quality (efficacy & safety) of generics may be established at par with innovators' product by way of comparison of bioequivalence studies and its dissemination of information by educational campaigns through seminars & distribution of published literature seem to be the best way forward to dispel any doubts / concerns about generic medicines amongst medical practitioners.
- II. Testing of generic medicine samples from the pan Indian open market specially of unknown companies may be introduced & test results be shared in public with full transparency which will keep manufacturers of generic medicines at check and build confidence in doctors.



- III. The registration requirement of generic medicines in India may be aligned with the best global practices of developed economies which would bring an end to perceived differential standards between products of known companies (MNCs & leading Indian companies) and unknown companies. A collective effort in harmonization of regulatory compliances for generic product registration by regulatory authority of various countries would bring about a uniform global standard benefiting the world.
- IV. Changes in packaging/labelling requirements may be instituted that can differentiate generics from branded medicines making it easier for a common man to easily identify visually if the product is generic, branded generic or an original by looking at the pack.
- V. Consistency in availability of generics at Jan Aushadhi medical stores and its expansion be ensured that would improve affordable accessibility and wider reach.
- VI. Educational campaigns for promotion of generic drugs to healthcare professionals and consumers as a promotional strategy may be planned by pharma companies and government that may increase acceptance and usage of generic drugs.
- VII. Harmonization of trade margins for generics & branded medicines may be regulated that would limit dispensation / substitution of selective products due to unreasonable profit margins being enjoyed by chemists.

## **6.5 Learnings from Brazil**

Generics in Brazil can be lawfully dispensed to substitute a reference drug. Generics registered with the regulatory authority are noticeably recognized by a yellow stripe with an alphabet “G” and the outside of the package displays the Generic Drugs Act Number.

Majority of the individuals (70%) considered quality of generic medicines comparable to brand name drugs indicate that government’s generic drug policy in Brazil is well executed. In this policy, the quality of generics is guaranteed to be comparable to that of reference drugs through bioequivalence and bioavailability tests, which are mandatory for generics.

## **6.6 Directions for future research**

- i. Further research specially in developing countries including India has been identified, where access & affordability is a challenge, with a focus on medical practitioners across primary, secondary & tertiary healthcare centers whose recommendation of generic drugs is paramount followed by pharmacists whose role in providing information & dispensation is complementary.
- ii. There is a need for further research to explore different interventions that can be implemented among doctors in order to cultivate a positive attitude and patronage for generic medicines.
- iii. In the absence of medical representatives’ promotion, building a trust in generics created by unknown companies is an important area that needs to be explored from marketing perspective.