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PROPORTIONAL STUDIES THE IMPACT OF COVID 19 ON SECTORS OF PHARMACEUTICAL INDUSTRY

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ABSTRACT

In Present study, this review article gives the information about the impact of Covid 19 on Pharmacy sector**.** The impact of the corona virus pandemic and the lockdown it triggered is without a doubt visible in monetary markets. It manufactures almost 60 per cent of the vaccines used globally, including imperative ones, such as those against tetanus, pertussis required by the World Health Organization (WHO). But there is still no clarity on the deeper impact that it is having across businesses and industrial sectors. The objective of this paper is only to create awareness and how one can avoid the impact by certain conditionally precaution related this. This article also helps one to understand the Short term impact and long term impact. Can give one-self the benefit of the by proper discussion

KEYWORDS: World Health Organization (WHO), COVID-19 pandemic, emerging tele-medicine, Generic Drug.

INTRODUCTION

The impact of the corona virus pandemic and the lockdown it triggered is clearly visible in financial markets. But there is still no clarity on the deeper impact that it is having across businesses and industrial sectors. Based on assessments made by different analysts and industry body Ficci, here is an impact analysis on the pharma sector.

The Indian pharma sector is the third-largest in the world. It manufactures almost 60 per cent

of the vaccines used globally, including important ones, such as those against diphtheria, tetanus, and pertussis required by the World Health Organization (WHO). Furthermore, the country meets 90 per cent of the global demand for the vaccine against measles.

Millions across the world use generic drugs produced by Indian drug manufacturers. More than 250 factories in the country have been approved by the US Food and Drug Administration (FDA) as well as the UK Medicine and Healthcare Products, Regulatory Agency (MHRA). These manufacture drugs for overseas markets, including the US and the UK.

India's active pharmaceutical ingredient (API) industry is expected to generate $6 billion in revenues by the end of 2020. Currently, generic drugs are playing a crucial role in the against COVID–19. India has been meeting more than 20 per cent of the world and almost 50 per cent of the US's generic drug requirements. Unfortunately, Indian manufacturers rely heavily on China for key starting materials (KSMs), intermediate and APIs with China catering to nearly 70 per cent of Indian pharma companies' requirements.

The Indian pharma sector is an important component of the global healthcare infrastructure and is instrumental in saving millions of lives every year. However, like all other sectors, it too has been affected by COVID–19 that has brought about various changes.

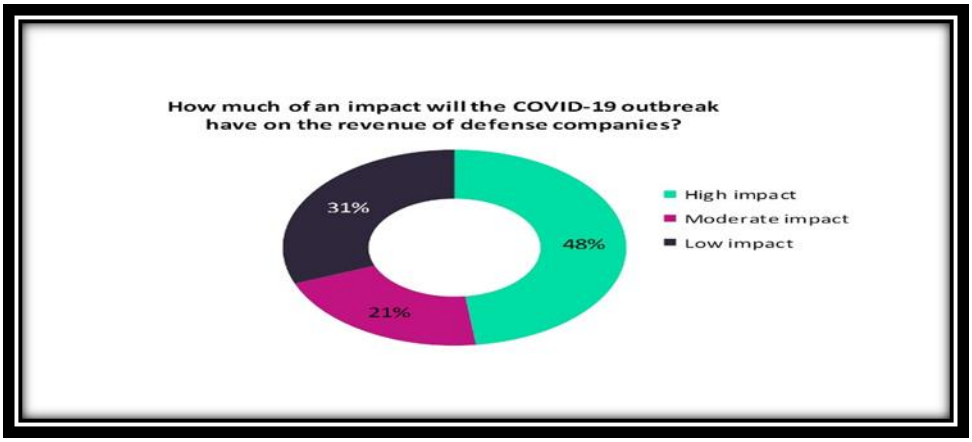

Figure 01: Showing % of impact will Covid 19 Outbreak.

SHORT-TERM IMPACTS

Demand change, supply shortages, panic buying and stocking, regulation changes and shift of communication and promotions to remote interactions through technology and research and development (R&D) process changes can be seen as short-term impacts of COVID-19 on the

health market.

1. Demand change: which leads to shortage, in the case of induced demand and panic-buying of oral home medications especially for chronic disease may be due to the pandemic (COVID-19-related), and also shortages due to supply-chain inconsistencies.

2. COVID-19-related: Increased hospitalization, incidence of COVID-19-related pneumonia and increased demand for assigning patients to ventilators, contributes to related prescription medicine shortages. A medicine shortage is defined as a "supply issue that affects how the pharmacy prepares or dispenses a drug product or influences patient care when prescribers must use an alternative agent". On the global levels, many regulatory authorities announced confirmed shortage list, mostly including potential COVID-19 treatments and also associated pneumonia. For example, United States food and drug administration (FDA) shortage list included anti-COVID-19 potential pharmacotherapy, hydroxychloroquine (HQC) and chloroquine (QC), and also frequently prescribed medications for COVID-19 hospitalized patients with respiratory signs in critical care units, azithromycin, dopamine, dobutamine, fentanyl, heparin, midazolam, propofol and dexmedetomidine . In addition, the American Society of Health System Pharmacists (ASHP) announced an 11- medicine list of shortage; which mainly included hospital level antibiotics and anesthetic medications; including meropenem, ceftazidim, ampicillin and doxycycline, as antibiotics and vecuronium, rocuronium, as anesthetics. Also, this list included albuterol and fluticasone which are used to open airways in the lungs.

3. Supply shortage of both active pharmaceutical ingredients (APIs) and finished products: China and India are the world's main supplies of APIs, key starting materials (KSMs) and also finished pharmaceuticals. As they are struggling with the disease and also a slow-down in production, this may have contributed to shortage and also price increase in essential prescription medicines, including antibiotics. This is more critical when non substitutional essential APIs, such as amoxicillin, potassium clavulanate, ceftriaxone potassium sterile, meropenam, vancomycin, gentamycin and ciprofloxacin are being concerned. In India, the Indian Pharmaceutical Alliance (IPA) asked government to restrict of all pharmaceutical products, APIs and formulation to domestic consumption only. This shortage has already begun to affect API and bulk prices in Indian party trades.

4. Shift of communication and promotions to remote interactions through tele-communication and tele-health: In both global and local levels, due to the social distancing precautions, marketing and promotions of health-care products to providers are being shifted from face-to-face towards remote interactions and tele-communications; for both promotional and patient-

support acts. In USA, the number of patients who have visited physician offices or clinics reduced by 70 to 80% In Iran insurance coverage for tele-medicine is legislated for the first time by high council of insurance on May 2020. This may lead to long-term behavioral changes in the health market

5. Research and development changes: In global levels, at least 113 medicines or regimens and 53 vaccines are in research and development pipelines or active clinical trials, as therapeutics for patients diagnosed with COVID-19. As of April 23, 2020, there are about 924 ongoing trials in the world for the treatment of COVID-19. Only 15% of these studies are based on conventional RCT methods, double-blind and multicenter randomized with comparator arm, but about 40% are not even randomized. In Iran, HCQ is available through local production with five active suppliers and a price of 0.1 US$ and is being investigated in 64 MOH-registered clinical trials on COVID-19 patients. CQ, which is also available by one local manufacturer with the price of 0.03 US$, is the intervention arm in 29 Iran MOH trials and lopinavir/ritonavir, which is included in Iran local COVID-19 management guideline for high risk patients as an additive to CQ or HCQ regimen and is available through generics importation from Indian suppliers with a registered price of 0.82 US$ per unit, is being investigated in 20 Iran MOH trials on patients with confirmed COVID-19. In addition, multiple clinical trials are being conducted to test non-IML-included medications; naming favipiravir and remdesevir. Favipiravir is currently being tested through three MOH-supervised clinical trials in Iran and three local manufacturers are conducting pharmacokinetic and stability analysis on aforementioned pharmaceutical strategy.

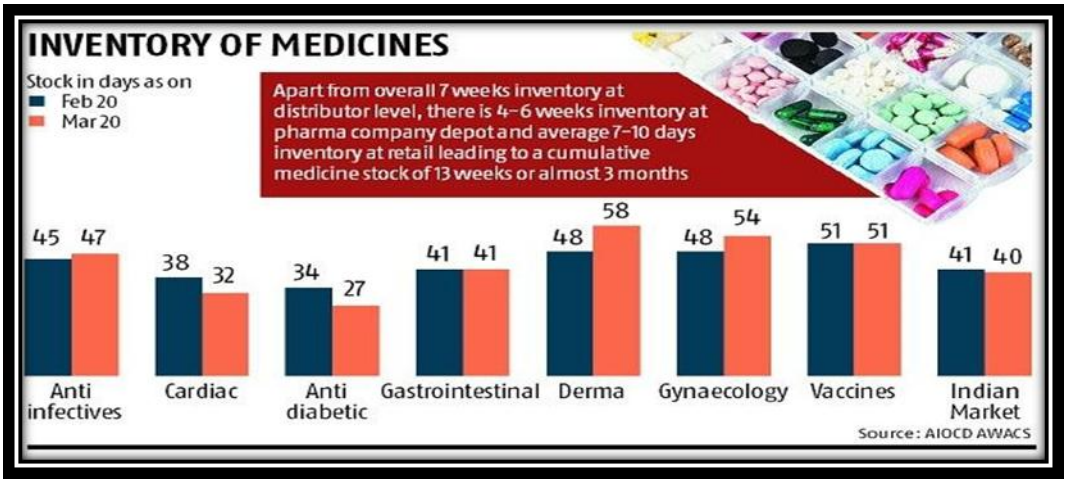

Figure 01: Inventories of Medicines.

LONG-TERM IMPACTS

Approval delays, moving towards self-sufficiency in Pharm-production supply chain, industry growth slow-down and possible trend changes in consumption could be seen as long-term impacts of COVID-19 on the health and pharmaceutical market.

1. Delayed approvals for non-COVID-related pharmaceutical products;

As all countries, including Iran, are being under pressure of the crisis and their priority is COVID- 19 management, approval delays may be seen due to several months of application review postponements. In Iran, due to economic crisis, IML inclusion, registrations and reimbursement decisions was being made with a considerable delay; and this situation may maximize it. It also is affected by about one-month semi closure of regulatory agencies.

2. Moving towards self-sufficiency in pharma industry

Potential shortages due to export bans in India and China, who are main suppliers of API and generics, made governments of many countries to consider self-sufficiency in supply chain and they have announced regulations to avoid shortages in such crisis. In this regards, on March 2020 the European commission has published a new guideline concerning foreign direct investment and free movement of capital from third countries; stating that foreign investments, especially those which affect the health market, in European Union (EU), must be subjected to risk-assessments to avoid any harmful impact on the EU's capacity to cover the health needs of its citizens.

In Iran, due to sanctions and difficulties in importation, Iran's pharmaceutical industry was going towards self sufficiency prior to this crisis; however, COVID-19 pandemic may lead to more importation restrictions and further regulation incentives for local manufacturing.

3. Pharmaceutical industry growth slow-down;

Corona virus pandemic resulted in economical slowdowns for many countries and this will

Possibly lead to pharma industry growth slow-down, which are sensitive to country economic growth; especially, in countries with pharmerging markets, like Iran. This slowdown in market growth is more due to the entry of newer medications. Because the priorities of pharmaceutical companies change in their portfolio. However, it should be noted that in previous recessions, there were cases in which the health industry was less sensitive to slowing economic growth and did not always follow this trend.

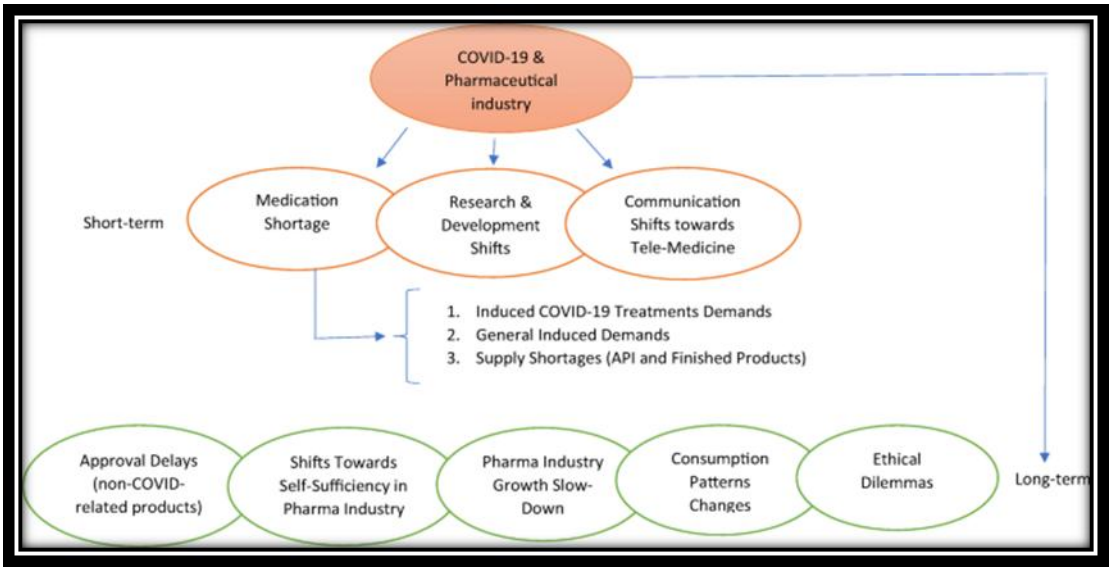

Figure 02: Impact of Pharmaceutical Industry.

4. Ethical considerations

One of the long-term effects of growing clinical research related to the current pandemic is the use of inadequately evidence centered therapies. Ethical issues should be considered in the use of these medicines as off-label. In confirming the proposed therapies, the long-term clinical effects of the use of these strategies in the coming years should be examined and healthcare providers should make informed decisions on using off-label therapies in clinical practice.

5. Consumption trend changes in health-related products

Changing habits related to consumption and refilling prescriptions, especially in chronic disease therapeutic areas, might happen; and may also be further affected by the emerging tele-medicine. Currently, public is concerned with personal hygiene maintenance; using mainly nose/mouth protection, antiinections material for environment and clothing and hand sanitizers. Due to extended period of pandemic, this consumption may remain in behavioral acts of the public, globally and locally.

CONCLUSION

The COVID-19 global pandemic can be associated with numerous short- and long-term impacts on the health market, mainly the pharmaceutical sector; which can be seen from both global and local perspectives. Identifying these impacts may guide policy-makers in evidence-informed planning and decision-making to combat associated challenges. For proper planning to prevent long-term complications, short-term impacts should be identified

and further be measured with appropriate data-analysis. Identification of these effects is essential for policy-maker guidance towards more evidence-informed planning to overcome accompanying challenges; and this may be more important in the context of developing countries with more scares healthcare resources and pharma markets.

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