

## Review Article

# Post COVID strategic transformation in Pharmaceutical Practices: A boon or a bane

Archit Sawhney<sup>1\*</sup>, Rajesh Sawhney<sup>2</sup>, Supriya Agnihotri<sup>1</sup>

<sup>1</sup>Chandigarh College of Pharmacy, Landran, SAS Nagar (Pb)-140307, India

<sup>2</sup>National Dental College & Hospital, Derabassi, SAS Nagar (Pb)-140307, India

Received: 14 January 2023

Revised: 26 February 2023

Accepted: 27 February 2023

## Abstract

Covid-19 pandemic has left a devastating impact on the human fraternity globally. It was an extempore test posed by the dreadful virus. Undoubtedly, all the commercial sectors and the sections of the society have been affected. Human race has been compelled to transform and re strategize. Enhanced pharma production, increased market influx, supply chain disruption, vaccine development etc were some of the key activities of that challenging time. The lessons learnt and the experiences gained could be used to re strategize for better tomorrow.

**Keywords:** Covid-19, pharmaceutical, strategic transformation, health

## Introduction

Covid-19 crawled out to abruptly engulf the entire world and leave behind a devastating impact on the human fraternity globally with millions of deaths all around. The dreadful virus posed an extempore test for mankind with respect to the social, health, medical, economical, behavioral, commercial, educational and technical fitness and preparedness. Almost all the sections of society and the commercial sectors were afflicted. In those days of crisis, people looked helplessly especially towards the health and pharma sectors, and the scientific fraternity to come to their rescue. With volume of adversaries, trio of health, pharma and scientific fraternity virtually ran a race against time to evolve soothing solutions. Human race has been compelled to transform and re strategize to align with the similar uncalled threats in future. The reports documented that there was increase in pharmaceutical manufacturing. Subsequently, the influx of healthcare products into the market also saw rising trends. For example the prime focus on basic hand hygiene and sanitization led to the growth of hand sanitizer market (Globe Newswire, 2021). Similar

trends were cited for certain other pharmaceutical products. Individually, the performance of different pharmaceutical industry showed variable impacts (Behera and Rath, 2021). Literature has also cited the shortage of drug supply in India during Covid 19 owing to various reasons (Dapke et al., 2021). Globally, a number of healthcare transformations like e-health tools, online therapy and contact less distribution were practiced (Jazieh and Kozlakidis, 2020). A variety of such altered arrangements were made during the pandemic. The present write up attempts to highlight some of the key transformations observed in Pharmaceutical practices during Covid 19 and their possible post covid era impacts.

## Pharmaceutical Industry: COVID 19 scenario

The unprecedented onset of Covid 19 waves brought in multiple challenges to the pharmaceutical and healthcare industry. There was increased demand of various medicaments, protective gears and diagnostic testing facilities (Peeri et al., 2020). With prime focus on basic hygiene and sanitization, the use of hand sanitizer had increased immensely. It has been documented that due to lethal nature of covid infection and no proven anti covid therapeutic agent available; and its apprehended association with bacterial super infections led to the increase in antimicrobials, antiviral, antiprotozoal, nutraceuticals and multivitamins prescriptions (Rawson et

### \*Address for Corresponding Author:

Dr Rajesh Sawhney  
Professor & Head  
Department of Microbiology  
National Dental College & Hospital, Derabassi ( SAS Nagar) Pb.  
India  
Email: sawhneyrajesh@yahoo.com

DOI: <https://doi.org/10.31024/apj.2023.8.1.2>

2456-1436/Copyright © 2022, N.S. Memorial Scientific Research and Education Society. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

al., 2021; Rodríguez-Álvarez et al., 2021; Charan et al., 2021; Charan et al., 2021; Dutta et al., 2021; Kaur et al., 2020; Samad et al., 2021; Samad et al., 2021). As per reports, self medication and consequently the purchase of over the counter medicines from local pharmacists were also prompted due to the shut downs etc. Approximately, 34% gross prevalence of self-medication to prevent COVID-19, with highest value for vitamin C (27.6%) followed by chloroquine/hydroxychloroquine (2%) and azithromycin (1.2%) were reported (Sadio et al., 2021). As per the available literature, mainly pain killers, antipyretics, cough relievers, antidiarrheals, calcium and vitamin supplements, sleep medications, antimicrobials, herbal and homeopathic formulations were self-prescribed. It was estimated that worldwide, the maximum purchase of antibiotics from the local pharmacist arose to the tune of around 81%. Hydroxychloroquine and chloroquine were also used as self-medicaments (Abena et al., 2020; Godman, 2020; Gautret et al., 2020; Sefah et al., 2021; Chauhan et al., 2020). In a study carried out in an Indian city, the self-medication with antimicrobials like azithromycin and doxycycline during recent pandemic was quoted to be around 54% and 40% respectively as compared to the pre-pandemic time values of 21% and 25% respectively (Choudhuri et al., 2018; Nasir et al., 2020). It was interesting to note that around half of the pharmacies accounted less than 25% increase in the sale of azithromycin. The sale of Vitamin C was reported to increase by more than 75% by around 40% of pharmacies as compared to the previous years.

Undoubtedly, there was an abruptly increased market influx of various healthcare medicaments which posed an unprecedented challenge for industries. The reliability on the outside market for the active pharmaceutical ingredients along with the strict covid 19 protocols acted as a trigger for insufficient supplies of the active pharmaceutical ingredients (API). This adversely affected a number of pharmaceutical industry, however the industry with prior stockpiles were reported to have very high price tags (Sarkees et al., 2020). Besides this, the makeshift arrangements, insufficient healthcare infrastructure and resources, and substantial shortages of essential equipment (e.g., ICU beds and ventilators), diagnostic tests, medical supplies (masks, sanitizers, including personal protective equipment, etc.), medicines etc further added to the menace erupted due to the dreadful virus.

#### **Pharmaceutical Industry: Strategic transformation**

Covid 19 pandemic era has seen multiple non apprehended transformations. The disaster proved to be a gateway to digital innovations and technologies in healthcare sector, medical education and work from home communications. Telecommunication and telemedicine has been widely practiced

during this pandemic (Malani et al., 2020). Pharmaceutical industries have seen significant impact during this period. The period reported changes in the demand, revision of regulations, and curtailment of span for research and development activity and relevant approvals. This period is said to have experienced unprecedented slowdowns, especially in non Covid related illnesses and subsequent remedies (Ayati et al., 2020). The world has witnessed successful real-world data generation related to clinical practice, educational gaps and perspectives of healthcare professionals by employing digital tools like SurveyMonkey (Morrison et al., 2021; Robbins et al., 2020; Vilovic et al., 2021; Kidd et al., 2021). As documented elsewhere also, world could highly appreciate the scope for interactions with stakeholders, health institutions, subject experts, vaccine launch and roll out, patient enrolment, digitalization of site selection and remote monitoring methods for execution of the real world data generation during this difficult time (Mah et al., 2020). Above all, the entire population on the globe has seen the biggest strategic transformation in the form of successful covid 19 vaccine development and its efficacious roll out for mass coverage in such a short period. Here the successful vaccine coverage using CoWIN platform in India could be well applauded.

#### **Pharmaceutical Industry: Post Covid Impacts**

The supply chain disruption could be thought of one key factor in shortage of manufacturing and influx of finished products in the market. Authors have documented the need to stress test the supply chains on new performance measures like resilience, responsiveness and re - configurability (Sharma et al., 2021). It has been suggested that the industries need to diversify the supply chains with special consideration on geographic perspective so as to further mitigate the possible risks related to supplies from one specific region or the country. Further, the self reliant local manufacturers along with a positive approach to alternative strategies could be a boon in adversaries (Downtoearth.org.in, 2020). The promotion of domestic bulk drug parks has been envisaged as a welcome initiative to counter any such forth coming challenges. Besides this, it has been documented that many other strategic designs such as remote working options, tackling high absenteeism and the evolving promising financial risk management frameworks have been suggested as some of the important steps which could be handy in building a resilient network for logistics supply chain (GEP, 2020; Zanders Treasury & Finance Solutions, 2020). The need to facilitate new study proposals to repurpose and investigate potential drug effects for Covid-19 patients has also been stressed.

## Conclusion

Enhanced manufacturing, minimal staff, online mode for instructions, boom to antibiotic production, antipyretics, anti-inflammatory, steroidal sanitizer production, plant based naturopathy product influx in market along with superb feat of getting anti covid vaccine in a short span were some of the key practices during pandemic. Post covid era would be marked by certain unprecedented transformations which seemingly showed positive impact during the pandemic and the experience gained could be used to re strategize for better tomorrow. None the less, it would be too early to conclude the outcomes. Only long term impact analysis could judiciously label the post covid strategic transformations as a boon or a bane.

**Conflict of interest:** None

## References

- Abena PM, Decloedt EH, Bottieau E, Suleman F, Adejumo P, Sam-Agudu NA, et al. 2020. Chloroquine and hydroxychloroquine for the prevention or treatment of COVID-19 in Africa: Caution for inappropriate off-label use in healthcare settings. *American Journal of Tropical Medicine and Hygiene*, 102:1184–8.
- Ayati N, Saiyarsarai P, Nikfar S. 2020. Short and long term impacts of COVID-19 on the pharmaceutical sector. *DARU Journal of Pharmaceutical Sciences*, 28(2):799–805.
- Behera, C and Rath, BN. 2021. The Covid 19 pandemic and Indian pharmaceutical companies: an event study analysis. *Bulletin of Monetary economics and banking* 24, 14<sup>th</sup> BMEB Call for Papers Special issue. <https://doi.org/10.21098/bemp.v24i0.1483>.
- Charan J, Bhardwaj P, Dutta S, Kaur R, Bist KS, Detha M, et al. 2021. Use of complementary and alternative medicine (CAM) and home remedies by COVID-19 patients: A telephonic survey. *Indian Journal of Clinical Biochemistry*, 36:108–11.
- Charan J, Dutta S, Kaur R, Bhardwaj P, Sharma P, Ambwani S, et al. 2021. Tocilizumab in COVID-19: A study of adverse drug events reported in the WHO database. *Expert Opinion on Drug Safety*, 28:1–12. doi:10.1080/14740338.2021.1946513.
- Chauhan V, Galwankar S, Raina S, Krishnan V. 2020. Proctoring hydroxychloroquine consumption for health-care workers in India as per the revised national guidelines. *Journal of Emergencies, Trauma and Shock*. 13:172–3.
- Chouduri AU, Biswas M, Haque MU, Arman MSI, Uddin N, Kona N, et al. 2018. Cephalosporin-3G, highly prescribed antibiotic to outpatients in Rajshahi, Bangladesh: Prescription errors, carelessness, irrational uses are the triggering causes of antibiotic resistance. *Journal of Applied Pharmaceutical Science*. 8:105–12.
- Dapke K, Phadke R, Rocha I, dos Santos Costa A, Ahmad S, Essar M, Menon V, Bassey E, Malhotra K, and Shah J. 2021. Drug supply shortage in India during COVID-19 pandemic: efforts and challenges. *HPRH*, 31. DOI:10.54111/0001/EE7.
- Downtoearth.org.in 2020. COVID-19 exposes India's dependence on China for active pharma ingredients. <https://www.downtoearth.org.in/news/economy/covid-19-exposes-india-s-dependence-on-china-for-active-pharma-ingredients-70272>
- Dutta S, Kaur R, Bhardwaj P, Deora S, Singh K, Ambwani S, et al. 2021. Hydroxychloroquine as therapeutic option in COVID-19: Analysis of suspected cardiovascular adverse drug events reported in the VigiBase. *Bangladesh Journal of Medical Science*, 20:897–910.
- Gautret P, Lagier JC, Parola P, Hoang VT, Meddeb L, Mailhe M, et al. 2020. Hydroxychloroquine and azithromycin as a treatment of COVID-19: Results of an open-label non-randomized clinical trial. *International Journal of Antimicrobial Agents*, 56:105949. doi:10.1016/j.ijantimicag.2020.105949.
- GEP. 2020. A new era of supplier risk management using data & technology (Part II) / GEP. <https://www.gep.com/mind/blog/supply-chain-risk-management-solutions-part-2>
- Globe Newswire 2020. <https://www.globenewswire.com/en/news-release/2021/10/09/2311433/0/en/Hand-Sanitizer-Market-Size-Share-Segmentation-Covid-19-Impact-Analysis-Key-Players-Revenue-and-Forecast-2026.html>
- Godman B. 2020. Combating COVID-19: Lessons learnt particularly among developing countries and the implications. *Bangladesh Journal of Medical Science*, 19:S103–8.
- Jazieh, AR and Kozlakidis, Z. 2020. Healthcare transformation in the post coronavirus pandemic era. *Frontiers in Medicine*, 7:429. doi: 10.3389/fmed.2020.00429
- Kaur RJ, Charan J, Dutta S, Sharma P, Bhardwaj P, Sharma P, et al. 2020. Favipiravir use in COVID-19: Analysis of suspected adverse drug events reported in the WHO database. *Infection and Drug Resistance*, 13:4427–38.
- Kidd VD, Vanderlinden S, Hooker RS. 2021. A National Survey of postgraduate physician assistant fellowship and residency programs. *BMC Medical Education*, 21(1):212–212.
- Mah KW, Lo K, Elegant V. 2020. Medical Affairs Professional Society. *Reimagining Scientific Engagements During COVID-19*.

- <https://medicalaffairs.org/reimagining-scientific-engagements-during-covid-19/>.
- Malani R, Revenig L, Santo T, et al., 2020. McKinsey & Company. Preparing for the next normal now: How health systems can adopt a growth transformation in the COVID-19 world.
- Morrison EH, Michtich K, Hersh CM. 2021. How the COVID-19 pandemic has changed multiple sclerosis clinical practice: results of a nationwide provider survey. *Multiple Sclerosis Related Disorders*, 51:102913.
- Nasir M, Chowdhury ASMS, Zahan T. 2020. Self-medication during COVID-19 outbreak: A cross-sectional online survey in Dhaka city. COVID-19, self-medication, drug dispensing, rational use of drug. *International Journal of Basic Clinical Pharmacology*, 1325–30.
- Peeri, N.C.; Shrestha, N.; Rahman, M.S.; Zaki, R.; Tan, Z.; Bibi, S.; Baghbanzadeh, M.; Aghamohammadi, N.; Zhang, W.; Haque, U. 2020. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? *International Journal of Epidemiology*, 49:717–26. <https://doi.org/10.1093/ije/dyaa033>.
- Rawson TM, Moore LSP, Zhu N, Ranganathan N, Skolimowska K, Gilchrist M, et al. 2020. Bacterial and fungal coinfection in individuals with coronavirus: A rapid review to support COVID-19 antimicrobial prescribing. *Clinical Infectious Diseases*, 71:2459–68.
- Robbins JB, England E, Patel MD, et al., 2020. COVID-19 impact on well-being and education in radiology residencies: a survey of the association of program directors in radiology. *Academy of Radiology*. 27(8):1162–72.
- Rodríguez-Álvarez M, López-Vidal Y, Soto-Hernández JL, Miranda-Novales MG, Flores-Moreno K, Ponce de León-Rosales S. 2021. COVID-19: Clouds over the antimicrobial resistance landscape. *Archives of Medical Research*, 52:123–6.
- Sadio AJ, Gbeasor-Komlanvi FA, Konu RY, Bakoubayi AW, Tchankoni MK, Bitty-Anderson AM, et al. 2021. Assessment of self-medication practices in the context of the COVID-19 outbreak in Togo. *BMC Public Health*, 21:58.
- Samad N, Dutta S, Sodunke TE, Fairuz A, Sapkota A, Miftah ZF, et al. 2021. Fat-soluble vitamins and the current global pandemic of COVID-19: Evidence-based efficacy from literature review. *Journal of Inflammation Research*, 14:2091–10.
- Samad N, Sodunke TE, Abubakar AR, Jahan I, Sharma P, Islam S, et al. 2021. The implications of zinc therapy in combating the COVID-19 global pandemic. *Journal of Inflammation Research*, 14:527–50.
- Sarkees, M.E.; Fitzgerald, M.P.; Lamberton, C. 2020. The Pandemic Ripple Effect: Understanding Marketing and Public Policy opportunities in the Pharmaceutical Industry. *Journal of Public Policy & Marketing*. <https://doi.org/10.1177/0743915620930693>
- Sefah IA, Ogunleye OO, Essah DO, Opanga SA, Butt N, Wamaitha A, et al. 2021. Rapid assessment of the potential paucity and price increases for suggested medicines and protection equipment for COVID-19 across developing countries with a particular focus on Africa and the implications. *Frontiers in Pharmacology*. 11:588106. doi:10.3389/fphar.2020.588106.
- Sharma A, Gupta P and Jha R. 2020. Covid-19: Impact on health supply chain and lessons to be learnt. *Journal of Health Management*, 22(2):248-61. DOI: 10.1177/0972063420935653.
- Vilovic T, Bozic J, Vilovic M, et al. 2021. Family physicians' standpoint and mental health assessment in the light of COVID-19 pandemic-a nationwide survey study. *International Journal of Environment Research and Public Health*, 18(4):2093.
- Zanders Treasury and Finance Solutions. 2020. A structural approach towards a best in class financial risk management framework. Zanders Treasury & Finance Solutions. <https://zanders.eu/en/latest-insights/a-structured-approach-towards-a-best-in-class-financial-risk-management-framework>.