

# **How Has Human Desire for Convenience Shaped Medical Treatment?**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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## **Introduction**

Medication nonadherence, the act of not following medication as prescribed or not continuing to take prescribed medication (Ho P. Michael et al., 2009), is an immense issue facing the United States today. Medication nonadherence costs the American healthcare system almost \$300 billion annually (L. Zullig & Bosworth, 2017). Studies show that 20-30% of medications are never filled, and 50% of medications for chronic disease are not taken as prescribed (Viswanathan et al., 2012). One of the largest driving forces behind this trend is a lack of convenience in obtaining, transporting, and consuming medicine. Understanding the limitations of current medicinal treatments and how prioritizing convenience can increase medication adherence is crucial to improving healthcare in America.

Analyzing human desire for convenience is best done through the theoretical perspective of the social construction of technology (SCOT). SCOT is a Science, Technology, and Society (STS) theory that analyzes the social context surrounding technological innovation. SCOT argues that there are a number of “relevant social groups [...] competing to control a design.” Different social groups believe problems in society are best solved in different ways, and therefore favor different technological designs. When one social group prevails over the others, the technological design supported by that group wins out over the others in a process called stabilization. SCOT sees technological innovation as a “co-construction in which technology and society [...] negotiate the meaning of new technological artifacts, alter technology through resistance, and construct social and technological frames-of thought, practices, and action” (*Social Construction of Technology (SCOT)* - Stswiki, 2018).

The SCOT framework can be used to study how the relevant social group that prefers convenience over other features has emerged as the dominant social group in society, shaping

which innovations and businesses will be successful in meeting public demand. This has led to a nationwide shift towards prioritizing convenience when consumers choose products and services. Furthermore, it can be used to study how the shift towards convenience has affected medical treatment and technology.

This paper does not aim to propose the idea that convenience is the most important feature in a product or service nor does not aim to propose the idea that convenient products and services are “better” than other technologies. It seeks to analyze how convenience has become an incredibly important feature in society, and a new culture prioritizing convenience in products and services has had a profound effect on global industries. Offering convenient solutions in medical products and services can improve healthcare for patients, physicians, the government, insurance companies, and other parties.

### **Driving Forces Behind New Demand for Convenience**

Lack of convenience is one of the largest factors inhibiting medication adherence in the United States. The trend of an increasing emphasis on convenience is not only seen in medication adherence, but in many aspects of society. A newfound desire for convenience among consumers has had a profound effect on technology, as businesses and organizations have responded to satisfy a demand for ease of use, utility, and simplicity (*Six Factors Driving Consumers' Quest for Convenience*, 2018).

The demand for convenience across industries can be attributed to two main factors: consumers' changing lifestyles and the growth of the Internet. Trends of urbanization, longer commutes, and greater traffic congestion point to busier, more connected, and more “on-the-go” lifestyles for the average individual. This has led to greater levels of stress, anxiety, and fatigue

among the general population, giving rise to a demand for convenience in other aspects of life. Thirty-nine percent of surveyed global consumers admit to eating out weekly, and 53% of responders wish there were more products that made their lifestyle easier or that were more convenient to use (*Six Factors Driving Consumers' Quest for Convenience*, 2018). Through the lens of the SCOT framework, it is clear how a cultural shift towards convenience has impacted the restaurant industry and is creating demand for new products that make the lives of consumers easier.

The Internet has also played a major role in the increased demand for convenience. In a study conducted by Arvato, a German global services company involved in information technology, convenience was the most important factor for U.S. shoppers when choosing to shop online. Surveyed shoppers believed online shopping allowed for easier price comparison, more product choices, and easier evaluation of stock availability (Arvato, 2017). Online food ordering and grocery shopping have also led to the emergence of companies like Grubhub, Instacart, and UberEats. In a poll of 250 grocery shoppers, the overwhelming factor that led customers to try online grocery shopping was the convenience of deliveries (Jaconi, 2014). The Internet provides more information to consumers at a faster rate and in a more centralized location, creating greater expectations for instantaneous information. This point is further described by Evan Williams, the co-founder of Twitter, saying “The internet makes human desires more attainable. In other words, it offers convenience [...] by making things fast and not making people think” (Jaconi, 2014). The growth of the Internet has facilitated the prioritization of convenience, increasing the number of consumers that shop online.

## **Convenient Solutions Aid Medical Care**

Consumer demand for convenience has led to a shift in the way businesses operate and how technology develops in the medical industry as well. For example, medication adherence was near 90% among senior citizens when they received a 90-day supply of medications and when patients used mail-order pharmacy services for more than half of the year's refills (*Health Care System-Level Factors May Increase Likelihood of Medication Adherence among Seniors*, 2015; Transform Healthcare, 2015). Other innovations, such as Telemedicine, seek to provide medical treatment in a more convenient and accessible manner. In order to adjust to new market conditions, companies and organizations adapted by offering services that provide more convenient medical treatment and encourage greater attention to a patient's healthcare. This represents how newfound prioritization convenience has led to changes in business practices and a new direction for product and service development, a clear observation of the co-construction of society and technology present in the SCOT framework.

## **Important Stakeholders in Healthcare**

Understanding the various stakeholders involved in healthcare is crucial because medication adherence directly affects the survival of patients. The first stakeholder is the patient. Patients value professional and timely treatment in an easily accessible manner. Medication that is convenient to obtain, store, and consume is also tremendously useful to patients to ensure they can adhere to their recommended treatment plan. Patients directly benefit from more convenient access to treatment, as well as more convenient methods of medication to increase adherence and improve their health.

Physicians are another important stakeholder involved in measures to increase convenience in healthcare. Finding ways to ensure patients adhere to medication will allow physicians to be more effective in their treatment of disease. More patients will recover from their conditions, reducing the number of patients that physicians see in a day. With fewer patients, physicians can spend more time per patient and dedicate more energy to patients in the greatest need of medical attention. Greater medication adherence will also reduce the number of hospitalizations, putting less strain on hospitals to house sick patients.

The government is a third key stakeholder in healthcare. In the 2018 midterm election, Gallup polls showed healthcare was the most important issue to voters with 80% of registered voters expressing this sentiment (Newport, 2018). Healthcare is also a popular topic in the upcoming 2020 presidential election. Most Democratic candidates voiced their support of a greater expansion of the federal government's role in Americans' healthcare (Slagle, 2019). Addressing healthcare reform is a top concern amongst citizens, and hence is a top concern for representatives in Congress.

Rising healthcare costs is an immense issue facing the federal government. The Congressional Budget Office projects Medicare spending will double by 2029 due to the expected rise in the proportion of Americans over 65 ("The Facts on Medicare Spending and Financing," 2019). Amongst necessary health care reform, increasing medication adherence can help to reduce healthcare spending. Greater medication adherence will create a healthier population, especially amongst the oldest sect of the population (and those eligible for Medicare). A healthier population is less expensive to care for than a sick population, and a healthcare system that emphasizes convenient methods for effective treatment will result in more citizens getting necessary care. Avoidable health care costs due to medication non-adherence totaled approximately \$300 billion

in 2014, or about 10% of total healthcare costs (Iuga & McGuire, 2014; L. Zullig & Bosworth, 2017). The state also has a moral obligation to ensure the well-being of its citizens. As stated by President Franklin Delano Roosevelt, “Nothing can be more important to a state than its public health; the state’s paramount concern should be the health of its people” (Institute of Medicine (US), 2002). Through financial benefit and fulfilling its moral obligation to public health, the government is undoubtedly a stakeholder in the way medical treatment is shaped by convenience.

Insurance companies are a fourth stakeholder in the healthcare industry. In a similar fashion to the federal government and Medicare recipients, private insurance companies are directly tied to the healthcare of their clients. A greater number of sick patients will come at a greater financial cost to insurance companies. Many employers that provide health insurance to their employees have already started offering financial incentives for exercising regularly or eating healthier diets to combat rising health insurance costs (Midgley, 2018). By offering small incentives for living healthier lifestyles, the likelihood of paying larger expenses for disease treatment at a later date is reduced. Diabetes, high blood pressure, and high cholesterol levels are three of the top four conditions contributing to increases in healthcare costs over the last two decades (Probasco, 2019), and all three conditions can be managed or prevented by living a healthy lifestyle. Offering convenient ways to live an active lifestyle, such as reminders on a smartphone to complete daily exercise challenges, takes a proactive approach to keeping healthcare costs low. This saves money for employers and private health insurance companies that don’t have to pay for medical treatment. Insurance companies have a vested interest in the continued refinement of medical treatment to address consumer demand for convenience.

## **Four Aspects of Convenience Drive Product Success**

To this point, convenience in medical treatment has been loosely defined. Convenience will now be broken into four specific components to understand what characteristics factor into the convenience of medical treatment. The four components are listed as follows: ease of storage/transport, ease of access, ease of consumption, and discreetness/privacy.

### **Ease of Storage/Transport**

Convenience through ease of storing can be defined as both how easily a patient or hospital can store medication or medical equipment. It also refers to how easily a patient or hospital can transport medication or medical equipment. For example, the portable intravenous (IV) pump allows medical personnel (or sometimes patients themselves) to control the amount of fluid or medication to be delivered to a patient over a specified time frame (U.S. Department of Homeland Security, 2016). Standard stationary IV pumps have long been in use by a patient's bedside in a hospital. The introduction of portable IV infusion pumps allowed for fluid delivery in a pre-hospital emergency response or while transporting patients from an ambulance to a hospital. As with most portable devices, the portable IV infusion pump is more easily stored and transported than its stationary predecessor and therefore often has greater utility. The convenience offered by the portable IV pump has led many users to adopt it in place of its predecessor. The SCOT framework argues that the social support of products that offer greater convenience has driven the success of the portable IV pump.

Patients also care about the ease of storing and carrying medication. Portable pillboxes attempt to make storage of medication more lightweight and less bulky, allowing patients to take medicine on-the-go. In the study performed in the Development of an Improved Pillbox, 83% of

surveyed healthcare professionals believed a portable pillbox could help improve medication adherence, with the rest of respondents believing it could “maybe” help. Portable pillboxes aim to offer a more convenient way to store and carry medication, allowing for thinner, lighter storage in a wallet, bag, or purse. This contrasts with more traditional pillboxes like containers segmented by day of the week or blister packages. These products are bulkier or have other design restrictions that limit their convenience to patients.

### *Ease of Access to Retrieve Treatment*

Ease of access can be broken down into the following two categories: ease of patients’ access to receive treatment, and ease of access to obtain medicine. Greater convenience through easier access to treatment can be seen with the emergence of urgent care clinics. These facilities have had a major impact on the healthcare industry because of the benefits they provide to patients in a more convenient setting. Patients can experience shorter wait times than at an emergency room, and no appointments are necessary. Urgent care centers also offer more flexible hours than a traditional physician’s office, sometimes opening as early as 8 a.m. or closing as late as 9 p.m. (*7 Benefits of Urgent Care Services*, 2018). These facilities have become a popular option for patients that want treatment quickly, spontaneously, and at most hours of the day. While some medical needs will undoubtedly require emergency room care or diagnosis from a patient’s physician, urgent care centers have succeeded because they meet the demand for convenience and easier access to treatment. The SCOT theory argues these urgent care clinics have not been successful because they provide better treatment than other alternatives, but because of the social support for the convenient treatment they provide.

Telemedicine has been another solution in the medical field to increase the ease at which patients have access to medical care. Telemedicine is the practice of caring for patients remotely

when the provider and patient are not physically together through the use of electronic information and telecommunication technologies (“What Is Telemedicine?,” 2016). It helps to overcome several challenges facing healthcare, such as significant distances between patient and physician, lack of access to transportation, and lack of available healthcare providers (*What Are the Advantages of Telemedicine? / Doxy.Me*, n.d.). Telemedicine makes medical treatment more accessible to patients and is a convenient alternative to more traditional healthcare services. Not only does telemedicine improve ease of access to care, but it reduces healthcare costs. A recent study showed patients who used telemedicine had fewer hospital admissions, fewer hospital readmissions, and were more likely to spend fewer days in the hospital (*What Are the Advantages of Telemedicine? / Doxy.Me*, n.d.). Not only does this save money for patients, but it also saves money for hospitals, insurance providers, and the government. Physicians can care for patients with greater flexibility and effectiveness, making it easier to provide care and increasing physician satisfaction. All relevant stakeholders benefit from telemedicine, and therefore the technology is very likely to gain widespread social support. Whether or not telemedicine has been successful because it is the “best” approach to healthcare, SCOT argues that its social support from relevant stakeholders drives its success.

#### *Ease of Access to Obtain Medicine*

Convenience is also expressed through patients having greater ease of access to obtain medicine. As mentioned above, high rates of medication adherence among senior citizens were found when patients were supplied a 90-day supply of medications, and when patients used mail-order pharmacy services (Transform Healthcare, 2015). This combats obstacles that typically hinder medication adherence, such as forgetfulness, doubt concerning the effectiveness of prescribed medication, and inability to obtain medicine from a pharmacy. Because physicians want

patients to adhere to prescribed medication, they may work with services that offer more convenient ways of obtaining medicine if they believe these services will increase medication adherence. Because one company offers a more convenient product or service, healthcare providers may choose this product or service over a similarly effective but less convenient product or service. This provides further evidence that the socially supported technologies, and not necessarily the “best” or most effective ones, emerge as most successful as outlined in the SCOT theory.

### *Ease of Consumption*

Ease of consumption is a third component of convenience that has a significant impact on medical treatment. Oral administration is the most common form of medication, normally through tablets, capsules, or mixtures. Oral medications are most common today because they are the most convenient and safest way to give medicine when compared to injection, inhalation, or absorption (*Different Ways to Administer Drugs*, n.d.). Oral medication requires less equipment, is often less painful, and its dosage may be easier to understand than other methods listed above. Many pharmaceutical companies aim to develop medicine that can be administered orally because it is most popular and will sell in stores. Because of its convenience and ease of consumption, and therefore social support, oral administered medicine has become the standard technology.

While it is not necessarily medicine, multivitamin supplements are a great example of how ease of consumption influences consumer choices. Tracking vitamin intake through diet can be complicated for individuals, requiring great effort to fulfill daily recommendations and keep track of many different vitamins. Multivitamin supplements make it much easier to fulfill diet recommendations, taking one or a couple of pills, gummies, or solutions in a day. These convenient options have garnered market success because they offer much greater ease of vitamin and mineral

consumption. Without a strong demand for convenience, multivitamin supplements may not experience the same commercial success that they do currently.

### Discreetness/Privacy

The final component of convenience is the discreetness and privacy of medicine. A common link to non-adherence is the concern related to the stigma of having a disease or medical condition (L. L. Zullig & Bosworth, 2017). Therefore, one strategy to increase medication adherence is to find a convenient, discreet way for patients to take medication without informing those around them they have a sickness or disease. In a study performed in the Development of an Improved Pillbox Design, healthcare professionals unanimously voted that a discreet/inconspicuous design was an important feature in the product design. Maintaining patient privacy through a discreet method of obtaining, storing, and consuming medication could be crucial to increase medication adherence.

### Conclusion

The human desire for convenience has had a tremendous impact on society, particularly in medical treatment. Lack of sufficient convenience in healthcare currently has led to high rates of medication non-adherence and a healthcare system needing reform. While functionality, effectiveness, aesthetics, and other features should not be ignored, producers may find the most success in developing solutions that increase convenience for end-users. Not only is financial success a possibility by prioritizing convenience in technology, but increasing convenience in medical treatment could improve the quality of life for patients and reduce disease mortality. Convenience at the forefront of medical solutions could be the future of healthcare in the 2020s

and beyond, and it is important to understand how widespread desire for convenience is affecting the industry today.

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