OVER-THE-COUNTER MEDICINES: WHY ACCESS AND CONVENIENCE MATTER

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ABSTRACT
Similar to prescription medicines, over-the-counter (OTC) medicines are medically effective because of their intrinsic pharmacological properties. As documented in several studies, the added convenience of OTC medicines is the primary reason why consumers prefer these products to prescription medicines for the treatment of common health conditions, such as headache, heartburn, and allergies. This report summarizes the academic literature on convenience, presents a definition and structure for the concept of convenience, and examines how convenience influences OTC medicine use.

Key words: Over-the-counter medicines, convenience, access.

INTRODUCTION
OTC medicines are legally classified as drugs that are safe and effective for use by the general public without requiring a prescription from a healthcare professional. As with prescription medicines, the Food and Drug Administration (FDA) regulates OTC drugs to ensure that they are properly labelled and that their benefits outweigh their risks. Therapeutic categories in which OTC drugs are available include, but are not limited to, analgesics, cough and cold medicines, products to treat allergies, gastrointestinal medicines, dermatological products, oral healthcare products, and nicotine replacement therapies. Currently, 35% of adult Americans use OTC medications on a regular basis.

OTC medicines are an essential component of the self-care armamentarium. The availability of OTC medicines for clinically mild and self-limiting conditions enables the healthcare system to focus its resources on the diagnosis and treatment of serious diseases, new research, and innovative services. In addition to cost savings associated with OTC products (through lower costs compared to prescription drugs, a reduction in unnecessary doctors’ visits, and less time lost from work), consumers report convenience as one of the main reasons for using OTC medicines. These consumer insights prompted us, first, to review the literature on the concept and dimensionality of convenience, and second, to examine how the various dimensions of convenience influence OTC medicine use.
CONVENIENCE: CONCEPT AND DIMENSIONS

Despite early studies focusing on why consumers wanted convenient products or services, research specifically on the concept and dimensionality of convenience did not begin until the late 1980s. Until then, researchers simply assumed that consumers knew what convenience was and shared a common definition. This assumption often led to studies that found contradictory results. Many researchers interpreted convenience as a characteristic of the product itself rather than a function of consumers’ wants, needs, and resources. In an earlier study by Morganosky examining the way in which consumers value time over money, convenience-oriented consumers were defined as those seeking to ‘accomplish a task in the shortest time with the least expenditure of human energy.’ This definition of the convenience-oriented customer is consistent with the results of a focus group study by Brown & McEnally in which participants were asked to name items and services that were convenient, and to describe why they felt they were convenient. The study found the largest numbers of comments related to saving time (30.2%), followed by comments relating to saving physical effort (17.4%), time offered (17.4%), place offered (13.4%), ease of acquisition (10.1%), ease of execution (6.7%), and saving mental effort (4.7%).

Let us now look more closely at the time and energy dimensions at the heart of convenience research. As Brown & McEnally have shown, many people discuss convenience based on the concept of saving time. The time dimension of convenience encompasses both time savings and the hours a service is available. The latter factor reflects the importance of offering a service at a time of the day or a day in the week when consumers are free to access this service. Consumers use both objective and subjective measures of time, and shape their subjective measures based on perceptions and psychological factors. The psychological cost of waiting (the stress, boredom, anxiety, and annoyance of waiting) influences consumers’ evaluations of service quality and satisfaction with the service provider.

Similar to saving time, energy conservation was found to be an important determinant of purchasing behaviour. Energy is a finite resource that constrains the amount of effort one can make. Subjects asked to characterize convenient products or services made a distinction between saving mental and physical energy. Berry et al concluded that ‘consumers’ perceptions of convenience are negatively influenced by their perceptions of the cognitive, physical, and emotional effort associated with the service.

Both Brown & McEnally and Berry et al conclude from their reviews of the literature that personal and situational factors influence consumers’ perceptions of, and desire for, convenience. For example, a do-it-yourself handyperson who takes on every household project has quite a different convenience profile from a person who picks up the phone to call a contractor, electrician, or plumber for every household job. An example of a situational factor affecting a consumer’s desire for convenience would be an individual who has to complete a task quickly to meet a deadline (e.g., shopping for a birthday gift on the way to a birthday party). Other variables influencing a consumer’s convenience orientation include age, occupation, spouse’s employment, residence, family size, stage in family life cycle, education, prior experiences, and socioeconomic status.
Brown & McEnally\textsuperscript{4} contend that a product or service offering requires a certain amount of time and energy at three phases: acquisition, consumption, and disposal. Now let us examine how these convenience constructs can be applied to healthcare services and products including OTC medicines. The examples in Table 1 are given to illustrate different scenarios affected by either the time or the energy components of convenience within the three phases mentioned above. Convenience factors have a significant impact on an individual’s healthcare provider selection, treatment choices, adherence to medication regimen, and preventive care measures\textsuperscript{1}.

### Table 1. The structure of convenience exemplified with healthcare products

<table>
<thead>
<tr>
<th>ACQUISITION</th>
<th></th>
<th>CONSUMPTION</th>
<th></th>
<th>DISPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td><strong>Energy</strong></td>
<td><strong>Time</strong></td>
<td><strong>Energy</strong></td>
<td><strong>Time</strong></td>
</tr>
<tr>
<td>Less time to acquire:</td>
<td>Less physical energy:</td>
<td>Less time to use:</td>
<td>Less physical energy:</td>
<td>Less time to dispose:</td>
</tr>
<tr>
<td>• OTC medicines</td>
<td>• OTC medicines</td>
<td>• once-a-day medicines (extended release medicines)</td>
<td>• easy-to-use medical devices and diagnostic tools, easy-to-swallow dosage forms</td>
<td>• reusable medical devices</td>
</tr>
<tr>
<td>• E prescribing of medicines</td>
<td>• on-line ordering of medicines</td>
<td>• use at a better time or place:</td>
<td>• child-resistant packaging</td>
<td>• reusable containers</td>
</tr>
<tr>
<td>• online pharmacies</td>
<td>• automatic prescription refills</td>
<td>• portable packs</td>
<td>• pill dispensers &amp; reminders</td>
<td>• package recycling at point of purchase</td>
</tr>
<tr>
<td>Available at preferred time:</td>
<td>Less mental energy:</td>
<td>Use at a better time or place:</td>
<td>measuring devices with liquid medicines</td>
<td>Less physical energy:</td>
</tr>
<tr>
<td>• retail outlets with 24/7 store hours</td>
<td>• familiar store layout</td>
<td>• unit-dose packaging</td>
<td>• clear, legible, concise dosage instructions and product warnings.</td>
<td>• disposal that does not require sorting</td>
</tr>
<tr>
<td>• online pharmacies</td>
<td>• in-store diagnostic tools</td>
<td>Available at preferred place:</td>
<td>• customer service contact numbers</td>
<td>• retailers’ drug take-back programs</td>
</tr>
<tr>
<td>Available at preferred place:</td>
<td>• no worry that product is not safe or effective</td>
<td>• convenient care clinics (in-store clinics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• OTC medicines available at variety of retail outlets</td>
<td></td>
<td>• 0TC medicines available at variety of retail outlets</td>
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</tr>
</tbody>
</table>

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Studies found that greater proximity and/or reduced travel time increases the likelihood that a consumer selects a physician, hospital or pharmacy. Distance from the patient’s residence, waiting time (for an appointment and at an office visit), and whether the healthcare facility has weekend and evening office hours were also rated as main factors influencing individuals’ choices of a primary care physician. Examples of healthcare products made more convenient to use are modified release formulations, which reduce the dosing frequency, as well as combination medicines, which reduce the number of dose units individuals often have to take simultaneously. An example of the important role of convenience in preventive care is the introduction of computer tomography (CT) colonography for colorectal cancer screening as an alternative to colonoscopy. In a survey, respondents ranked convenience as the main reason why they chose CT colonography over colonoscopy. More than one third of patients responded that they would not have undergone colorectal screening had CT colonography not been an option.

CONVENIENCE OF OVER-THE-COUNTER MEDICINE USE

According to Brown & McEnally, the scientific evaluation of the convenience of a service or product requires the comparison with a competing service or product. For OTC medicines, the reference category for discussing convenience dimensions is the process of acquiring prescription drugs. Two factors make OTC products more convenient than prescription medicines: first, unlike prescription medications, acquiring an OTC medicine does not require a doctor visit, and second, OTC products can be purchased at any of the approximately 750,000 retail outlets in the United States (including pharmacies, supermarkets and other outlets) while the sale of prescription drugs is limited to about 55,000 pharmacies nationwide.

Figure 1. Reasons for self-medicating with an OTC medicine (results of a survey by the National Council on Patient Information and Education)
Several studies show that consumers prefer OTC medicines, largely for reasons of convenience. In a survey by the National Council on Patient Information and Education, familiarity and the convenience of self-treatment were the two top reasons for self-medicating with OTC medicines (Figure 1). These findings are consistent with a study by the National Consumers League asking participants whether an OTC version of a cholesterol-lowering drug (a statin) would be preferable to the prescription version. Among the 82 percent who preferred the OTC version, the most commonly cited reason for the choice was convenience. Similarly, 74 percent of respondents in a survey conducted by Roper Starch said that if there were an OTC version of the prescription medication they were taking regularly, they would prefer the convenience of the OTC version.

The general preference for more convenient OTC treatment options must not conceal that personal and situational factors can motivate individuals to favour seeing a doctor and taking a prescription medicine over self-medicating with an OTC product. Main determinants of the choice between consulting a doctor and self-treatment are perceived illness severity, duration of symptoms, understanding of the cause of the symptoms, as well as cultural and socioeconomic factors. Individuals preferentially consult a doctor first when they experience, for example, dental, visual, or genitourinary disorders. In contrast, it was found that self-medication with an OTC product is the first course of action for common conditions such as heartburn, colds, and headaches. Familiarity with the latter conditions and prior positive experience with an OTC treatment play an important role in these choices. The convenience literature shows a clear link between consumers’ familiarity and prior experiences with a product or service and their convenience perceptions. If an individual does not trust his/her expertise, there is a greater probability that he/she will seek help from an expert.

Consumers describe the convenience of acquiring OTC medications in a variety of ways. In a study which examined the importance of different convenience factors to consumers when they decide to purchase an OTC medication, the most frequently reported responses were ‘help avoid a doctor visit’, ‘help avoid the expense of filling prescription’, and ‘packaging choices so I buy what I need’. The last point shows that consumers value OTC product choices and perceive having choices as a convenience factor. However, if an individual feels overwhelmed and confused by too many choices this can become an ‘inconvenience’. In a recently published survey, 23 percent of respondents reported that shopping for OTC medications is confusing. This phenomenon poses a challenge for manufacturers and retailers and contributed to the development of tools assisting consumers in their decision-making. One example is the Dr. Scholl’s Custom Fit in-store technology (Exhibit 1), which recommends a matching orthotic insert based on measurements of pressure points on the foot. A similar tool is a downloadable smartphone application called the Robitussin Relief Finder, which guides cough and cold sufferers through their symptoms and helps them choose.
the most appropriate OTC cold medicine (Exhibit 2).

The time savings realized with use of OTC medicines versus prescription medicines is primarily derived from avoidance of the need to consult with a healthcare provider in order to obtain a prescription. A scheduled doctor office visit, including travel, waiting, and visit time, consumes approximately two to four hours of a patient’s time\textsuperscript{26,27}. An important benefit of OTC medicines is that they are readily available for conditions which require prompt treatment. An example in this area is acute headache for which professional treatment guidelines recommend the early use of OTC analgesics to maximize their effectiveness\textsuperscript{28}. In patients with migraines, initiation of treatment within one hour of pain onset results in a significantly shorter duration of pain than initiation of treatment more than one hour after pain onset\textsuperscript{29}. Another example of a condition which requires prompt treatment is herpes simplex labialis. For this condition, topical antiviral therapy such as the OTC medication docosanol, must be initiated within a few hours of the appearance of the first symptoms for an effective therapeutic outcome\textsuperscript{30}.

\textbf{CONCLUSION}

Many aspects of purchasing an OTC medicine have been made very convenient. The products are grouped together in one aisle, come in a number of convenient dosing regimens (i.e., one pill every 12 or 24 hours, or easier to use dosage forms), and are available at multiple locations, many of which are open around the clock. Therefore, it is not unexpected that numerous surveys show that convenience is the main factor why individuals favour OTC purchases over obtaining prescription medicines. However, there is no general preference for either the OTC or the prescription mode of medication access. Individuals differ in their decisions and they make their choices on a case by case basis. The personal and situational aspects require more in-depth analysis. Which groups of consumers are most attracted to the convenience of self-medication with OTC products? In which situations, and for which conditions, do we prefer OTC treatment options to prescription medicines? Conversely, when do we see the time and energy needed to obtain a prescription drug as worthwhile? A good understanding of these aspects is important for future determinations by manufacturers and regulators on which type of drug access is more likely to achieve adequate therapeutic outcomes for a particular disease, including chronic conditions such as dyslipidemias and osteoporosis.

In addition, we believe we need more research to understand and measure the concept of mental energy, especially what is often termed ‘worry’. There is a ‘convenience gap’ between going to the doctor or emergency room and self-medicating with an OTC product. Doctors have limited hours. Urgent care centres have more hours perhaps, but are not widespread. Emergency rooms are expensive and discourage visits for routine, non-emergency problems. OTC medicines are
more convenient from a time and place aspect than the other alternatives and can remove worry. Yet many consumers want to see a healthcare professional and are not comfortable with self-treatment.

In conclusion, providers of healthcare services and products need to understand their target consumers’ time and energy requirements to acquire and use these services or products. Applying the convenience construct to OTC medicines will help to identify underserved consumers and further preserve public healthcare resources.

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