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Abstract

Background: Fair access to essential medicines is a significant parameter in fulfilling the right to basic health.

Aim: We investigated the availability, prices and affordability of essential medicines for chronic diseases in Ankara, Türkiye.

Methods: We used the procedures outlined in the WHO and Health Action International guidelines for measuring prices, availability, affordability, and price components of medicines. The sample consisted of 334 (14%) of the 2354 pharmacies in Ankara, and 24 essential medicines for cardiovascular diseases, diabetes, chronic respiratory diseases, and palliative care, adopted from the WHO Model List of Essential Medicines (2021). We collected the data in 2021 using a questionnaire administered through face-to-face survey and analysed the data using SPSS version 22.

Results: The findings showed that 15 medicines (62.5% of the selected medicines) met the 80% availability target set by WHO, while 9 did not. The original medicines were more readily available than the generic ones. Among the original medicines, furosemide (10.11) and acetylsalicylic acid (9.26) had the highest median price ratios. The generic medicines seemed to be more affordable than original medicines. Glibenclamide, budesonide, gliclazide, and diazepam had low availability and were sold at higher prices than their international reference prices.

Conclusion: This research highlights priority areas of action to improve access to affordable medicines for chronic diseases in Ankara, Türkiye.

Keywords: essential medicines, chronic disease, medicines policy, affordability, availability, Türkiye

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Introduction

Management of diseases in each of the stages of prevention, diagnosis, treatment, palliative care and rehabilitation requires proper access to medicines (1). Essential medicines, defined as “medicines satisfying the health needs of the majority of the population” by the World Health Organization (WHO), are often selected on the basis of disease prevalence, evidence for efficacy and safety, and cost-effectiveness outcomes (2).

Access to essential medicines is recognized as an integral component of the right to health and an important step towards attaining Universal Health Coverage (3). In this sense, the United Nations has the “designation of a universal health insurance system to include access to affordable essential medicines” among its Sustainable Development Goals (4). WHO also set the goal of “at least 80% availability of essential medicines” for the global management of chronic diseases (5).

The Republic of Türkiye is an upper-middle-income country where 4.34% of its Gross Domestic Product is devoted to healthcare, and most (79.2%) of its health expenditures are publicly financed (6,7). In 1975, WHO considered the implementation of essential medicines a necessity but Türkiye still has no complete essential medicines list. In 2021, 33.4% of deaths in Türkiye were caused by cardiovascular diseases, 14% by cancer, 13.4% by respiratory system diseases and 4.2% by diabetes (8). Almost all patients suffering from such diseases need to use medication (8).

Research suggests that heart attacks, stroke risks and hospitalizations may reduce when cardiovascular patients use lifelong medication consistently (9). It also suggests that medicines prevent severe asthma attacks and diabetes complications (10,11). Some studies claim that efficient disease management, thanks to proper medication, hinders the need to use additional medicines and helps reduce mortality (12). Although medication increases medical expenditures, cost savings are achieved at the community and patient level in the long run because hospitalizations, and the damage caused by disease, are prevented (13).

Objectives

A proper understanding of the availability, prices and affordability of medicines is essential if we are to increase access to healthcare and essential medicines and reduce costs associated with chronic diseases. This study is the first to use WHO/HAI methodology to examine these factors in Türkiye. We aimed to identify the availability, prices and affordability of essential medicines for chronic diseases in pharmacies in Türkiye’s capital city, Ankara, which had a population of 5 782 275 as of 2022.

Methods

Data collection form

Our fundamental methodology was based on Measuring medicine prices, availability, affordability and price components, 2nd edition, a technical document by WHO and HAI that measures medicine prices, availability, affordability and price components (14). National mortality and morbidity data for Türkiye show that chronic diseases are particular health problems in the country.

We determined the medicines used to manage chronic diseases using the WHO Model List of Essential Medicines (2021), national treatment guidelines and expert opinion (a cardiologist and 3 independent pharmacists). We looked up the international reference price of each medicine in the 2015 International Medical Products Price Guide. In general, we aimed to explore 24 medicines, and generated a data collection form using a Microsoft Excel workbook (for detailed

procedure for medicine selection, see Appendix 1 and Appendix 2).

Validity of data collection

WHO/HAI methodology recommends verifying the data by revisiting 20% of the facilities on the same day as data collection, if convenient (14). Therefore, we attempted to verify the data by revisiting 70 pharmacies, including at least 1 in each district, on the same day as data collection.

Research population and sample

The population for this cross-sectional study consisted of 2354 pharmacies in Ankara. We calculated the sample size to represent the population at 334 for a 95% confidence interval. After identifying the districts in Ankara as strata, the number of pharmacies to be included in the sample was determined with the proportionate stratified sampling technique. We then selected pharmacies in the districts using a systematic sampling technique. The data collection form was administered face to face in the selected facilities between 28 July and 30 November 2021 (see Table 1
).

Data analysis

We analysed the data using SPSS (Version 22) and Microsoft Excel. The availability of each medicine is expressed as the percentage of availability of at least 1 original or generic product of the medicine on the day of data collection and categorized as follows (15):

Absent (i.e. 0%), when the medicine is not available in any of the selected pharmacies;

Low, when the medicine is available in less than 50% of pharmacies chosen;

Fairly high, when the medicine is available in 50% to 80% of selected pharmacies;

High, when the medicine is available in more than 80% of selected pharmacies.

We considered the average US dollar rate during the data collection period to express the retail sales prices of the medicines included in the study in Turkish Lira (28 July and 30 November 2021; US$ 1 = Ł 9.17). We then calculated the unit prices of the medicines per tablet, capsule or vial. International reference prices were obtained from the 2015 International Medical Products Price Guide (16).

Affordability refers to the ratio of the price paid for the amount of the medicine to be used in 1 month of therapy for each medicine to the 1-day wage of a minimum-wage worker (the net minimum wage in Türkiye was Ł 94.19 per day in 2021) (17).

We then generated the amount of medicine for 1 month of treatment with recommended daily doses based on product information documents released by the Turkish Medicines and Medical Devices Agency (TMMDA), national treatment guidelines and research on common medicines (18–23). Medicines were evaluated as eligible for affordability if patients could pay less than 1 day's minimum wage for 1 month of treatment but ineligible for affordability if more than this was required.

Ethical approval

The Ethics Committee of Hacettepe University granted ethical approval for this study (13 April 2021). We obtained written consent from those responsible for providing information in the participating pharmacies.

Results

Furosemide was the only medicine available in all pharmacies while acetylsalicylic acid, amlodipine, bisoprolol, captopril, clopidogrel, digoxin, isosorbide dinitrate, losartan and spironolactone were available in almost all pharmacies. Verapamil (56.3%), methyldopa (55.4%) and lisinopril (59.4%) were available in the participating pharmacies at levels lower than the others.

The availability rates of salbutamol (for chronic respiratory diseases), metformin (for diabetes), and ibuprofen and paracetamol (for palliative cancer care) were over 80%, while budesonide (for chronic respiratory diseases), gliclazide and glibenclamide (for diabetes) and diazepam (for palliative cancer care) had low availability (see Table 2).

Of the 24 medicines included in this study, we could not find the original products for 10 and the generic products for 3. The findings show that original and generic products were available in 87.4% and 65.7% of the pharmacies, respectively. An MPR greater than 1 indicates that local medicine prices are higher than international reference prices. In this study, the MPR was 2.48 for original medicines, and the highest MPR for original medicines was 10.11. The MPR for generic medicines was 1.74 (see Table 3).

Among the original medicines, furosemide (10.11) had the highest MPR. Acetylsalicylic acid (9.26), paracetamol (7.48) and ibuprofen (7.35) were among those with high MPRs. With regard to generic medicines, acetylsalicylic acid (9.26) had the highest MPR. The following generic medicines had high MPR: furosemide (7.88), atenolol (8.43), ibuprofen (7.35) and paracetamol (7.24). The medicines that had higher MPRs for their original products than for their generic products were bisoprolol, amlodipine, furosemide, clopidogrel, metformin and paracetamol (see Table 4
).

The results show that, while all the medicines we examined were affordable, ibuprofen was the most difficult to purchase, with a daily price of Ł71.50 (US$ 0.76). A patient needed to spend more than half of their daily minimum wage (Ł47) for 1 month of treatment on budesonide, clopidogrel, losartan and verapamil (see Table 5).

Glibenclamide was the most affordable medicine despite its low availability. Acetylsalicylic acid, amlodipine, atenolol, bisoprolol, captopril, digoxin, furosemide, isosorbide dinitrate, metformin paracetamol, propranolol, salbutamol and spironolactone were both available and affordable. Glibenclamide, budesonide, gliclazide and diazepam were in the low-availability and high-price categories. The high-availability and low-price categories included lisinopril, salbutamol, losartan, isosorbide dinitrate and bisoprolol (see Figure 1).

Discussion

Our findings show the availability, prices and affordability of essential medicines in Ankara. Original medicines were more readily available than generic ones. Although generic medicines accounted for 58.2% of box-referenced medicine sales in Türkiye in 2020, they accounted for more than three-quarters of the volume of medicines sold in Chile, Germany, New Zealand and the United Kingdom.

Differences in local market structures and prescribing practices affect generic medicine use

(24,25). The prescribing policy in Türkiye does not support the production and use of generic medicines, and brand dependence on original medicines can be listed among the reasons why generic medicines more easily available than original medicines.

Although many policy tools are used for physicians, pharmacists and patients to increase the use of generic medicines globally (e.g. generic prescribing) (26,27), in Türkiye medicines are prescribed with their brand names and not their international non-proprietary names. Previous research has argued that these policies contribute to patients' and physicians' habit of favouring original medicines (28).

Business-specific factors in pharmaceutics help create more brand loyalty than in any other industry, In Türkiye, physicians' and patients' preference for original medicines, insensitivity to price and lack of knowledge about generic medicines, in general, may be the reason for the negative attitudes towards generic medicines in pharmacies (29).

Since 2004, medicine prices in Türkiye have been determined by using the lowest producer price in 5 European Union countries (France, Greece, Italy, Portugal and Spain) as the reference. When pricing medicines, the entire source price is considered when there is no available equivalent medicine. The price is determined at 60% of the source price when there is an available equivalent medicine (30).

In 2019, almost all (96.4%) of box-referenced medicine sales were covered by public reimbursement (26). The Social Security Institution (SSI), which undertakes public financing for medicine reimbursements, uses the equivalent medicine payment method as a price control tool for reimbursements. With this method, it is important to know whether the medicine is included in an equivalent comparable group or not when determining the price to be paid by SSI. The highest reimbursement price to be paid for each equivalent group is calculated by adding 10% to the lowest unit price of that group of medicine. When choosing medicines with a higher price, patients must pay the difference between the highest reimbursement price and the price of the medicine.

Instead of incentive policies for generic and original medicine use and expenditures, direct price controls, such as controlling medicine expenditures, price controls and high discount rates, are used to bring the prices of original medicines to a level very close to those of generic medicines. Some indirect intervention tools, such as internal reference pricing, a 10% payment limit and patient participation share, are used.

These policies have indirect effects, such as the price differential between original and generic medicines. Therefore, more interventions are needed, such as mandatory price reductions and continuous updating of mandatory public discount rates (31). The pricing and reimbursement system does not support consumption of generic medical products.

The following medicines, which are often used in treating cardiovascular diseases – the leading cause of mortality globally – were not available at a desirable level (50–80%): atenolol, enalapril, lisinopril, methyldopa and verapamil. These medicines need to be taken daily and are of vital importance for patients with cardiovascular diseases. Budesonide (for chronic respiratory diseases) had a low availability; and gliclazide and glibenclamide, which are used to prevent hypoglycaemia and glycaemic fluctuations in diabetes, were not sufficiently available. The findings also indicate low availability of diazepam, which is essential for palliative cancer care and for correcting anxiety-related problems.

In Türkiye, prices of medicinal products are updated every February, based on the current exchange rate. During the research period, there were supply problems because of the new pricing for medicines. The fact that the medicines were not available in the market, in particular between the announcement and validity dates of the price hike, indicates the possibility that manufacturers or pharmaceutical warehouses stockpiled these medicines in that period. Thus, the fact that the data collection period coincided with these dates may have affected our findings.

Some researchers argue that access to medicines would likely increase if prices were updated more than once a year (32). Nongovernmental and professional organizations (e.g. Union of Pharmacist Employers, Ankara Chamber of Pharmacists) have submitted a proposal to TMMDA, which acts as the highest authority on pharmaceuticals in Türkiye, to use a pharmaceutical tracking system to prevent the risk of decreased access to medicines. In this way, companies and pharmaceutical warehouses that cut off or limit the supply of medicines can be detected by tracking how long products remain in their stocks. Others claim that the possibility of stockpiling medicines could be eliminated if the prices of all medicines not in the pharmacy stocks were fixed and if these medicines were not affected by a price hike until they are supplied to pharmacies (33).

Insufficient availability of medicines can also be a consequence of high dependence on foreign products, given that preparations that require advanced technology, vaccines and blood products, insulin, cancer medicines, and some hormones are often imported. Also, about 80%

of the raw materials used for pharmaceutical manufacturing are imported (34). Localization policies regarding medicines have been promoted in Türkiye since 2016 but they are not sufficiently implemented (35).

The prices of the numerous medicines we examined were higher than the international reference prices. Our findings show that acetylsalicylic acid and furosemide prices were 9 times higher than the international reference prices; the numbers were recorded as 8.4 for atenolol, 7.3 for ibuprofen and paracetamol, 5 for enalapril and 4 for amlodipine. Although many price control tools (e.g. reference price, fixed exchange rates and public price discounts) were used in medicine pricing in Türkiye, we can confidently assert that there were some unclear issues in national medicine pricing.

Limitations

This study is limited to the pharmacies we reached in Ankara between 28 July and 30 November 2021. The availability rate means that the medicine was available in the relevant pharmacy at the time of data collection, something that may have changed over time.

We used the minimum wage to calculate affordability, however, it should be noted that many people in Türkiye earn less than the minimum wage. Different potencies of gliclazide and metformin are more widely used in Türkiye than those specified by WHO and published in the International Medical Products Price Guide. In addition, we considered only patient prices and no other price components (supply chain, profit margins).

Conclusion

Overall, 9 (37.5%) of the 24 essential medicines for chronic diseases did not meet WHO’s 80% availability target. Among these medicines, 5 (55%) were cardiovascular medicines, 1 (11%) was a chronic respiratory medicine, 2 (22%) were diabetes medicines and 1 (11%) was a palliative cancer care medicine. Original medicines were more available than generic medicines.

We found that the prices of 79% of the medicines included in the study were higher than the international reference prices. Even though all the medicines were affordable, we consider it important to increase the availability of more affordable generic products.

These results highlight priority action areas to improve access to essential medicines for chronic

diseases in Türkiye. We therefore make the following recommendations to increase the availability and affordability of medicines:

Design a policy that mandates generic substitution and generic prescription and encourages pharmacists to recommend, or doctors to prescribe, generic medicines.

Educate the public on the use of generic medicines to ensure affordability.

Add the WHO Model List of Essential Medicines to the reimbursement list and tax subsidies on essential medicines to increase affordability of medicines.

Align the new national essential medicines list with current conditions.

Align the medicine availability problem and the ex-change rate used to determine medicine prices with the current exchange rate, and this should be adjusted regularly.

Use information systems to combat stockpiling, which is a barrier to medicine availability.

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Prix, disponibilité et accessibilité économique d'une sélection de médicaments essentiels pour la prise en charge des maladies chroniques en Türkiye

Résumé

Contexte : L'accès équitable aux médicaments essentiels est un paramètre important pour la garantie du droit aux services de santé de base.

Objectifs : Nous avons examiné la disponibilité, les prix et l'accessibilité économique des médicaments essentiels pour la prise en charge des maladies chroniques à Ankara (Türkiye).

Méthodes : Nous avons utilisé les procédures décrites dans les lignes directrices de l'OMS et de Health Action International pour mesurer les prix, la disponibilité, l'accessibilité économique et les composantes de prix de ces médicaments. L'échantillon était constitué de 334 pharmacies (14 %) sur les 2354 de la ville d'Ankara, et portait sur 24 médicaments essentiels extraits de la Liste modèle de l'OMS des médicaments essentiels (2021) pour la prise en charge des maladies cardiovasculaires, du diabète, des maladies respiratoires chroniques et pour les soins palliatifs. Nous avons recueilli les données au cours de l'année 2021 à l'aide d'un questionnaire administré en face à face et avons analysé ces données au moyen du logiciel SPSS version 22.

Résultats : Les résultats ont montré que 15 médicaments (62,5 % de ceux sélectionnés) atteignaient l'objectif de disponibilité fixé à 80 % par l'OMS, tandis que neuf ne l'atteignaient pas. Les médicaments princeps étaient plus facilement disponibles que les génériques. Parmi les médicaments princeps, le furosémide (10,11) et l'acide acétylsalicylique (9,26) présentaient le rapport de prix médian le plus élevé. Les génériques semblaient plus abordables que les médicaments princeps. Le glibenclamide, le budésonide, le gliclazide et le diazépam étaient peu disponibles et vendus à des prix plus élevés que leur prix de référence international.

Conclusion : La présente recherche met en évidence les domaines d'action prioritaires pour améliorer l'accès à des médicaments abordables pour la prise en charge des maladies chroniques à Ankara (Türkiye).

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WHO EMRO | Prices, availability and affordability of selected essential medicines for chronic diseases in

جوكشن أوتسلر، أوجتس إيزيك

الخلاصة

: يُعد الإنصاف في إتاحة الأدوية الأساسية مُعاملًا مهمًّا لإعمال الحق فيالخلفية
الصحة الأساسية .

: هدفت هذه الدراسة الى بحث توافر الأدوية الأساسية لعلاج الأمراض المزمنةالأهداف
وأسعارها والقدرة على تحمُّل تكاليفها في أنقرة، تركيا .

: استخدمنا الإجراءات الموضحة في المبادئ التوجيهية لمنظمة الصحة العالميةطرق البحث
والهيئة الدولية للعمل في مجال الصحة لقياس أسعار الأدوية وتوافرها والقدرة على
تحمُّل تكاليفها ومُكوِّناتها السعرية . وتألفت العينة من 334 صيدلية (14 %) من أصل
2354 صيدلية في أنقرة، و 24 دواءً أساسيًّا للأمراض القلبية الوعائية والسكري
والأمراض التنفسية المزمنة والرعاية الملطفة، مأخوذة من قائمة المنظمة النموذجية
للأدوية الأساسية (2021). وجمعنا البيانات في عام 2021 باستبيان نُشر بأسلوب المسح
المباشر، وحللناها بالإصدار 22 من برنامج SPSS.

: أظهرت النتائج أن 15 دواءً (62.5 %) من الأدوية المختارة) استوفت الغاية التيالنتائ **ج**
حددتها المنظمة بشأن توافر الأدوية بنسبة 80 % ، ويلزم أن تستوفي الأدوية التسعة
الأخرى هذه الغاية . وكانت الأدوية الأصلية متاحة بسهولة أكبر من الأدوية الجنيسة . ومن
بين الأدوية الأصلية، كان لفيوروزيميد (10.11) وحمض أسيتيل الساليسيليك (9.26) أعلى
متوسط للأسعار . ويبدو أنَّ الأدوية الجنيسة أيسر تكلفة من الأدوية الأصلية . وكانت
أدوية جليبينكلاميد، وباديسونيد، وجليكازيد، و ديازيبام قليلة التوافر، وكانت تُباع
بأسعار أعلى من أسعارها المرجعية الدولية .

: يسلط هذا البحث الضوء على مجالات العمل ذات الأولوية لتحسين إتاحةالاستنتاجات
الأدوية الميسورة التكلفة لعلاج الأمراض المزمنة في أنقرة، تركيا .

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