



Self-Care
**SOCIO-ECONOMIC
RESEARCH**

**The Global Social and
Economic Value of Self-Care
2022**



The Global Social and Economic Value of Self-Care

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Introduction

Due to a combination of demographic changes and medical progress, healthcare systems across the world is facing serious financial challenges, which were further exacerbated by overburdened healthcare systems during the COVID-19 pandemic.

Current and future public health approaches need to be centered around a strengthened personal responsibility, based on a more systematic practice of self-care, which can help save both time and cost. However, the strengthening of self-care is still insufficiently promoted. Self-care produces overwhelming long-term benefits for personal health, while freeing-up resources for the most vulnerable. Adopting good self-care habits is one of the best ways we can continue to protect ourselves, our communities and our healthcare professionals. Recognizing the state of scientific knowledge concerning the importance of self-care for society, the health ministers of the world's twenty major industrial nations state that, *"The G20 members should [...] adopt policies that improve access to healthcare by establishing a pro-innovation ecosystem that prioritizes self-care and empowerment of individuals."* Nevertheless, it is still true that proactive promotion of the framework conditions for self-care is lacking in most countries.

To adopt an evidence driven approach for self-care policies it is important to understand:

DISPARITIES IN THE CONTEXT OF PUBLIC HEALTHCARE UTILITIES

In high income countries (HICs), despite highly developed healthcare systems with high density of healthcare providers for outpatient care, systems are overburdened due to easy access and excessive demand. On the other hand, in low- and middle-income countries (LMICs), there is a lack of healthcare practitioners and robust health systems, often leaving individuals without access to basic healthcare facilities. In both cases, self-care empowers individuals to self-medicate and treat themselves, which can lead to better outcomes for individuals and better utilization of existing resources.

DISPARITIES IN THE PRACTICE OF SELF-CARE

Fundamental definitions and the basic concept of self-care remain the same across all regions as defined by WHO (self-management, self-testing and self-awareness) [1]. However, depending on cultural, socioeconomic, and geographic factors, there could be unique differences. In East Asia, there is a long history of traditional herbal medicine use, therefore OTC herbal medicines are widely used in self-medication practices [2]. However, in Sub-Saharan Africa, self-care interventions are considered for more serious conditions, for example the use of a self-testing kit for Human Immunodeficiency Virus (HIV) screening [3]. Furthermore, a prevalent form of self-care concept is self-medication, which is most recognizable in the form of over-the-counter (OTC) consumption in the North American, European and Pacific regions.



These disparities are reflected in the quantified benefits associated with self-care. Designing future policies must depend on data explaining the benefits for individuals and societies and drivers that impact the future value of self-care. Individual national prerequisites and framework conditions is also an integral focal point. This research study identifies the current contribution of self-care products to healthcare systems worldwide, especially in low- and middle-income countries, as well as its future potential.

This study investigates:

Current benefits and potential of self-care for healthcare systems and individuals

The economic and social value of self-care in the future, considering the three OTC drivers

Groups of countries in terms of access to and uptake of self-care to prevent and treat STCs, to help set the basis for designing future policies based on socio-economic and geographic similarities

Findings of the study lead to a set of health policy recommendations for regulators, policy and decision makers for a pragmatic economic and health system model of self-care

Background

REGIONAL PERSPECTIVES ON SELF-CARE PRACTICES

CENTRAL ASIA

- In Central Asia, only a limited number of research articles provide evidence of the significance of self-care, description of self-medication practices, prevalence of OTC consumption and the use of traditional medicines
- The Russian Longitudinal Monitoring Survey of 2015 indicates a high rate of self-care in Russia, including the use of medicines or home remedies. Self-treatment consists of OTC for treating STCs as well as serious health conditions. The reasons for self-care include mistrust in the healthcare system and lack of efficient governmental medical facilities [28]



EAST ASIA AND PACIFIC

- Self-care is a fundamental healthcare practice that continues to play an important role in healthcare systems in East Asia and Pacific region. Practices such as good nutrition, hygiene, exercise and self-medication are all emphasized as self-care practices
- Traditional herbal medicines are prevalent as a form of self-care in Korea, Japan and China, and can be accessed as either OTC medication or prescription. It is reported that 40% of all healthcare delivered in China is in this form. In Korea, 69% of the population have used traditional medication [29]. Other forms of traditional self-care concepts in China are T'ai Chi and Qi gong practices [30]
- Rx to OTC switches and OTC expansion are key concepts of self-care in this region to improve the sustainability of healthcare systems. Governments in Japan, Korea and Hong Kong investigate products to be switched and improve access through additional sale points

Traditional herbal medicines are prevalent as a form of self-care in Korea, Japan and China, and can be accessed as either OTC medication or prescription



EUROPE

- Self-care in Europe is seen as a necessity to relieve the burden on national healthcare systems to counteract demographic changes, and to alleviate expected decline in the number of healthcare professionals [25]. In this context, self-care strategies are promoted, with a focus on Rx to OTC switch
- A study by the Association of European Self-Care Industry (AESGP) published in 2004 showed that a shift of 5% of all prescribed medicines to OTC could save about \$18.1 billion in Europe for both national health insurers and the respective economies [26]
- A 2021 study by AESGP identified that \$1 spent on OTC medicines saves national healthcare systems and economies a combined \$6.70. Additionally, if 10-25% of the current physician visits were substituted by self-care, the study estimated potential savings of \$19.4 billion while also freeing up 58,000 physician hours. This means that these hours could be used for more complex cases, allowing individuals without access to healthcare to get in contact with a physician [27]

LATIN AMERICA & THE CARIBBEAN

- Self-care in this region is practiced in the form of self-medication with OTC or traditional medicines, and includes notions of sustainable healthcare, health literacy and education owing to financial, geographical and regulatory factors
- The practice of self-medication is a necessity due to barriers to healthcare caused by geographical factors [9]. For example, the Amazon rain forest and Andes mountain range create natural barriers which hinder the ability of countries, such as Brazil, to provide healthcare access and therefore contributes to inequities in healthcare distribution [9,10]
- The concept of self-care in Latin America is closely linked to issues regarding the sustainability of healthcare systems, which stem from increasing populations and healthcare costs, further exacerbated by a future shortage of healthcare professionals [11]
- Health literacy has been at the forefront of making healthcare in Latin America more financially sustainable [12]. Governments in the region recognize that many of their challenges could be tackled with self-care and improving health literacy

A shift of 5% of all prescribed medicines to OTC could save about \$18.1 billion in Europe for both national health insurers and the respective economies

MIDDLE EAST & NORTH AFRICA (MENA)

- Self-care involves self-medication, using traditional practices to treat or manage symptoms. These activities vary depending on the culture, religion, level of education and socioeconomic status in the country [13]. Due to the high prevalence of diabetes in this region, self-care is frequently associated with the self-management of chronic disease [14]. Self-care also encompasses use of herbal medicines, nutritional supplements, traditional products and home remedies [21,22]
- Self-care comprises use of medicines to treat self-recognized health conditions without a physician visit [15,16] to decrease the pressure on medical services, where there is a lack of healthcare personnel [17]. Often, with the help of pharmacists, visits to physicians for self-treatable conditions take place only 10-30% of times. [19]
- Practicing self-medication becomes more popular with age [18,19]. Its popularity ranges up to 83% in Iran, 42.5% in Jordan, to 35.4% in Saudi Arabia. Also, it is noted that self-medication is prevalent among adolescents in many countries: Jordan (87%), Palestine (98%), Kuwait (92%), United Arab Emirates (UAE) (89.2%), and Bahrain (44.8%) [20]

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NORTH AMERICA

- Self-care for the management of self-treatable health conditions (STCs) is one of the approaches used to save costs for individuals and national healthcare systems. Self-care simplifies access to OTC medicines and improves individual knowledge on responsible self-medication and relevant self-care products. Most self-care policies focus on prescription-only to over-the-counter (Rx to OTC switches) and health literacy
- Natural health products, dietary supplements, consumer medical devices, and home remedies are also used in the context of self-care in both Canada and the United States of America (USA). In the USA, self-care is rooted in the values of self-reliance and individualism. Additionally, the focus has shifted from the treatment of infectious diseases to the management of chronic diseases and STCs. This is due to increasing medical costs and patient autonomy, which has contributed to the significance of self-care in the healthcare systems of Canada and the USA today [5]
- Health literacy is seen as a key influential factor of self-care practices in Canada, as it promotes good health knowledge

and responsible treatment options [4]. While low health literacy is associated with more unplanned hospital visits and lowered medication compliance, higher levels of health literacy can lead to increased use of OTC products and self-care practices [58] [59]. If 16% percent of Canadians who rely on their physicians for STCs practiced self-care, an additional 500,000 Canadians would gain access to physicians [6]

- Self-care practices in the USA can save a total of \$146 billion for the healthcare system, ranging from \$95 billion in saved clinical visits to \$52 billion in pharmaceutical expenditure [7]. The availability of OTC medicines allow the population to avoid productivity losses of \$23 billion [8]. If OTC medicines were not available, approximately 450 million additional visits to primary or emergency care would be added to the current 1.2 billion visits, a number approximately equal to 56,000 full-time working physicians per year. Therefore, expanding the OTC market through Rx to OTC switches can help to minimize unnecessary physician visits and reduce the existing shortage of healthcare professionals [8]

Self-care practices in the USA can save a total of \$146 billion for the healthcare system, ranging from \$95 billion in saved clinical visits to \$52 billion in pharmaceutical expenditure

SOUTH ASIA

- Self-care in South-Asian countries is a broad concept, comprising of self-medication, traditional medicines and hygiene practices influenced by socioeconomic factors and region-specific traditional medicines, including Ayurveda, Unani and Sowa Rigpa
- Due to the prevalence of diseases such as diarrhoea and cholera, the focus of healthcare programs is on improving sanitation and reducing early childhood diseases, malnutrition and alleviating disease burden



SUB-SAHARAN AFRICA

- Despite different cultures and populations in this region, self-care patterns are quite similar owing to comparable socio-economic situations [23]
- Observed self-care practices include self-medication, self-testing, self-administration, and self-injection, and is often associated with management of malaria and chronic health conditions such as diabetes, and sexual and reproductive health [24]

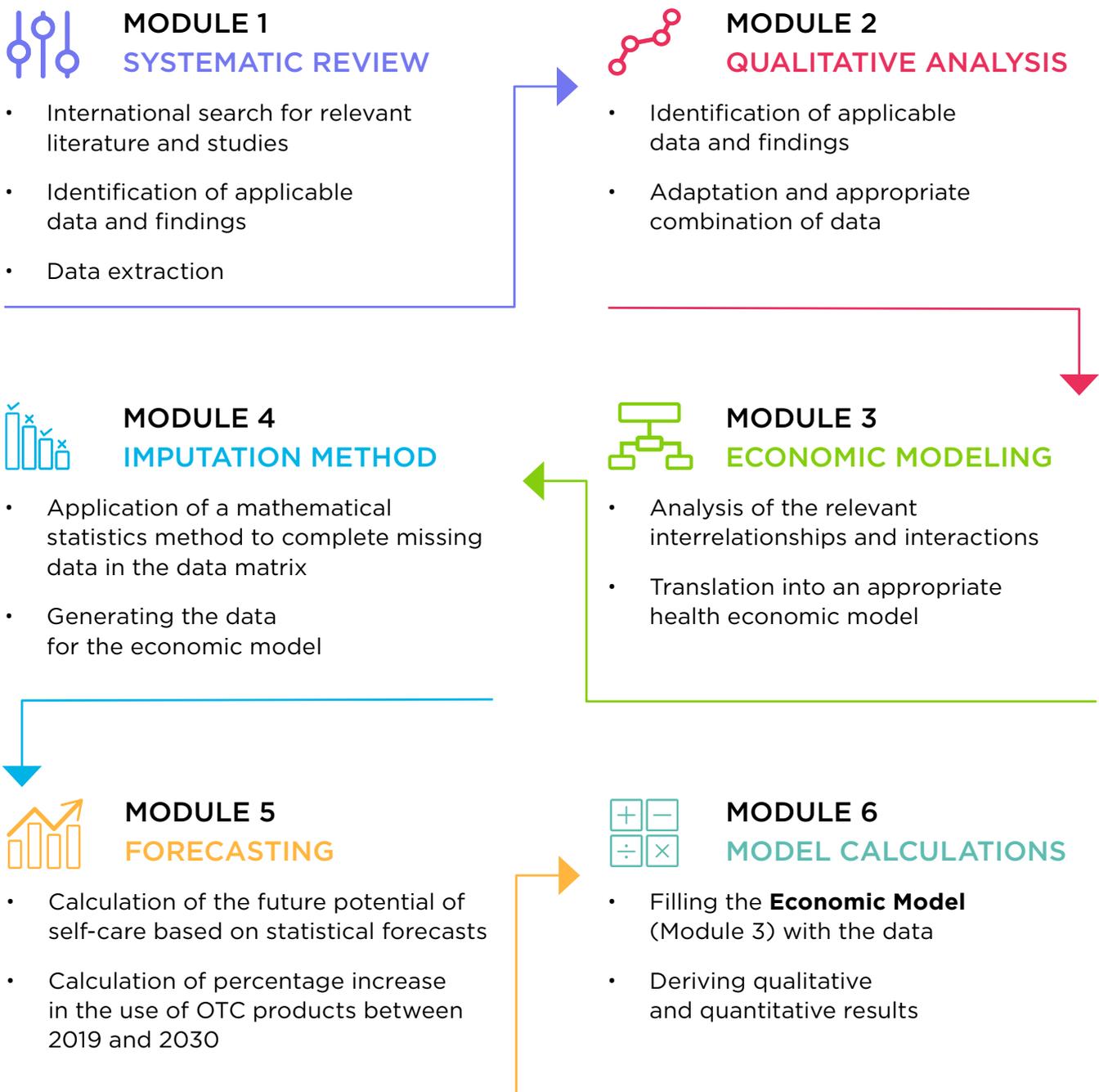
Methodology

For the purpose of this study, the WHO definition of self-care was used:

“Self-care is the ability of individuals, families and communities to promote health, prevent disease, maintain health, and cope with illness and disability with or without the support of a health worker. The scope of self-care as described in this definition includes health promotion; disease prevention and control; self-medication; providing care to dependent persons; seeking hospital/specialist/primary care if necessary; and rehabilitation, including palliative care. It includes a range of self-care modes and approaches.”

To meet the objectives, six methodological modules were employed, as seen in the figure below:

Figure 1: Methodological modules of the economic study



MODULE 1 SYSTEMATIC REVIEW

The foundation of this study is a targeted literature review examining self-care in the six regions of the world and a systematic literature review of the global economic value of self-care to relevant stakeholders. The review focuses on the collection of descriptive findings to provide qualitative scientific evidence on the different concepts and regional perspectives relating to self-care in countries around the world. The systematic review identifies existing studies on this topic and qualitatively analyses the evidence according to individuals, society, healthcare professionals and national healthcare systems or payers. A quantitative analysis approach is used to examine country-specific savings ratios for comparisons between the cost of self-care and alternative forms of treatment.

MODULE 2 QUALITATIVE ANALYSIS

This module involves in-depth qualitative analysis of the literature reviews, and identification of applicable data and findings for the economic model. Peer-reviewed literature selected from databases, such as PubMed and gray literature, including white papers and news articles, are considered in this qualitative analysis module.

MODULE 3 ECONOMIC MODELING

This module focuses on the analysis of all scientific evidence identified in modules 1 and 2 to identify interrelationships and develop a decision-analytic model to simulate the economic and social value of self-care.

MODULE 4 IMPUTATION METHOD

To overcome missing market data for many countries included in the study, especially in the Middle East and Sub-Saharan Africa regions, multiple imputation (plugging in values by inference) using chained equations was applied. Analysis of the dataset and imputation were performed using the statistical programming software, R. Imputations for missing values were performed using regression models for each variable and conditional for other variables in the data.

MODULE 5 FORECASTING

This module focuses on determining the future potential of self care that is based on forecasts and analyses. The identification of OTC drivers and the calculation of percentage increases in the use of OTC products from 2019 to 2030 enable an examination of the benefits generated through increased self-care practises.

MODULE 6 MODEL CALCULATIONS

Finally, in Module 6, the economic model is filled with data to derive qualitative and quantitative results.

MAIN RESEARCH CONCEPTS

The term self-care, as used in this study and in accordance with the definition of WHO, encompasses various responsible measures that individuals undertake to regain or maintain their health. The use of OTC medicines and other health products can either replace medical treatment, including the prescription of such products, or provide an alternative to avoiding treatment with medicines altogether. In addition, other measures and behaviors with the aim of maintaining health, without the presence of STC, can also be carried out. Corresponding to these behavioral options given in practice, three different concepts of self-care can be defined in this context (Table 1).

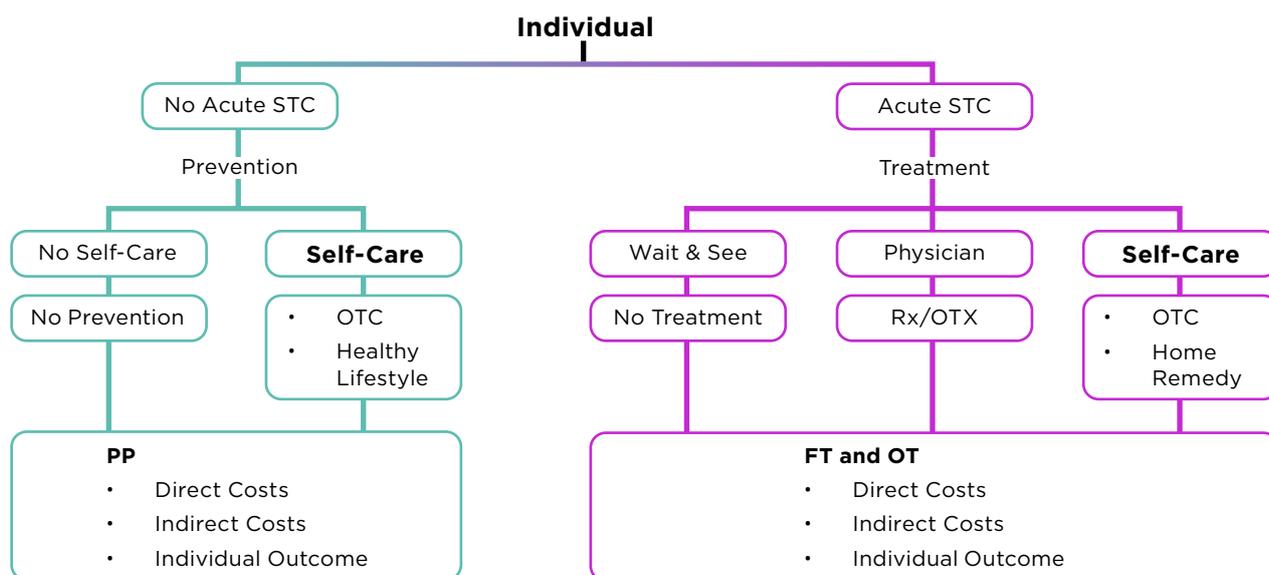
Table 1: Three main self-care concepts in countries worldwide

CONCEPTS	DEFINITION	TOOLS	MAIN TARGET	SOCIAL VALUE
SELF-CARE AS THE FIRST TREATMENT OPTION (FT)	Choosing self-care with OTCs instead of a physician visit	OTCs (medicinal products)	Symptomatic relief	Same outcome Freed-up resources (e.g. physician visits)
SELF-CARE AS THE ONLY TREATMENT OPTION (OT)	Choosing self-care with OTCs in addition to “wait and see” by using home remedies	OTCs (medicinal products, medical devices & food supplements)	Symptomatic relief Prevention	Improved outcome Decreased/avoided disease burden and cost
PREVENTIVE PRACTICE OF SELF-CARE (PP)	Choosing proactive self-care behaviour	Healthy lifestyle, home remedies, OTCs (for preventive use), hygiene	Prevention	Improved outcome Quality of life

Self-care as the first treatment option (FT)
Self-care as the only treatment option (OT)

These concepts depict the decision-making process and the possible behavior of individuals in the event of a self-treatable health issue (Figure 2). All paths of this decision tree led to certain outcomes for the individual. The direct and indirect costs associated with a particular treatment path also differ in each case, as does the analysis of cost-benefit ratio from a health economic perspective.

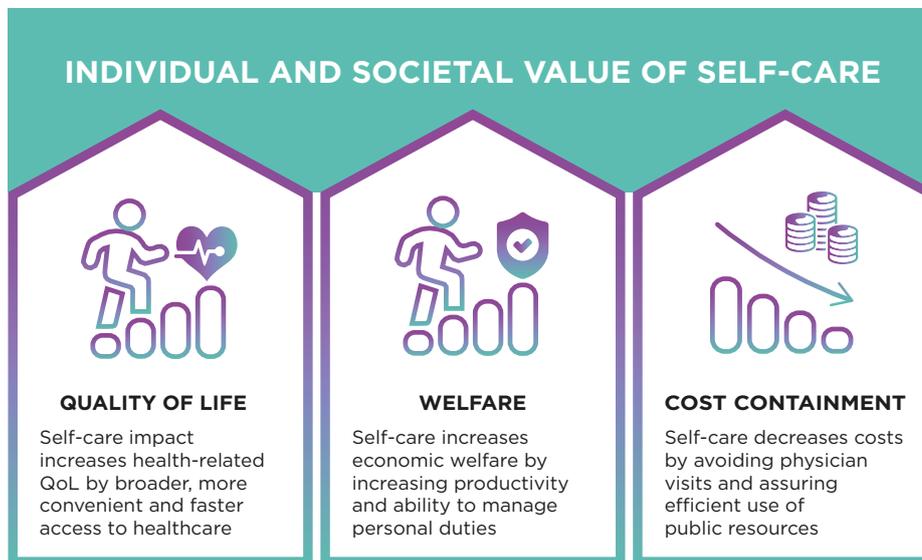
Figure 2: Decision tree for the three self-care concepts



This research study focuses on self-care both as the FT and OT, since they are practically observed in the case of acute STC. PP of self-care is excluded from the quantification due to lack of data for the calculation of corresponding impact and contribution. There is not enough evidence on how PP of self-care actually takes place and how these behaviors should be distinguished from normal lifestyle behaviors in terms of content and definitions, making quantitative estimations related to health outcomes and associated costs is difficult and therefore intangible.



Figure 3: The pillars of the social value of self-care



These three self-care concepts lead to three beneficial outcomes that are considered the foundation of the value of self-care (Figure 3):

QUALITY OF LIFE

- Is measured in medical units or health primarily on health-related quality of life, excluding psychosocial factors (part of the WHO definition)
- In the context of this study, an increase in the quality of life as a result of self-care is when the intensity of a health condition is reduced, or its duration is shortened. Loss of quality of life due to the occurrence of certain health conditions can be avoided through preventive measures
- As a measure for the quantitative assessment of health-related quality of life, this study uses the concept of QALYs (quality adjusted life year), which is internationally established in health economics [31-35]

WELFARE

- The benefit is measured in terms of an individual (microeconomic perspective) or benefit of all individuals in a national economy (macroeconomic perspective). In contrast to the impact of self-care on

quality of life, the concept of welfare refers to the gain, or loss, of productive time

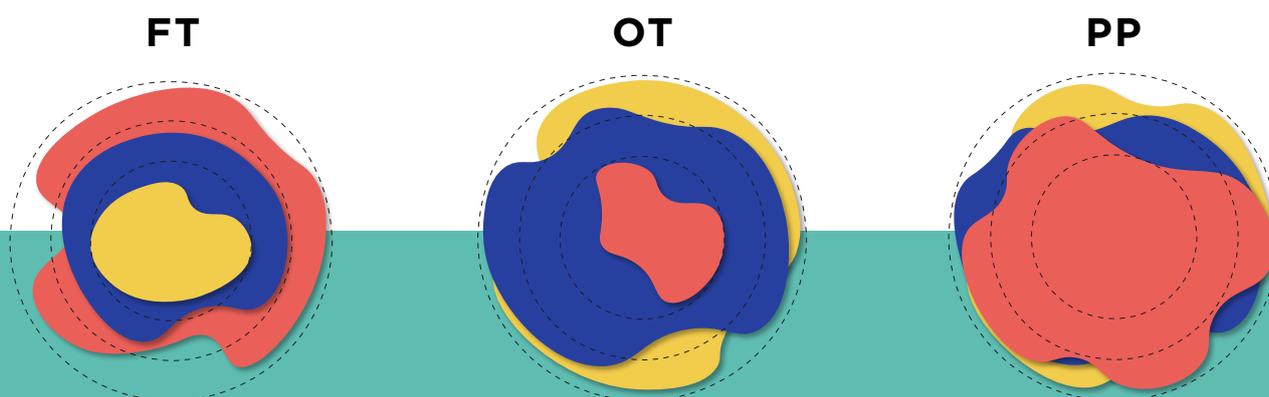
- Productive time can refer to both financially remunerated employment as well as family/private activities, such as childcare, caring for relatives, household tasks etc. The monetary value of productive time is determined using the international standards of health economics using the human capital approach proposed by Weisbrod in 1961 [36-40]
- The term productivity is used to refer to material value. When a unit of time is expressed in monetary terms, the term welfare is used. Productivity and welfare can be measured and reported both at the individual and at the aggregated macroeconomic level
- Welfare increases with growth in availability (and use) of OTCs leading to an increase in productive time of the individual and QALYs
- Adopting a self-care first strategy as opposed to visiting a physician to faster and/or timely treatment of STCs. This also contributes to productive time of individuals and cumulative impact at macroeconomic level

- OT leads to greater welfare and productivity gains, since access to OTCs facilitates treatment. Treatment with OTCs is instrumental in enabling individuals to carry out their daily activities. The most significant welfare for those affected by STCs occur when productivity losses in the social and healthcare systems are not financially and materially mitigated by appropriate compensation, such as sick-leave pay, or support, for example child care. In the worst-case scenario, an STC can also lead to the loss of a family's main source of income for several days due to a lack of access to self-care
- As a result of demographic change and medical progress, healthcare systems worldwide are facing serious financial challenges, that the pandemic has further exacerbated. The three very different dimensions and categories of beneficial outcomes, Quality of Life, Welfare, Cost Containment, each play a role to varying degrees in the self-care concepts (Figure 4). The descriptions of these benefit categories above have already indicated this. In Figure 4, this association is again systematically illustrated. While cost savings for national healthcare systems and individuals play a central role in FT, the positive impact of self-care on quality of life and welfare dominate in OT. The practice of preventive self-care, on the other hand, has a significant positive impact on all three metrics. For methodological reasons and due to a lack of data, the impact is not practically quantifiable and thus are not included in the calculations of this study. For the purpose of this study, FT is estimated in terms of cost containment, individual and physician time savings. OT is expressed using productivity, welfare and quality of life metrics

COST CONTAINMENT

- Cost containment captures savings that can be achieved when an individual chooses FT. By doing so, the costs incurred for more expensive forms of care, including a physician visit or hospital admission, as well as the purchase of prescription medications, are reduced. This generates savings for the healthcare system and national economies

Figure 4: Impact of self-care concepts on metrics



Results of Research

- Quantitative Data: Impact on Welfare, Cost Control
- Qualitative Description: Impact on QoL

Results of Research

- Quantitative Data: Impact on Welfare, Cost Control
- Qualitative Description: Impact on QoL

Results of Research

- Quantitative Data: Examples of Impact on Welfare, Cost Control
- Qualitative Description: Impact on QoL

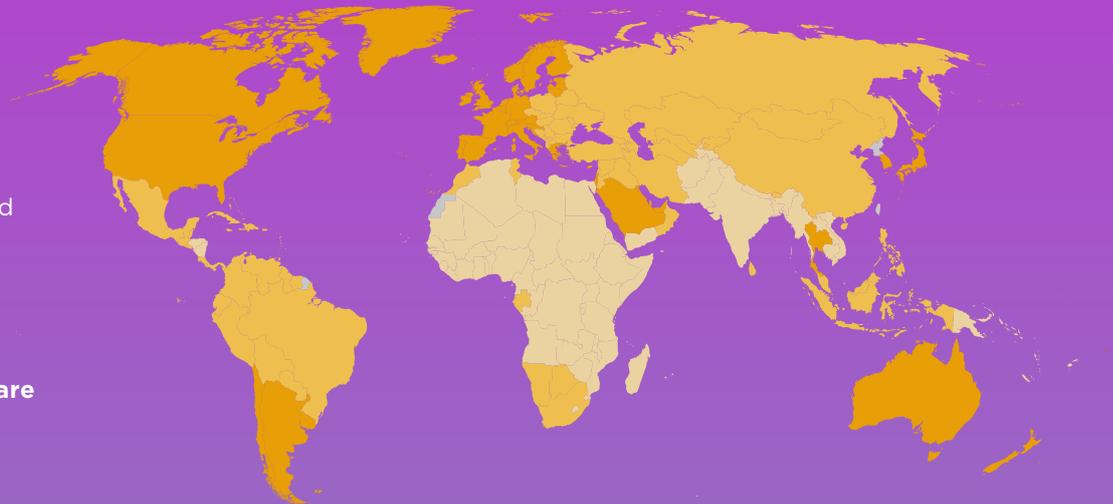
Relevance and strength of the metrics: ● **QUALITY OF LIFE** ● **WELFARE** ● **COST CONTAINMENT**

Figure 5: Global Country Grouping Regions according to World Bank

Differences in **accessibility** and **affordability** of healthcare among countries located in the same geographic region creates the need for country grouping.

For this purpose, five parameters were selected:

1. **National Health Care Service Coverage in population**
2. **Income Group**
3. **Health Care Expenditure p.c.**
4. **Physicians per 1,000 population**
5. **GDP p.c.**



From more to less accessible



Group A: e.g. Australia, Japan & USA
Group B: e.g. Brazil, China & Iran
Group C: e.g. India, Nicaragua & Nigeria

COUNTRY COVERAGE AND GROUPING

The country grouping approach was developed in two stages to examine healthcare needs or self-care potential of a country (Figure 5):

1 Economic indicators were analyzed to determine the economic status of a country and the potential per capita spending on OTCs (affordability). For this purpose, GDP per capita, healthcare expenditure per capita and income per capita were selected

2 Indicators relating to healthcare accessibility were examined: the accessibility of health services is a key factor that influences healthcare utilization, self-care practices and the health status of a population. The indicators chosen include healthcare system coverage and physician density

A total of 155 countries were included in the economic analysis. 41 countries were categorized into Group A, 60 countries into Group B and 54 countries into Group C. While the countries in most regions were predominantly categorized into one or two groups, East Asia and Pacific region has the most evenly distributed number of countries across the three groups.

APPROACH TO ESTIMATE THE FUTURE POTENTIAL OF SELF-CARE

To determine the future potential of self-care, a macroeconomic approach was used to analyze the anticipated growth potential of OTC drivers and to estimate the relative impact they will have on self-care in terms of OTC sales volume. Three OTC drivers were identified for this purpose:

Economic welfare
(OTC driver 1)

Demography
(OTC driver 2)

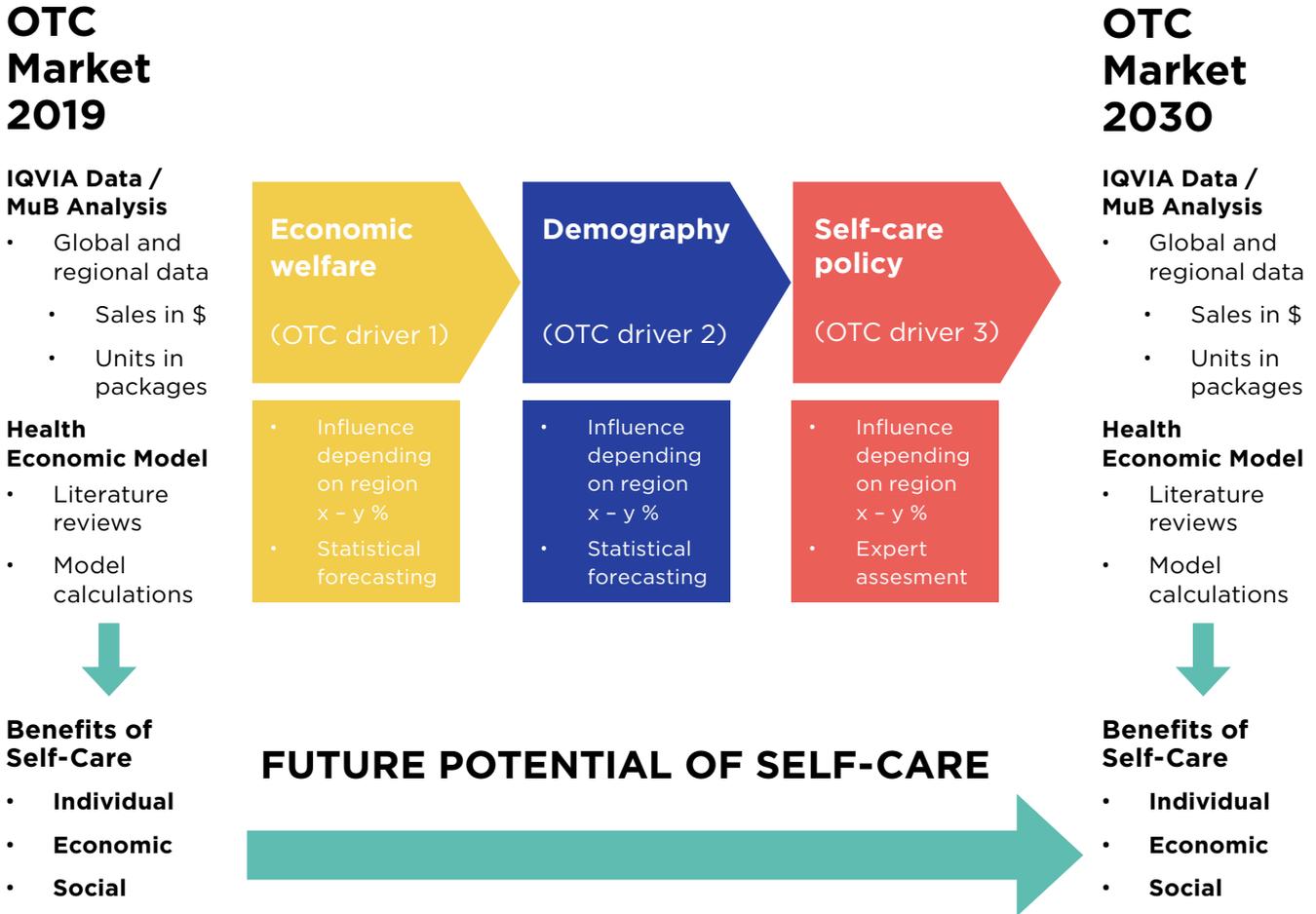
Self-care policy
(OTC driver 3)



The choice of OTC drivers for forecasting the OTC market for 2030 was based on three key factors that are expected to influence changes in the upcoming years:

- Increases in global economic welfare due to rising incomes in addition to demographic trends, such as ageing populations and the growth or decline of populations
- It is expected that existing self-care policy will be further developed and that new self-care policy measures will be implemented. Such measures may increase the skills and knowledge of individuals concerning appropriate use of OTC products or to expand access and availability of OTC products
- The overall results based on these OTC drivers demonstrate the benefits of self-care in terms of individual, economic and social value

Figure 6: Method to estimate the future benefits of self-care



An 11-year time horizon, from 2019 to 2030, was applied (Figure 6).

ECONOMIC WELFARE

- Focuses on the level of wealth and quality of living standards in society. An increase in economic welfare, which can be measured in terms of income or GDP, reflects the ability of individuals to pay for consumer goods [42]
- Economic welfare influences the potential consumption of OTC products. Assuming that an increase in out-of-pocket (OOP) expenditure can be directly associated

with any changes in OTC spending, OOP expenditure was selected to model the contribution of economic welfare on self-care and OTC spending

- To calculate the change in OTC sales volume between 2019 and 2030, annualized rates of change¹ at which a country’s per capita OOP spending increases (or decreases) were extracted from future estimates by the Global Burden of Disease Health Financing Collaborator Network [43]

DEMOGRAPHY

- Takes into consideration demographic changes, including both growth and decline in populations
- To calculate the impact of demography, data from the World Bank and the UN was used to obtain the population for 2019 as well as the forecasted population for 2030 (Figure 6). The population for each country was multiplied by the OTC sales volume in 2019. Results were then added for each Country Group.

SELF-CARE POLICY

- To calculate the future potential of self-care, the economic effect related to self-care policy measures is estimated based on the literature and expert knowledge. The largest percentage change is estimated in Group C countries at 20%, while the change in Group A countries and Group B countries is 10% and 15%, respectively (Figure 7)
- Self-care policies will also generate savings in future along with economic welfare and demography
- The extent of value generated through self-care policies relies on the maturity of the self-care policy and the readiness or willingness of individuals, healthcare providers, and other relevant stakeholders to adopt them
- It is therefore possible for the value of impact to be modified: the percentage change due to self-care policy may be increased or decreased, and the resulting impact will reflect these changes accordingly

The methodological approaches described yield results that quantify the social and economic value of self-care. These results highlight the current value as well as projecting the future potential value that can be generated through self-care.

Figure 7: Percentage impact of self-care policies in the Future Potential scenario

ECONOMIC WELFARE



DEMOGRAPHY



SELF-CARE POLICY



¹ Twelve negative annualised rates of change for OOP per capita spending were identified from the total of 150 annualised rates of change that were included in the calculations. Focusing on the positive annualised rates of change which lead to an increase in OOP per capita spending in 2030, these rates ranged from 0.2 - 7.2 for Group A countries, 0.1 - 6.3 for Group B countries and 0.1 - 5.9 for Group C countries.

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

Global results

CURRENT ECONOMIC AND SOCIAL VALUE OF SELF-CARE WORLDWIDE

The value generated by the FT is linked to the distribution of OTC expenditure in terms of packs as well as total monetary value between the three country groups and healthcare system infrastructure (Table 2). As seen in Table 2, the cost containment is largest in Group A and this can be explained by the higher average cost of Rx and/or OTC products. Moreover, there are variations in individual and physician time savings across country groups. In countries with established healthcare system infrastructure, there is, a higher density of physicians, a shorter distance required for people to travel to a primary healthcare provider and less waiting time for a physician visit. This means the individual time savings is more significant in Group C than Group A countries. Nevertheless, the significance of the FT and the number of OTC packs used were also be considered when interpreting the total value. Thus, Group B generates the most individual time saving: 5.8 billion hours.

The physician time savings focuses on the duration of consultations and time required by physicians for administrative tasks. Countries with better access to physicians, which is supported by a high density of primary care physicians, can provide individuals with longer consultations of approximately 15 minutes or more and also tend to have quality standards to ensure minimal consultation durations. However, with increasing populations and a growing demand for primary care physician consultations, studies indicate that physicians are overburdened and administrative tasks often add to their workload [44]. Very short consultation times have been identified in countries with less-developed healthcare system infrastructures. In these countries, the number of physicians available to cope with the growing demand for primary care is limited and there is a lack of appointment systems to assist with the management of outpatient consultations. This leads to shorter consultation, of under five minutes, which are associated with poor communication with individuals, increase in polypharmacy and overuse of antibiotics [45].

Table 2: Current value of self-care in FT by Country Group

Country Group	Population	OTC Packs	Cost Containment	Individual Time Saving	Physician Time Saving
Group A	1,178 mn	3,226 mn	\$76,835 mn	4,032 mn hours	968 mn hours
Group B	3,238 mn	3,891 mn	\$39,694 mn	5,836 mn hours	778 mn hours
Group C	3,184 mn	564 mn	\$2,459 mn	1,081 mn hours	56 mn hours
GLOBAL VALUE	7,600 mn	7,680 mn	\$118,988 mn	10,949 mn hours	1,802 mn hours

It is also interesting to note the number of countries included in each of the country groups. Group A comprises 41 countries, Group B 60 countries and Group C 54 countries.

By aggregating the value in Group A, B, and C countries to a regional level, it is possible to examine the total value of self-care globally, as summarized in Table 3. These values can be compiled to obtain a total global value achieved through the FT. Approximately \$119.0 billion in monetary savings, over 10.9 billion hours in individual time savings and 1.8 billion hours in physician time savings is currently achieved worldwide.

Table 3: Overall current value of self-care in FT according by world region

Region	Population	OTC Packs	Cost Containment	Individual Time Saving	Physician Time Saving
East Asia & Pacific	2,287 mn	2,171 mn	\$31,352 mn	3,108 mn hours	495 mn hours
Europe & Central Asia	917 mn	2,857 mn	\$46,278 mn	3,959 mn hours	702 mn hours
Latin America & the Caribbean	640 mn	587 mn	\$7,242 mn	869 mn hours	122 mn hours
Middle East & North Africa	451 mn	333 mn	\$3,892 mn	494 mn hours	72 mn hours
North America	366 mn	1,151 mn	\$27,132 mn	1,439 mn hours	345 mn hours
South Asia	1,834 mn	433 mn	\$1,128 mn	828 mn hours	44 mn hours
Sub-Saharan Africa	1,105 mn	147 mn	\$1,966 mn	251 mn hours	22 mn hours
GLOBAL VALUE	7,600 mn	7,680 mn	\$118,990 mn	10,948 mn hours	1,802 mn hours

Additionally, the regional results can be interpreted according to the value per capita to analyze the significance of FT and self-care metrics in each region (Table 4).

Table 4: Per capita per year current value of self-care in FT

Region	OTC Packs	Cost Containment	Individual Time Saving	Physician Time Saving
East Asia & Pacific	0.9	\$13.71	81.5 minutes	13.0 minutes
Europe & Central Asia	3.1	\$50.48	259.1 minutes	46.0 minutes
Latin America & the Caribbean	0.9	\$11.32	81.5 minutes	11.5 minutes
Middle East & North Africa	0.7	\$8.64	65.8 minutes	9.5 minutes
North America	3.1	\$74.15	235.9 minutes	56.6 minutes
South Asia	0.2	\$0.62	27.1 minutes	1.4 minutes
Sub-Saharan Africa	0.1	\$1.78	13.7 minutes	1.2 minutes

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

As expected, the most significant gains in the FT are observed in regions with a higher number of countries in Group A, including East Asia and Pacific, Europe and Central Asia, as well as North America. In these regions, the choice to practice self-care with the use of OTC products as the first treatment option plays the most significant role in enhancing self-care practices. This is also clearly highlighted in [Table 4](#) through the per capita consumption of OTC packs in the FT for the regions. With 3.1 OTC packs per capita per year in the FT, the largest overall cost containment of \$46.3 billion is generated in the Europe and Central Asia region ([Table 3](#)). On a per capita basis, cost containment and physician time savings are greatest in North America, while individual time savings are the largest in Europe and Central Asia. In both regions, this indicates that the value of self-care results to a large extent from an individual's decision to select FT. It is also interesting to note that when considering the overall impact of all three OTC drivers, they are significantly highest in Europe and Central Asia overall ([Table 3](#)).

The FT has a less significant role in Latin America and The Caribbean, Middle East, and North Africa, as well as East Asia and Pacific, while it has a minimal role in South Asia and Sub-Saharan Africa. In regions with the majority of Group C countries (Sub-Saharan Africa and South Asia), the lowest gains in the FT option overall and per capita are generated. As previously mentioned, this is due to healthcare infrastructure and socioeconomic levels which render the physician substitution to be of less significance. Although OTC consumption is reported as the lowest in Sub-Saharan Africa, South Asia generates the least amount of monetary savings, of \$1.1 billion, despite their current usage of OTC packs more than doubling that of Sub-Saharan Africa. Reasons for this could be the lower average cost of OTC products in South Asian countries and lack of access to primary healthcare, which is reflected in their low numbers of physicians per capita. A lack of access to primary healthcare places emphasis on the fact that medical overuse is not an issue of concern and,

therefore, the FT does not play a significant role in these regions.

In addition to the cost advantage associated with self-care, savings in time is another considerable benefit that must be taken into consideration. The practice of self-care has the potential to reduce unnecessary physician and hospital visits, which leads to time savings for overburdened healthcare professionals and time savings for individuals. While physician time savings may free up time and allow physicians to dedicate more time to people in most need, individual time savings may lead to more time for the individual to carry out day-to-day activities or even reduce work impairment.

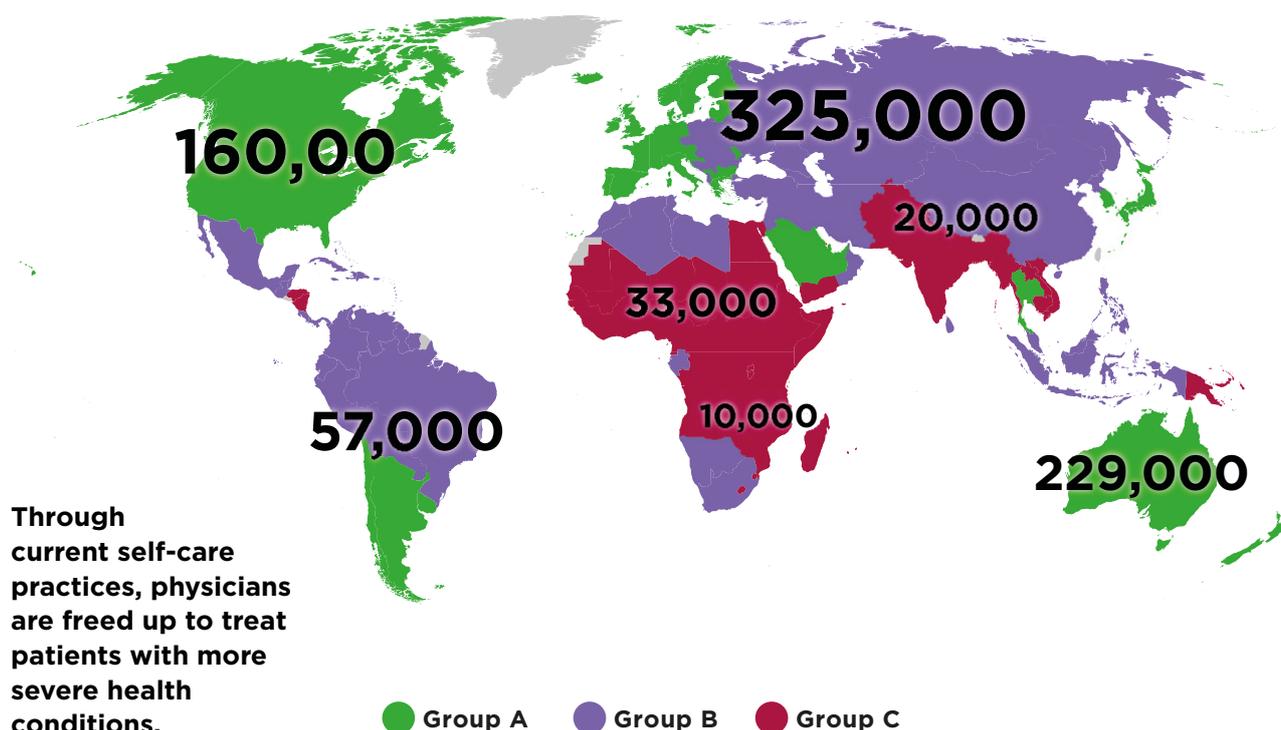
The individual time savings reported in [Table 3](#) take into consideration the time it takes an individual to travel to a physician, waiting time and the duration of a physician consultation. Physician time savings focus on the duration of the consultation. Average times were calculated for each country group, using evidence gathered from targeted literature searches and the reliability of these estimations was confirmed through expert interviews. Globally, a total of 10.9 billion individual hours per annum and 1.8 billion physician hours are saved through current self-care practices. For the individual, this means that personal leisure time and working time would be affected if they do not choose to manage STCs through self-care. For physicians, time savings reflect the amount of time that can be allocated to treating more severe cases requiring physician treatment.

Physician time savings could also be interpreted as fewer working hours or a reduction in physician workload, which minimizes the burden on physicians. [Figure 8](#) below illustrates the distribution of physicians freed up by self-care among the different regions of the world. The greatest number of physicians potentially freed up occurs in Europe and Central Asia (325,000), East Asia and Pacific (229,000) and North America (160,000). These regions are also reported to generate the greatest overall value in the FT as seen in [Table 3](#). On the global level, more than

800,000 physicians are freed up to manage those with more severe health conditions through current self-care practices (Figure 8). This is based on the estimation that, on

a global average, primary care physicians work an average of 45 hours a week and 48 weeks a year [46].

Figure 8: Approximate number of physicians potentially freed up through current self-care practices



In the OT, the outcome is expressed in terms of productivity, welfare and quality of life. Productivity is measured in material units and is multiplied by the average income per capita to generate the monetary savings that are referred to in this study as welfare. Finally, quality of life is measured in terms of QALYs.

The value seen in the OT is linked to the distribution of OTC expenditure in terms

of packs between the three country groups and healthcare system infrastructure. The total value of self-care in the OT is summarized in Table 5 by country group. The productivity and quality of life gains are largest in Groups B and C. However, the welfare in Group A is approximately double that of Groups B and C combined, because the average income per capita is much higher in comparison.

The average income per day amounts to approximately \$273.00 (Switzerland) in Group A countries, \$101.00 (Cyprus) in Group B countries, and \$11.00 (Egypt) in Group C countries.

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

Table 5: Current value of self-care in OT by Country Group

Country Group	Population	OTC Packs	Productivity	Welfare	Quality of life
Group A	1,178 mn	4,839 mn	7,258 mn days	\$1,216,339 mn	4 mn QALYs
Group B	3,238 mn	11,672 mn	17,508 mn days	\$549,017 mn	9 mn QALYs
Group C	3,184 mn	10,713 mn	16,070 mn days	\$113,793 mn	9 mn QALYs
GLOBAL VALUE	7,599 mn	27,224 mn	40,836 mn days	\$1,879,149 mn	22 mn QALYs

By aggregating the contributions in Group A, B, and C countries to a regional level, it is possible to examine the total value of self-care in each region (Table 6). These contributions can be summed up to obtain the total global value achieved through the OT. Approximately 40.8 billion productive days, \$1.9 trillion in welfare gains and 22 million QALYs are currently achieved worldwide.

Table 6: Overall current value of self-care OT by world region

Region	Population	OTC Packs	Productivity	Welfare	Quality of life
East Asia & Pacific	2,287 mn	5,835 mn	8,752 mn days	\$409,964 mn	5 mn QALYs
Europe & Central Asia	917 mn	6,615 mn	9,923 mn days	\$646,418 mn	5 mn QALYs
Latin America & the Caribbean	640 mn	1,702 mn	2,552 mn days	\$78,975 mn	1 mn QALYs
Middle East & North Africa	451 mn	1,586 mn	2,379 mn days	\$50,751 mn	1 mn QALYs
North America	366 mn	1,726 mn	2,590 mn days	\$588,717 mn	1 mn QALYs
South Asia	1,834 mn	8,139 mn	12,208 mn days	\$88,777 mn	7 mn QALYs
Sub-Saharan Africa	1,105 mn	1,622 mn	2,432 mn days	\$15,546 mn	1 mn QALYs
GLOBAL VALUE	7,600 mn	27,224 mn	40,836 mn days	\$1,879,148 mn	21 mn QALYs

Table 6 reveals that South Asia has the highest total OTC expenditure (packs) and therefore also produces the largest total productivity and quality of life. Europe and Central Asia, as well as East Asia and Pacific, have the next highest number of OTC packs in the OT and related outcome. Nevertheless, when taking into consideration the current population of these regions, the magnitude of the outcome per capita is ultimately the largest in Europe and Central Asia, and North America (Table 7). This is because the current total population in East Asia and Pacific is approximately 2.3 billion and 1.8 billion in South Asia, while the population in Europe and Central Asia is 0.9 billion and 0.4 billion in North America.

Table 7: Current per capita per year value of OT

Region	OTC Packs	Productivity	Welfare	Quality of life
East Asia & Pacific	2.6	3.8 days	\$179.26	0.0021 QALYs
Europe & Central Asia	7.2	10.8 days	\$705.05	0.0058 QALYs
Latin America & the Caribbean	2.7	4.0 days	\$123.48	0.0022 QALYs
Middle East & North Africa	3.5	5.3 days	\$112.64	0.0029 QALYs
North America	4.7	7.1 days	\$1,608.85	0.0038 QALYs
South Asia	4.4	6.7 days	\$48.39	0.0036 QALYs
Sub-Saharan Africa	1.5	2.2 days	\$14.07	0.0012 QALYs



Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

When considering the overall results and making comparisons between the seven regions, it is evident that productivity, welfare and quality of life per capita are greatest in Europe and Central Asia, as well as in North America. At this point it should be emphasized that the greatest impact may be observed in these regions containing a high proportion of Group A countries, for example productivity gains of 10.8 days in Europe and Central Asia. However, in the context of regions with a majority of Group C countries such as South Asia and Sub-Saharan Africa, even if the savings are lower in value, they are more impactful.

Meaningful gains in productivity are generated across all regions, which means individuals gain productive time for financially remunerated employment and/or for personal duties or activities. However, the magnitude of how one lost working day affects an individual varies between countries and regions. For example, one day of lost productive time in a country such as Kenya and Nepal, or the regions of Africa and South Asia, may be synonymous with the loss of a day's worth of wages, which may then consequently result in inability to buy food for the day or to buy necessary medicines. In countries including USA, France, Japan, and New Zealand, loss of productive time may result in the use of sick leave days. Therefore, productivity gains may be higher in regions with a higher proportion of Group C countries (especially where provision of sick leaves is not available) to a greater extent than those that consist of more Group A and B countries.

Welfare gains from self-care may also differ between country groups and regions. As highlighted by the per capita value of self-care in [Table 7](#), the monetary value of welfare reaches up to more than \$1,600 per capita per year on average in North America while it is approximately \$48 in South Asia and \$14 in Sub-Saharan Africa. These values, when examined on a global level, however, do not correctly reflect the significance of the welfare in each of the regions. Although the average welfare may be lower in monetary value in South Asia and Sub-Saharan Africa, the economic levels in these regions are also lower in comparison to the rest of the world. Thus, in the context of each region, all self-care contributions have a substantial contribution.

Overall, self-care leads to positive increases in quality of life worldwide. These increases may result from faster treatment of an STC, shorter duration of illness, or avoidance of travel and waiting time required for a physician consultation.

The current value of self-care is highly variable, between countries belonging to the same region and between different regions globally. Current levels of self-care result in significant monetary and time savings, in addition to gains in welfare, productivity and quality of life.

It is evident that a great potential exists for further savings and gains in the future, with implementation of additional self-care policy measures and economic growth.

ECONOMIC AND SOCIAL VALUE OF SELF-CARE: FUTURE POTENTIAL

The results of the global value of self-care in the future potential scenario highlight the value according to country groups for the two concepts namely, FT and OT. Group B has the highest OTC expenditure in terms of FT packs in the future potential scenario, leading to a cost containment of approximately \$72 billion, over ten and a half billion hours in individual time savings, and over one billion hours in physician time savings. The amount in OTC expenditure is partly influenced by the fact that Group B includes the most countries among the Country Groups (60 countries). While Group C consists of 54 countries and Group A of 41, the FT concept is most prevalent in Group A as the healthcare infrastructure is more developed in these countries, enabling easier access and greater use of primary healthcare providers. A cost containment of \$102 billion, individual time savings of five billion hours, and physician time savings of over one billion hours is achieved for Group A. Group C is expected to generate savings of almost \$5 billion in cost containment, two billion hours in individual time savings, and 108 million hours in physician time savings.



At the global level, approximately 12 billion OTC packs will be consumed in response to increased self-care practices instead of unnecessary physician visits. This will generate about \$180 billion in cost containment and as savings of almost 18 billion hours of individual time and up to three billion hours of physician time.

Table 8: Future value of self-care in FT concept by Country Group

Country Group	Population	OTC Packs	Cost Containment	Individual Time Saving	Physician Time Saving
Group A	1,215 mn	4,291 mn	\$102,319 mn	5,364 mn hours	1,287 mn hours
Group B	3,473 mn	7,012 mn	\$71,634 mn	10,518 mn hours	1,402 mn hours
Group C	3,781 mn	1,078 mn	\$4,878 mn	2,067 mn hours	108 mn hours
GLOBAL VALUE	8,469 mn	12,381 mn	\$178,831 mn	17,949 mn hours	2,797 mn hours

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

Similar to the share of OTC packs observed in the FT concept, Table 9 indicates that Group B also has the highest OTC expenditure. Group B countries are expected to have cumulative future productivity exceeding 31.5 billion days, welfare gains of nearly \$1 trillion, and 17 million QALYs. In contrast to the results reported in Table 8, it is evident that the OT and associated gains play a prominent role among Group C countries. The value in Group C almost mirrors those that are forecasted for Group B, with future productivity of nearly 31 billion days and an increase of 17 million QALYs. Due to the large differences in average income per capita across the Country Groups, Group C achieves welfare gains of \$216 billion despite a similar number of OTC packs and QALYs gained. For Group A, the OT is much lower since most gains are from FT. Nevertheless, more than 9.5 billion productive days, well over \$1.5 trillion in welfare, and 5 million QALYs are projected in the future.

At the global level, nearly 48 billion OTC packs will be consumed as a result of more individuals actively treating STCs through self-care practices rather than choosing



not to seek treatment. This will increase the number of productive days by nearly 72 billion days, as well as generate savings of almost \$3 trillion in welfare, and increases of 39 million QALYs.

Table 9: Future potential of self-care in OT concept by Country Group

Country Group	Population	OTC Packs	Productivity	Welfare	Quality of life
Group A	1,215 mn	6,437 mn	9,655 mn days	\$1,630,463 mn	5 mn QALYs
Group B	3,473 mn	21,035 mn	31,553 mn days	\$983,410 mn	17 mn QALYs
Group C	3,781 mn	20,489 mn	30,734 mn days	\$216,016 mn	17 mn QALYs
GLOBAL VALUE	8,469 mn	47,961 mn	71,942 mn days	\$2,829,889 mn	39 mn QALYs

At the global level, nearly 48 billion OTC packs will be consumed as a result of more individuals actively treating STCs through self-care practices rather than choosing not to seek treatment.

In the OT concept, it is evident that the growth of OTC packs in the future will be highest in Group B and C countries. These countries are also expected to experience the largest increase in self-care contributions towards productivity and quality of life. In contrast, the welfare is highest in Group A countries, which is related to the comparatively high wages in these countries.

The tables 8 and 9 show the future self-care contribution. The most significant gains through self-care achieved in Country Group A include monetary savings from

the cost containment in addition to physician time savings and welfare gains. As cost containment and physician time savings are based on the concept of FT, this is an indication that countries in this group practice a relatively high level of self-care owing to the preference for FT. The financial gain from welfare is also high in this group, due to the high average per capita income for each working day in Group A countries. Thus, when calculating the value of productive days gained from self-care, the total value of the welfare is large relative to the other self-care metrics.

Table 10: Overall future potential of self-care worldwide in FT by region

Region	Population	OTC Packs	Cost Containment	Individual Time Saving	Physician Time Saving
East Asia & Pacific	2,419 mn	3,617 mn	\$50,022 mn	5,237 mn hours	800 mn hours
Europe & Central Asia	930 mn	4,422 mn	\$65,930 mn	6,208 mn hours	1,055 mn hours
Latin America & the Caribbean	698 mn	1,053 mn	\$12,964 mn	1,563 mn hours	217 mn hours
Middle East & North Africa	531 mn	598 mn	\$6,531 mn	900 mn hours	124 mn hours
North America	390 mn	1,582 mn	\$37,302 mn	1,978 mn hours	475 mn hours
South Asia	2,049 mn	810 mn	\$2,109 mn	1,549 mn hours	82 mn hours
Sub-Saharan Africa	1,451 mn	299 mn	\$3,972 mn	514 mn hours	44 mn hours
GLOBAL VALUE	8,468 mn	12,381 mn	\$178,830 mn	17,949 mn hours	2,797 mn hours

Overall, the highest values are strongly associated with the FT are generated in Europe and Central Asia where OTC expenditure in terms of packs is approximately 4.4 billion (Table 10). Based on this number, savings in this region amount to \$66 billion in cost containment, more than six billion patient hours and one billion physician hours.

In contrast, the lowest levels of FT are seen in Sub-Saharan Africa, where only 299 million OTC packs lead to cost containment of almost four billion, 514 million hours in individual time savings as well as 44 million hours in physician time savings. The lowest cost containment can be expected for South Asia.

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

Table 11: Overall future potential of OT concept by region

Region	Population	OTC Packs	Productivity	Welfare	Quality of life
East Asia & Pacific	2,419 mn	10,119 mn	15,178 mn days	\$646,898 mn	8 mn QALYs
Europe & Central Asia	930 mn	10,724 mn	16,086 mn days	\$947,912 mn	9 mn QALYs
Latin America & the Caribbean	698 mn	3,084 mn	4,626 mn days	\$142,432 mn	2 mn QALYs
Middle East & North Africa	531 mn	3,035 mn	4,553 mn days	\$86,425 mn	2 mn QALYs
North America	390 mn	2,373 mn	3,560 mn days	\$809,052 mn	2 mn QALYs
South Asia	2,049 mn	15,231 mn	22,847 mn days	\$165,644 mn	12 mn QALYs
Sub-Saharan Africa	1,451 mn	3,395 mn	5,092 mn days	\$31,526 mn	3 mn QALYs
GLOBAL VALUE	8,468 mn	47,961 mn	71,942 mn days	\$2,829,889 mn	38 mn QALYs

In OT concept, the highest values overall are obtained in South Asia, where approximately 15 billion OTC packs yield over 22 billion days of productivity, nearly \$166 billion in welfare gains and twelve million QALYs (Table 11). The lowest values overall can be observed in the North America region where approximately two billion OTC packs lead to about 3.6 billion productive days gained, \$809.1 billion in welfare gains and two million QALYs. The absolute highest and lowest values in welfare do not, however, belong to the aforementioned

regions due to large differences in the average per capita income in the countries of each region. Therefore, Europe and Central Asia achieve the highest welfare gains of \$948 billion and Sub-Saharan Africa the lowest of \$32 billion.

Table 12 breaks down the cumulative value of self-care that could potentially be achieved on average per capita. The number of OTC packs indicates differences in the value of the both concepts among the seven world regions.



Table 12: Future potential of self-care per capita by region

Region	OTC Packs		Cost Containment	Individual Time Saving	Physician Time Saving	Productivity	Welfare	Quality of Life
	FT	OT						
East Asia & Pacific	1.5	4.2	\$20.68	129.9 min	19.9 min	6.3 days	\$267.44	0.0034 QALYs
Europe & Central Asia	4.8	11.5	\$70.86	400.3 min	68.0 min	17.3 days	\$1,018.75	0.0093 QALYs
Latin America & the Caribbean	1.5	4.4	\$18.57	134.3 min	18.7 min	6.6 days	\$203.99	0.0036 QALYs
Middle East & North Africa	1.1	5.7	\$12.29	101.7 min	14.0 min	8.6 days	\$162.69	0.0046 QALYs
North America	4.1	6.1	\$95.53	303.9 min	72.9 min	9.1 days	\$2,071.97	0.0049 QALYs
South Asia	0.4	7.4	\$1.03	45.3 min	2.4 min	11.1 days	\$80.84	0.0060 QALYs
Sub-Saharan Africa	0.2	2.3	\$2.74	21.2 min	1.8 min	3.5 days	\$21.73	0.0019 QALYs

Based on the share of OTC packs used in each self-care concept (Table 12), it is evident that there is a higher preference to engage in FT for an STC case in Europe and Central Asia as well as North America, while it is less common in Sub-Saharan Africa and South Asia. In the latter regions, there is a stronger association with the practice of self-care by populations that would otherwise forgo treatment for STC. The highest overall value of self-care is seen in Europe and Central Asia and North America depending on the metric considered in each case. The lowest overall values of self-care are observed in the Sub-Saharan Africa region.

We also see the global results of economic calculations on the value that self-care may have in the future. The economic and social value is quantified through the use of self-care products for individuals, healthcare systems and society and expressed in terms of monetary, time savings and QALYs. The forecasted values for the OTC packs and OTC sales volumes in 2030 are also expressed in these terms. Three OTC drivers are of high relevance in shaping the future value of self-care economic welfare, demography and self-care policy measures.

The highest overall value of self-care is seen in Europe and Central Asia and North America metrics. The lowest overall values of self-care are observed in Sub-Saharan Africa.



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Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

The contributions of economic welfare and demography are based on fixed forecasts available from the Global Burden of Disease Health Financing Collaborator Network and the UN [47]. However, to the authors' knowledge, no data is available on self-care policy measures, either as current or forecasted estimates. As policy measures are highly influenced by several factors, such as healthcare infrastructure, healthcare needs and consumption as well as socioeconomic status, the impact of self-care policy (OTC driver 3) is variable. For the purpose of the calculations, expected percentage changes based on expert knowledge and previous research are used.

A negligible change in population was observed for many Group B countries in 2030 compared 2019. For example, comparing the projected population in 2030 with the population in 2019, there is a weighted percentage increase of 1% in Thailand, 1% in Sri Lanka, and 5% in China. Additionally, negative changes are observed for other Group B countries, such as the weighted percentage decrease of 1% in Russia. In Group C, (predominantly with countries from South Asia and Sub-Saharan Africa), demography is a major OTC driver. Weighted percentage changes in population in 2030

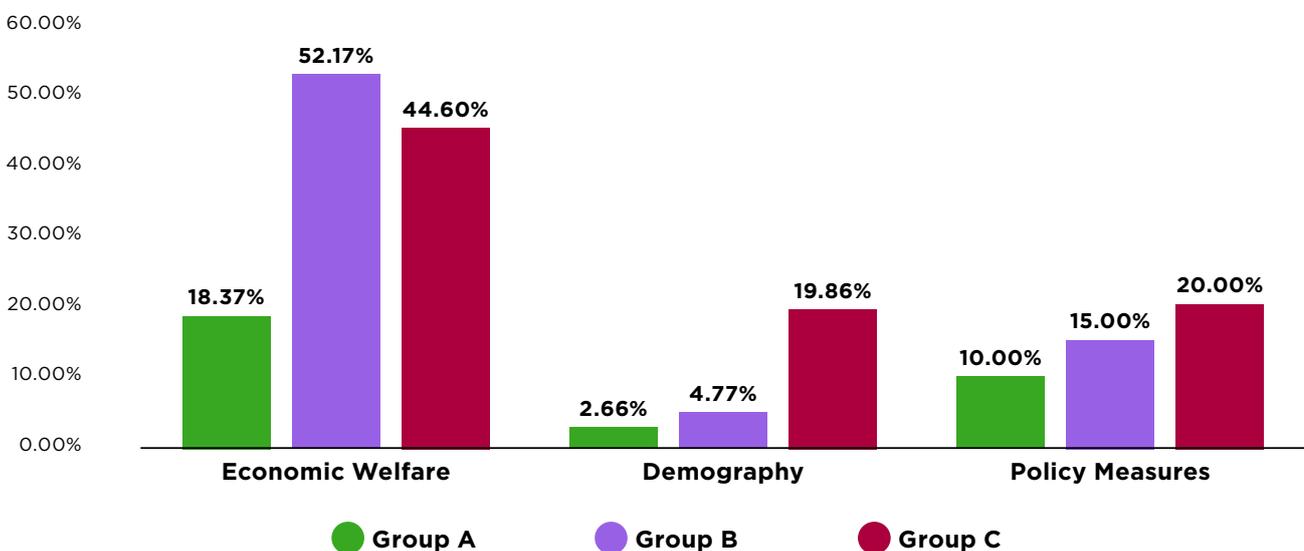
compared to 2019 are expected to have a positive effect, ranging from 20% (Egypt and Zimbabwe) to 37% (Burundi, Mali and Somalia), for the majority of countries in this group and no negative changes are observed. In contrast, positive weighted percentage changes in Group A remain below 18%, with negative weighted population changes forecasted for approximately 35% of countries.

Beyond the impact of economic welfare and demography, the implementation of new self-care policy measures is expected to yield additional benefits for individuals, healthcare systems and society.

The total potential uptake of self-care - the total additional impact - can be obtained for each country group by summing up the individual OTC driver percentage changes as seen in Figure 9.

The total potential uptake of self-care is 31.02% in Group A, 71.94% in Group B and 84.46% in Group C.

Figure 9: Future potential and significance of OTC drivers per Country Group

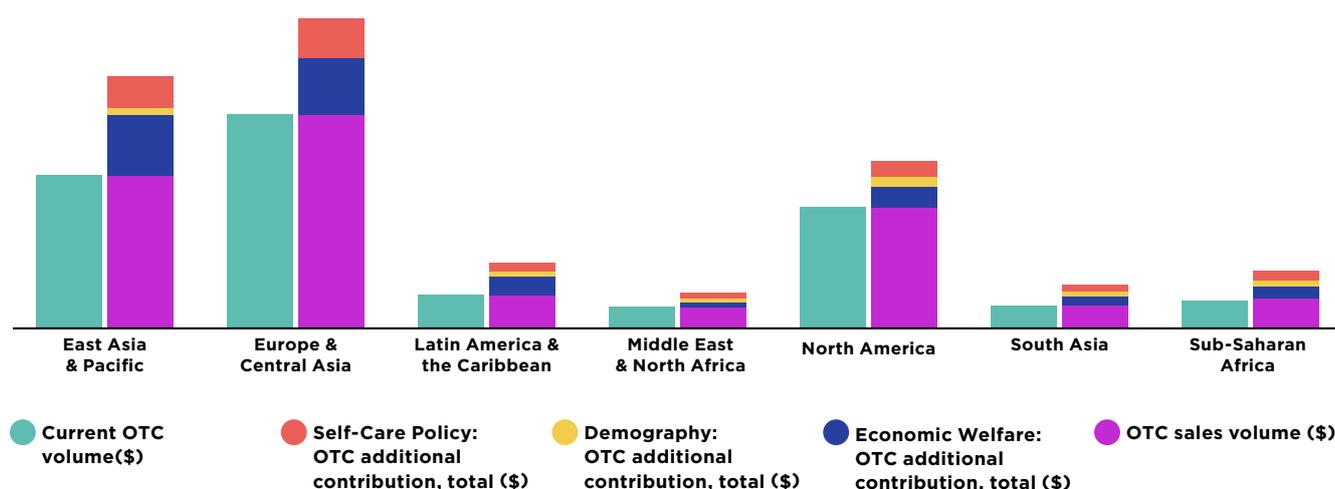


The three OTC drivers will exert an additional impact on the volume of self-care in the future potential scenario and this impact can be reported in monetary terms (Figure 10). Across all regions, it is evident that self-care policy has a highly influential role in enhancing self-care practices worldwide. Self-care policy may, for example, aim to increase awareness surrounding self-care, expand access to OTC products such as through Rx to OTC switching, or provide individual and healthcare provider education, and/or training to support appropriate and effective self-care practices. The impact created through economic welfare is also noteworthy across almost all regions, especially in Europe and Central Asia, East Asia

and Pacific, as well as Latin America and the Caribbean, as a growth in OOP expenditure is expected in countries worldwide.

Nevertheless, the value of demographic changes varies worldwide. A minimal impact due to demography is generated in Europe and Central Asia because a decline in population has been forecasted for countries including Croatia, France and Russia. However, positive growth in population is expected for all countries included in South Asia and Sub-Saharan Africa regions in this study. The impact due to demography in these regions is, therefore, relatively high in comparison to the rest of the world.

Figure 10: Future contribution to OTC volume (\$) by region



Region	OTC Volume (\$)	OTC Contribution, total (\$)		
		Economic Welfare	Demography	Self-care Policy
East Asia & Pacific	47884 mn	18684 mn	1587 mn	9254 mn
Europe & Central Asia	66513 mn	18792 mn	163 mn	10032 mn
Latin America & the Caribbean	11396 mn	5619 mn	818 mn	2635 mn
Middle East & North Africa	6811 mn	2523 mn	1021 mn	1488 mn
North America	37683 mn	6922 mn	2493 mn	4710 mn
South Asia	7319 mn	3269 mn	832 mn	2279 mn
Sub-Saharan Africa	7770 mn	3590 mn	2308 mn	2597 mn

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

COMPARISON OF GLOBAL CURRENT AND FUTURE VALUE OF SELF-CARE

Table 13: Value of Self-Care Achieved through Self-Care Policy

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	 Cost Containment	\$119.0 bn	\$1788 bn	\$19.5 bn	+16%
	 Individual Time Saving	10.9 bn hours	17.9 bn hours	2.2 bn hours	+20%
	 Physician Time Saving	1.8 bn hours	2.8 bn hours	0.3 bn hours	+18%
OT	 Productivity	40.8 bn days	71.9 bn days	10.1 bn days	+25%
	 Welfare	\$1,879.1 bn	\$2,829.9 bn	\$312.5 bn	+17%
	 Quality of Life	22.1 mn QALYs	38.8 mn QALYs	5.5 mn QALYs	+25%

The global value of self-care is summarized in Table 13, highlighting the six self-care metrics that are achieved in the current and future scenarios, as well as the impact of self-care policies on future value of self-care.

In comparison to findings in the status quo, the cost containment is estimated to increase by approximately \$60 billion to a total of \$178.8 billion per annum. Time savings are also expected, with growth of around seven billion individual hours and around one billion physician hours, resulting in total savings of 17.9 billion individual hours and 2.8 billion physician hours. Considerable gains in productivity (+31 billion productive days) are estimated to add a total of 72 billion productive days and welfare of approximately \$2,830 billion, an increase of about \$950 billion from the status quo. Self-care also has the potential to significantly improve quality of life, with an increase from 22 million QALYs gained in the status quo to 39 million QALYs in the future potential scenario.

At this point, it is also important to highlight that self-care policy measures have a significant influence on the magnitude

of self-care value. As indicated by the results of this study, the current value of self-care can potentially be increased by approximately 16%-25% through self-care policy measures. Self-care policy measures are estimated to increase monetary savings for healthcare systems and national economies by 16%. In addition, results suggest that they have the largest influence on productivity and quality of life (25%), followed by individual time savings (20%), physician time savings (18%) and welfare (17%).

As indicated by the results of this study, the current value of self-care can potentially be increased by approximately 16%-25% through implementation of self care policy measures.



Regional results

36 East Asia & Pacific
39 Europe &
Central Asia
42 Latin America &
the Caribbean

45 Middle East &
North Africa
48 North America
51 South Asia
54 Sub-Saharan Africa



EAST ASIA & PACIFIC

18 countries were considered in the East Asia and Pacific region, evenly distributed across the three country groups. Group B has the largest proportion of OTC packs used in FT and OT in this region. The value of self-care clearly reflects this through the high values achieved for individual time savings, physician time savings, productivity and QALYs gained (Table 14) due to the fact that the total population in Groups A and C is about 200 million each, while Group B has a total population of nearly two billion. China, with a population of approximately 1.4 billion, accounts for a large part of the total population in Group B.

Table 14: Current value of self-care in East Asia & Pacific

		Group A • 222 mn people • 620 mn FT packs • 931 mn OT packs	Group B • 1,881 mn people • 1,535 mn FT packs • 4,606 mn OT packs	Group C • 184 mn people • 16 mn FT packs • 298 mn OT packs
FT	 Cost Containment	\$13,187 mn	\$17,954 mn	\$211 mn
	 Individual Time Saving	776 mn hours	2,303 mn hours	30 mn hours
	 Physician Time Saving	186 mn hours	307 mn hours	2 mn hours
OT	 Productivity	1,396 mn days	6,908 mn days	448 mn days
	 Welfare	\$184,939 mn	\$221,320 mn	\$3,705 mn
	 Quality of Life	753,799 QALYs	3,730,508 QALYs	241,674 QALYs

Cost containment of \$13.2 billion are achieved in Group A and about \$18.0 billion in Group B. This is because the average cost of OTC packs in Group A countries, such as Australia and Japan, are much more expensive than the average cost in Group B countries, leading to more dollars being spent on OTC products

despite a lower expenditure in terms of OTC packs purchased.

Similarly, there is a minor variance between the welfare in Group A (\$184.9 billion) and B (\$221.3 billion), which may be explained by differences in average income per capita.

The average income per capita per day in Group A countries is approximately \$130.00, while the average income per day is below \$35.00 in Group B countries and below \$10.00 in Group C countries. Despite the gains in productivity of 6.9 billion days in Group B and 1.4 billion days in Group A, the value of a productive day in Group B is much smaller than that in Group A.

The additional impact of self-care in the future potential scenario for East Asia and Pacific is summarized in Table 15 by country group, and the overall value of self-care for this region, divided by OTC driver, are highlighted in [Figure 11](#). These future projections can be compared to the current value to analyze the extent of gains created by changes in demographics and economic welfare, as well as increase through self-care policy.

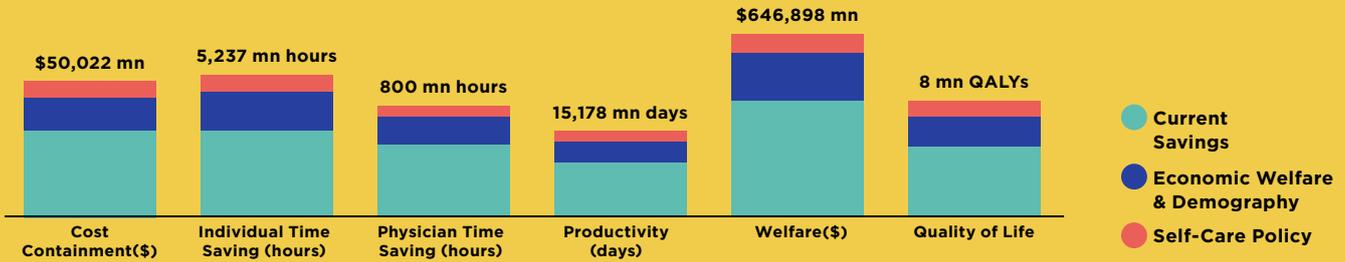
Table 15: Future value of self-care in East Asia and Pacific per country group

		Group A • 220 mn people • 800 mn FT packs • 1,200 mn OT packs	Group B • 1,997mn people • 2,787 mn FT packs • 8,361 mn OT packs	Group C • 202 mn people • 29 mn FT packs • 558 mn OT packs
FT	 Cost Containment	\$17,085 mn	\$32,452 mn	\$395 mn
	 Individual Time Saving	1,000 mn hours	4,181 mn hours	56 mn hours
	 Physician Time Saving	240 mn hours	557 mn hours	3 mn hours
OT	 Productivity	1,800 mn days	12,542 mn days	836 mn days
	 Welfare	\$239,450 mn	\$400,512 mn	\$6,935 mn
	 Quality of Life	972,103 QALYs	6,772,593 QALYs	451,605 QALYs

Table 15 summarizes the value of self-care based on three OTC drivers. On top of the current value of self-care, savings across all self-care metrics may be achieved in each country group in this region. Contribution to welfare which is associated with an individual's decision to practice self-care instead of doing nothing namely OT is predominant across all country groups and the contribution of cost

containment and time savings for individuals and physicians due to an individual's decision to practice self-care as their first treatment option FT is also notable. Overall, the greatest value is observed in Group B. It is important to note that China is categorized as Group B and its estimated future population of one and a half billion contributes to most value observed in this region.

Figure 11: Future value of self-care in East Asia and Pacific



In the future potential scenario, substantial monetary and time gains, are anticipated in the East Asia and Pacific region overall. Figure 11 indicates that more than \$50 billion in cost containment and almost \$650 billion in welfare can potentially be generated through future self-care efforts. Additionally, more than five billion hours in individual time savings and 15 billion days could be gained in productivity.

The amount in physician time savings is equivalent to over 370,000 physicians. The contribution of self-care in terms of quality of life is also expected to significantly increase by more than 70% in comparison to current contribution. Finally, appropriate self-care policies a major drivers for future contributions of 18-22% across all metrics through self-care (Table 16).

Table 16: Value of self-care achieved through self-care policy in East Asia and Pacific

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	Cost Containment	\$31.4 bn	\$50.0 bn	\$5.9 bn	+19%
	Individual Time Saving	3.1 bn hours	5.2 bn hours	0.6 bn hours	+21%
	Physician Time Saving	0.5 bn hours	0.8 bn hours	0.1 bn hours	+19%
OT	Productivity	8.8 bn days	15.2 bn days	1.9 bn days	+22%
	Welfare	\$410.0 bn	\$646.9 bn	\$75.2 bn	+18%
	Quality of Life	4.7 mn QALYs	8.2 mn QALYs	1.0 mn QALYs	+22%



EUROPE AND CENTRAL ASIA

45 countries were divided into the three country groups as follows: 24 countries in Group A, 20 in Group B and one in Group C. As seen in Figure 18, Group A and Group B demonstrate the highest self-care gains in this region, as the total amount of OTC packs is divided almost evenly between the two groups. 30% of OTC packs in the OT belong to Group A while 70% of OTC packs OT belong to Group B. The total population in Group A is approximately 461 million, which is relatively similar to that of Group B with a total population of about 446 million. The population in Group C is about nine million (Table 17).

Table 17: Current value of self-care in Europe and Central Asia

		Group A	Group B	Group C
		• 461 mn people • 1,308 mn FT packs • 1,962 mn OT packs	• 446 mn people • 1,549 mn FT packs • 4,648 mn OT packs	• 9 mn people • 288,952 mn FT packs • 5 mn OT packs
FT	 Cost Containment	\$33,885 mn	\$12,391 mn	\$2 mn
	 Individual Time Saving	1,635 mn hours	2,324 mn hours	1 mn hours
	 Physician Time Saving	392 mn hours	310 mn hours	28,895 hours
OT	 Productivity	2,943 mn days	6,971 mn days	8 mn days
	 Welfare	\$413,786 mn	\$232,600 mn	\$33 mn
	 Quality of Life	1,589,133 QALYs	3,764,575 QALYs	4,447 QALYs

Based solely on the number of OTC packs used in the FT, it is evident that Group C, with about five million OTC packs used in self-care, makes only a small contribution in the Europe and Central Asia region (Table 17). The cost containment and welfare in Group A almost

doubles that of Group B due to the higher average cost of OTC products and higher average income per capita among Group A countries. The cost containment in Group A is reported to reach \$33.9 billion, while \$413.8 billion in welfare is generated currently.

In Group B, \$12.4 billion in cost containment and \$232.6 billion in welfare gains are achieved. Another difference between these two country groups is observed for individual time savings: Group B countries have, on average, longer waiting and travel time to see a physician.

The value of self-care in the future potential scenario for Europe and Central Asia is

summarized in Table 18 by country group and the value of self-care for this region divided by OTC driver are highlighted in [Figure 12](#). These future projections can be compared to the current values to analyze the extent of gains created by changes in demographics and economic welfare, as well as by enhanced self-care policy.

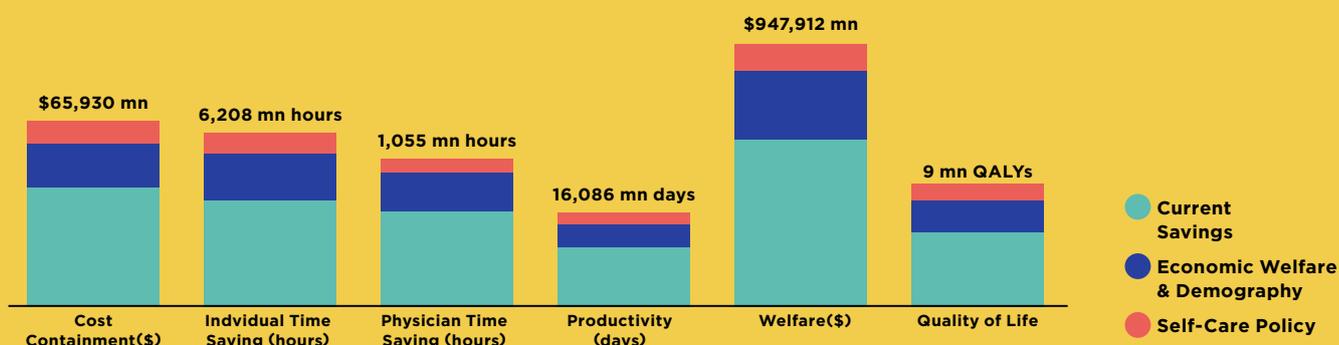
Table 18: Future value of self-care in Europe and Central Asia per Country Group

		Group A • 463 mn people • 1,701 mn FT packs • 2,552 mn OT packs	Group B • 456 mn people • 2,720 mn FT packs • 8,161 mn OT packs	Group C • 12 mn people • 1 mn FT packs • 11 mn OT packs
FT	 Cost Containment	\$44,185 mn	\$21,740 mn	\$4 mn
	 Individual Time Saving	2,127 mn hours	4,081 mn hours	1 mn hours
	 Physician Time Saving	510 mn hours	544 mn hours	58,458 mn hours
OT	 Productivity	3,828 mn days	12,242 mn days	17 mn days
	 Welfare	\$540,786 mn	\$407,060 mn	\$66 mn
	 Quality of Life	2,067,005 QALYs	6,610,523 QALYs	8,997 QALYs

The three OTC drivers produce the value of self-care as seen in Table 18. Besides the current value of self-care, savings for all self-care metrics are greatest in Groups A and B, where FT is widely practiced, including cost containment, individual time savings and physician time savings. The results also indicate that, despite similar population levels in Groups A and B, OTC expenditure in terms of packs is higher in Group B as

the average number of OTC packs purchased per capita per year is high among several countries in this group. For example, the average number of OTC packs per capita per year is approximately 21 in Poland and 23 in Russia, while this figure is around eight in Austria and six in Spain. Thus, the value of Group B, for example in individual time savings, productivity and QALYs, is the most pronounced in this region.

Figure 12: Future value of self-care in Europe and Central Asia



Forecasting results highlight the magnitude of value of self-care that are expected to be generated for Europe and Central Asia in the future. Cost containment are projected to increase by 68% in the future potential scenario, achieving overall monetary savings in this region of approximately \$66 billion while a total of almost \$950 billion in welfare and 16 billion days of avoided productivity loss can be expected (Figure 12). Moreover,

about six billion hours of individual time will be saved by eliminating time spent on avoidable physician visits for STCs. Besides monetary and time savings, a gain in quality of life is calculated to increase from approximately five million to nine million QALYs. Finally, appropriate self-care policies a major drivers for future contributions of 15-20% across all metrics through self-care (Table 19).

Table 19: Value of self-care achieved through self-care policy in Europe and Central Asia

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	Cost Containment	\$46.3 bn	\$65.9 bn	\$6.9 bn	+15%
	Individual Time Saving	4.0 bn hours	6.2 bn hours	0.7 bn hours	+18%
	Physician Time Saving	0.7 bn hours	1.1 bn hours	0.1 bn hours	+17%
OT	Productivity	9.9 bn days	16.1 bn days	1.9 bn days	+20%
	Welfare	\$646.4 bn	\$947.9 bn	\$102.3 bn	+16%
	Quality of Life	5.4 mn QALYs	8.7 mn QALYs	1.1 mn QALYs	+20%

Results refer to Cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.



LATIN AMERICA AND THE CARIBBEAN

There were **22 countries** considered in the Latin America and the Caribbean region, with the countries divided into the three Country Groups as follows: four countries in Group A, 15 in Group B and three in Group C. As most countries in this region are in Group B, that group has the highest total population of about 543 million. Group A has the next highest population of approximately 69 million and Group C the lowest of about 28 million. Therefore, the highest number of OTC packs in the FT and OT as well as the corresponding gains in this region are reflected in Group B (Table 20).

Table 20: Current value of self-care in Latin America and the Caribbean

		Group A	Group B	Group C
		• 69 mn people • 51 mn FT packs • 76 mn OT packs	• 543 mn people • 536 mn FT packs • 1,607 mn OT packs	• 28 mn people • 1 mn FT packs • 18 mn OT packs
FT	 Cost Containment	\$662 mn	\$6,550 mn	\$30 mn
	 Individual Time Saving	63 mn hours	804 mn hours	2 mn hours
	 Physician Time Saving	15 mn hours	107 mn hours	95,798 hours
OT	 Productivity	114 mn days	2,411 mn days	27 mn days
	 Welfare	\$4,751 mn	\$74,038 mn	\$187 mn
	 Quality of Life	61,467 QALYs	1,302,027 QALYs	14,743 QALYs

In this region, the cost containment stands out with a total of \$662.0 million, \$6.6 billion and \$30.0 million in savings achieved in Group A, B and C, respectively. Besides the cost containment, individual time savings, productivity and QALYs are also significant in

Latin America and the Caribbean. Most notably, as the majority of countries in this region are categorized in Group B, over 800 million hours are currently saved by individuals, well over two billion productive days and more than one billion QALYs are gained in this country group.

The value of self-care in the future potential scenario for Latin America and the Caribbean is summarized in Table 21 by country group, and the overall self-care value divided by drivers for this region are highlighted in Figure 13. These future projections can

be compared to the current value effects presented to analyze the extent of gains created by changes in demographics and economic welfare, as well as by enhanced self-care policy.

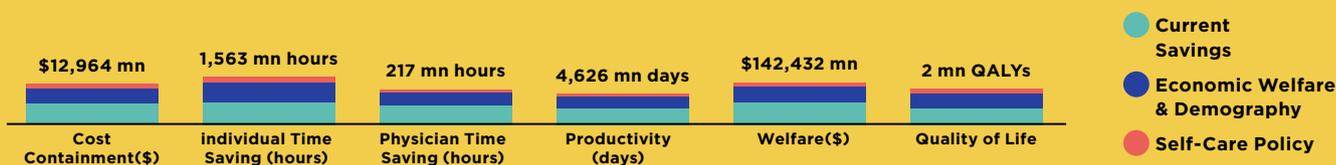
Table 21: Future value of self-care in Latin America and the Caribbean per Country Group

		Group A • 73 mn people • 69 mn FT packs • 104 mn OT packs	Group B • 593 mn people • 982 mn FT packs • 2,946 mn OT packs	Group C • 32 mn people • 2 mn FT packs • 34 mn OT packs
FT	 Cost Containment	\$894 mn	\$12,012 mn	\$57 mn
	 Individual Time Saving	87 mn hours	1,473 mn hours	3 mn hours
	 Physician Time Saving	21 mn hours	196 mn hours	177,374 mn hours
OT	 Productivity	156 mn days	4,419 mn days	51 mn days
	 Welfare	\$6,466 mn	\$135,618 mn	\$348 mn
	 Quality of Life	84,089 QALYs	2,386,436 QALYs	27,298 QALYs

In the future potential scenario, the three OTC drivers generate a considerable amount of value of self-care as seen in Table 21. As mentioned previously, Group B has the

highest total population in this region as well as the largest OTC expenditure in terms of packs. This trend continues in both concepts in the future potential scenario.

Figure 13: Future value of self-care in Latin America and The Caribbean



Results refer to Cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

All six self-care metrics in Latin America and The Caribbean region are projected to grow by approximately 80% from the current scenario to the future potential scenario. This means that in future, almost \$13 billion in cost containment will be generated. Well over four billion days of productive time are expected to be saved, yielding a welfare gain of more than \$142 billion when multiplied by the average income per day of the included countries. In addition, over one and a half billion hours in individual time savings are achievable in the future. These individual time savings may contribute to gains in quality of life as individuals are able to avoid the travel and waiting times associated with

physician visits. Other improvements in quality of life can be attributed to shorter duration of illness and faster treatment time. Notably, these improvements in quality of life result in calculated gains of over two million QALYs. Physician time savings are forecast to increase to 217 million hours, meaning that the number of physicians freed up through self-care practices to treat more serious medical conditions will increase from approximately 57,000 currently to 101,000 in the future potential scenario. Finally, appropriate self-care policies a major drivers for future contributions of 18-22% across all metrics through self-care (Table 22).

Table 22: Value of self-care achieved through self-care policy in Latin America and the Caribbean

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	 Cost Containment	\$7.2 bn	\$13.0 bn	\$1.7 bn	+23%
	 Individual Time Saving	0.9 bn hours	1.6 bn hours	0.2 bn hours	+23%
	 Physician Time Saving	122 mn hours	217 mn hours	28 mn hours	+22%
OT	 Productivity	2.6 bn days	4.6 bn days	0.6 bn days	+23%
	 Welfare	\$79.0 bn	\$142.4 bn	\$18.3 bn	+23%
	 Quality of Life	1.4 mn QALYs	2.5 mn QALYs	0.3 mn QALYs	+23%



MIDDLE EAST AND NORTH AFRICA

16 countries were considered in the Middle East and North Africa region, with the countries divided into the three Country Groups as follows: five countries in Group A, 11 in Group B and two in Group C. The OTC expenditure reported in the unit of packs in the FT is highest in Group B, while the expenditure in the OT is highest in Group C (Table 23). This means that the highest FT effects and the highest OT effects are observed in Groups B and C, respectively. Corresponding to the highest number of countries in Group B, this group also has the largest population size of approximately 261 million. Group A, however, consists of five countries and has a population of about 60 million, which is less than half of the population of the two countries in Group C (130 million). It is thus noteworthy that the effects in Group C are produced based on only two countries: Egypt and Yemen. Data for Egypt reveals over one billion in OTC sales expenditure, which is almost double that of Iran, which has the next highest expenditure in the region.

Table 23: Current value of self-care in Middle East and North Africa

		Group A	Group B	Group C
		• 60 mn people • 96 mn FT packs • 144 mn OT packs	• 261 mn people • 191 mn FT packs • 574 mn OT packs	• 130 mn people • 46 mn FT packs • 868 mn OT packs
FT	 Cost Containment	\$1,970 mn	\$1,713 mn	\$208 mn
	 Individual Time Saving	120 mn hours	287 mn hours	88 mn hours
	 Physician Time Saving	29 mn hours	38 mn hours	5 mn hours
OT	 Productivity	216 mn days	861 mn days	1,302 mn days
	 Welfare	\$24,146 mn	\$12,980 mn	\$13,626 mn
	 Quality of Life	116,437 QALYs	464,935 QALYs	703,174 QALYs

Results refer to cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

A similar cost containment effect is achieved in Group A and B of \$2.0 billion and \$1.7 billion, respectively, despite the fact that Group A's current OTC pack usage is less than half of that of Group B's. This could be attributed to the higher cost per OTC pack in Group A countries, including Kuwait (\$9.44) and the United Arab Emirates (\$8.06), compared to Group B countries, for example Tunisia (\$1.72) and Jordan (\$4.33)². Higher average costs per OTC pack may result in a marginal difference between the costs associated with self-care and alternative forms of care. In the Middle East and North Africa region, physician time savings of 29.0 million, 38.0 million and five million hours are achieved currently through self-care practices in Groups A, B and C, respectively.

Additionally, about \$24.1 billion (Group A), \$13.0 billion (Group B) and \$13.6 billion (Group C) in welfare effects are gained in this region based on the number of productive days saved through self-care. The extent of welfare gains depends on the average income per capita in each country examined. Therefore, the welfare in Group A is highest as countries in this group tend to have higher average incomes.

Future value of self-care in Middle East and North Africa is summarized in Figure 24 by country group and the overall self-care value for this region divided by driver are highlighted in Figure 14. These future projections can be compared to the current value presented to analyze the extent of gains created by changes in demographics and economic welfare, as well as by enhanced self-care policy.

Table 24: Future value of self-care in Middle East and North Africa per Country Group

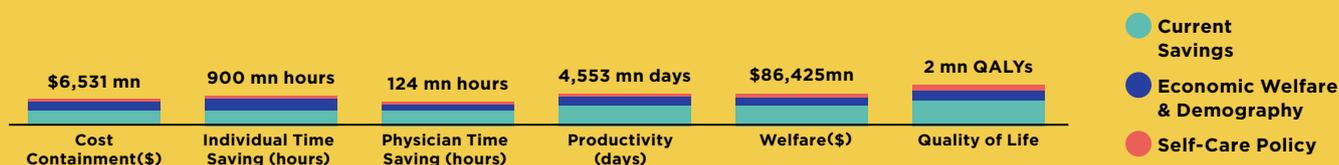
		Group A	Group B	Group C
		<ul style="list-style-type: none"> • 68 mn people • 139mn FT packs • 208 mn OT packs 	<ul style="list-style-type: none"> • 306 mn people • 369 mn FT packs • 1,107 mn OT packs 	<ul style="list-style-type: none"> • 157 mn people • 91 mn FT packs • 1,721 mn OT packs
FT	 Cost Containment	\$2,852 mn	\$3,265 mn	\$414 mn
	 Individual Time Saving	173 mn hours	553 mn hours	174 mn hours
	 Physician Time Saving	42 mn hours	74 mn hours	9 mn hours
OT	 Productivity	312 mn days	1660 mn days	2,582 mn days
	 Welfare	\$34,709 mn	\$24,729 mn	\$26,897 mn
	 Quality of Life	168,295 QALYs	896,267 QALYs	1,394,134 QALYs

Future value of self-care are generated based on the influence of three OTC drivers. These gains are summarized in Table 24 above, which demonstrates that the largest gains are achieved among Group B countries. The

reason for this is that almost 60% of the total population in this region is included in Group B. However, the welfare and quality of life gains are greatest in Group C as this group contains the most OTC packs in the OT.

² The average per capita cost of one OTC pack was calculated by dividing the OTC expenditure (reported in USD) in 2019 by the respective country's OTC expenditure (reported in number of packs sold) in 2019.

Figure 14: Future value of self-care in Middle East and North Africa



Substantial gains of self-care are anticipated for the Middle East and North Africa region. Most notable are the increases of over 90% in quality of life and productivity gains compared to the current value. As illustrated in Figure 14, about two million QALYs are gained in the future scenario, while over four and a half billion productive days are gained, leading to over \$86 billion in welfare effects. Furthermore, the cost containment effect

will generate monetary savings in excess of \$6.5 billion. Individual time savings of 900 million hours are projected, while savings of 124 million hours in physician time is forecast, representing the release of approximately 58,000 physicians from the burden of avoidable contact. Finally, appropriate self-care policies a major drivers for future contributions of 19-28% across all metrics through self-care (Table 25).

Table 25: Value of self-care achieved through self-care policy in Middle East and North Africa

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	Cost Containment	\$3.9 bn	\$6.5 bn	\$0.8 bn	+19%
	Individual Time Saving	494 mn hours	900 mn hours	117 mn hours	+24%
	Physician Time Saving	72 mn hours	124 mn hours	15 mn hours	+21%
OT	Productivity	2.4 bn days	4.6 bn days	0.7 bn days	+28%
	Welfare	\$50.8 bn	\$86.4 bn	\$10.9 bn	+21%
	Quality of Life	1.3 mn QALYs	2.5 mn QALYs	0.4 mn QALYs	+28%

Results refer to Cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.



NORTH AMERICA

There are **2 countries** considered in the North America region and both countries are categorized in Country Group A. Of the total OTC expenditure in terms of number of packs currently, 40% are used in the FT and 60% are used in the OT (Table 26). Currently, the total population of the two Group A countries is approximately 366 million.



Table 26: Current value of self-care in North America

			Group A
			• 366 mn people • 1,151 mn FT packs • 1,726 mn OT packs
FT		Cost Containment	\$27,132 mn
		Individual Time Saving	1,439 mn hours
		Physician Time Saving	345 mn hours
OT		Productivity	2,590 mn days
		Welfare	\$588,717 mn
		Quality of Life	1,398,384 QALYs

Currently the USA and Canada achieve noteworthy savings for all direct and indirect gains of self-care. Based on the approximately 1.2 billion OTC packs used in the FT, the cost containment is of most significance in this region, with more than \$27.1 billion in savings

generated through current self-care practices. Additionally, over 1.4 billion hours are saved in total due to avoided travel, waiting and consultation time, while 345 million hours are freed up for physicians to attend to people with more complex medical needs.

The results demonstrate that almost 2.6 billion working days are gained through the practice of self-care with OTC products. Additionally, due to the high average incomes per capita in this region, welfare gains are also highly notable and can be reported as a monetary value of approximately \$600 billion in productivity gains.

Future value of self-care in North America is summarized in Table 27 by country group and the overall self-care gains for this region divided by driver are highlighted in Figure 15. These future projections can be compared to the current gains presented to analyze the extent of gains created by changes in demographics and economic welfare, as well as by enhanced self-care policy.



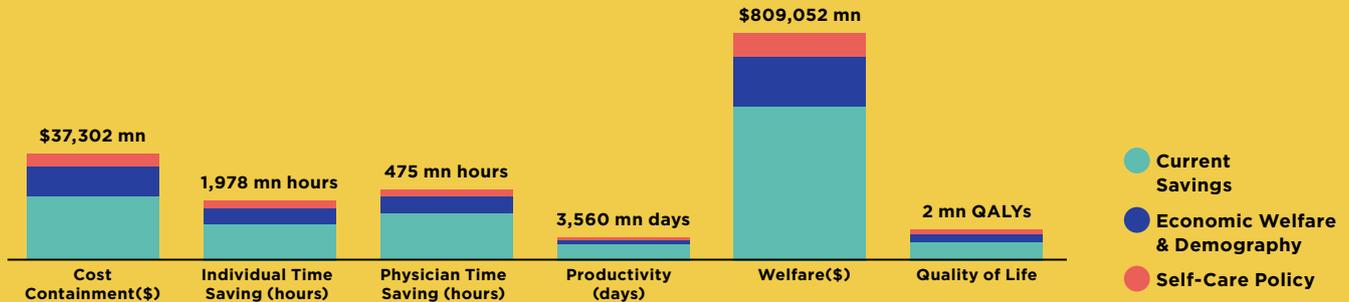
Table 27: Future value of self-care in North America per Country Group

		Group A
FT		Cost Containment
		Individual Time Saving
		Physician Time Saving
OT		Productivity
		Welfare
		Quality of Life
		<ul style="list-style-type: none"> • 390 mn people • 1,582mn FT packs • 2,373 mn OT packs
		\$37,302 mn
		1,978 mn hours
		475 mn hours
		3,560 mn days
		\$809,052 mn
		1,922,238 QALYs

In this region, a comparison between country groups is not possible, since it only consists of Group A countries. Nevertheless, the results in Table 27 illustrate the growth potential of this region, which is mainly driven by the high consumption of OTC packs in the FT.

Results refer to Cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

Figure 15: Future value of self-care in North America



Self-care practices continue to demonstrate the potential to increase monetary and time savings as well as quality of life gains in North America. Based on the cost containment of \$27 billion generated through current self-care practices, changes in demographics and economic welfare, in conjunction with the implementation and further development of self-care policy, are expected to increase this value to over \$37 billion. Moreover, through the growth in the number of productive days which may be gained, welfare gains of more than \$809 billion are projected.

Almost two million QALYs will be achieved in the future potential scenario. Focusing on time savings, about two billion hours will be saved by individuals due to the avoidance of unnecessary physician visits through self-care practices while 475 million hours will be saved by physicians, enabling more than 219,000 physicians to be freed up to see people who most need them. Finally, appropriate self-care policies a major drivers for future contributions of 18-22% across all metrics through self-care (Table 28).

Table 28: Value of self-care achieved through self-care policy in North America

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	Cost Containment	\$27.1 bn	\$37.3 bn	\$3.4 bn	+12%
	Individual Time Saving	1.4 bn hours	2.0 bn hours	0.2 bn hours	+12%
	Physician Time Saving	345 mn hours	475 mn hours	43 mn hours	+12%
OT	Productivity	2.6 bn days	3.6 bn days	0.3 bn days	+12%
	Welfare	\$588.7 bn	\$809.1 bn	\$73.6 bn	+12%
	Quality of Life	1.4 mn QALYs	1.9 mn QALYs	0.2 mn QALYs	+12%



SOUTH ASIA

There were **6 countries** considered in the South Asia region, with the countries divided into two of the three country groups as follows: one in Group B and five in Group C. There are no Group A countries identified in this region. The self-care gains generated in Group B are only marginal when analysing the overall value of self-care in this region, as the total population of Group B is currently recorded to be approximately 22 million, while the total population in Group C equates to over 1.8 billion. As indicated in Table 29, almost all the self-care metrics in this region are thus observed in Group C countries. It is also evident that OT is the dominant concept in this region as indicated by the 8.1 billion OTC packs used in the OT in Group C.

Table 29: Current value of self-care in South Asia

		Group B • 22 mn people • 6 mn FT packs • 17 mn OT packs	Group C • 1,813 mn people • 427 mn FT packs • 8,121 mn OT packs
FT	 Cost Containment	\$40 mn	\$1,089 mn
	 Individual Time Saving	9 mn hours	819 mn hours
	 Physician Time Saving	1 mn hours	43 mn hours
OT	 Productivity	26 mn days	12,182 mn days
	 Welfare	\$379 mn	\$88,398 mn
	 Quality of Life	14,154 QALYs	6,578,279 QALYs

The number of productive days, as well as the number of QALYs, are the most notable gains generated through current self-care practices in this region. Over 12 billion days in productivity are saved and more than 6.5 million QALYs are gained. Additionally, through

the 12 billion productive days gained through self-care practices, almost \$90 billion in welfare gains are produced. While these values result from decisions made by individuals to practice self-care instead of doing nothing (OT), savings are also achieved through the decision to

practice self-care as the first treatment option (FT). As a result, over \$1billion is generated through the cost containment, as well as over 800 million individual hours and 40 million physician hours are also observed in this region.

Future value of self-care in South Asia is summarized in Table 30 by country group and the overall self-care gains divided by

driver for this region are highlighted in [Figure 16](#). These future projections can be compared to the current value presented to analyze the extent of gains created by changes in demographics and economic welfare, as well as by enhanced self-care policy.

[Figure 16](#) summarizes the value of self-care that is influenced by the three OTC drivers.

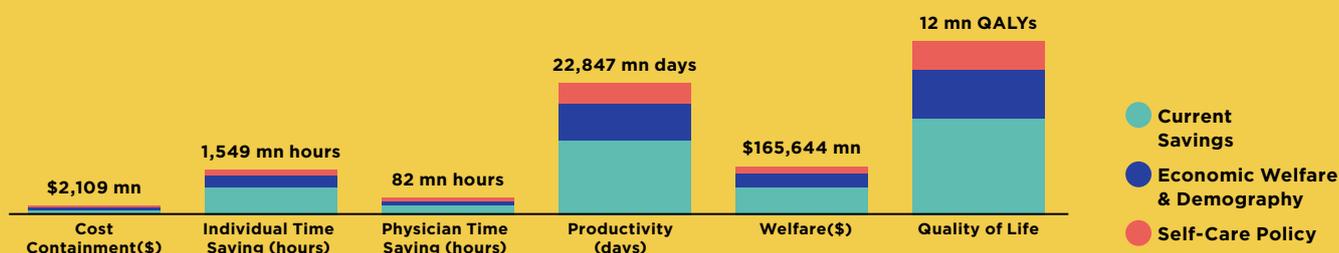
Table 30: Future value of self-care in South Asia per Country Group

		Group B	Group C
		• 22 mn people • 10 mn FT packs • 31 mn OT packs	• 2,027 mn people • 800 mn FT packs • 15,200 mn OT packs
FT	 Cost Containment	\$70 mn	\$2,039 mn
	 Individual Time Saving	15 mn hours	1,533 mn hours
	 Physician Time Saving	2 mn hours	80 mn hours
OT	 Productivity	46 mn days	22,800 mn days
	 Welfare	\$667 mn	\$164,977 mn
	 Quality of Life	24,933 QALYs	12,312,217 QALYs

Savings are generated in the future potential scenario for each metric in this region with the majority of self-care gains observed in Group C. There is a heavy inclination towards welfare gains which are associated with an individual’s decision to practice self-care instead of doing nothing, namely OT. This is associated with the fact that the majority of OTC expenditure in South Asia is reflected in the number of packs used in the OT in Group C. In addition,

the active treatment of STCs is related to a reduction in the number of symptomatic days and severity of symptoms. This can lead to a decrease in duration of illness and allow individuals to return to their normal state of health more quickly. Due to the significance of the self-care benefits in this region, an extremely large growth potential in quality of life is observed in Group C.

Figure 16: Future value of self-care in South Asia



The value of self-care in South Asia is forecast to increase by almost 90% across all six self-care metrics from the values currently achieved (Table 31). For example, the cost containment savings are currently approximately \$1 billion in comparison to \$2 billion in the future scenario. Significant increases in productivity, to around 23 billion days and welfare to \$166 billion, are also expected. Furthermore, because of avoided travel time over long distances and long waiting times for physician visits in this region, more than one and a half billion hours

in individual time savings will potentially be generated. Approximately 82 million in saved physician time could be gained. This value can, of course, be further increased if the number of primary care providers were to be expanded and if more standardized length of physician consultations were to be introduced. The gains in quality of life of over twelve million QALYs is not only very remarkable in the South Asian region, but it is also very significant compared to the value of self-care on quality of life in other regions.

Table 31: Value of self-care achieved through self-care policy in South Asia

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	Cost Containment	\$1.1 bn	\$2.1 bn	\$0.3 bn	+31%
	Individual Time Saving	828 mn hours	1,545 mn hours	258 mn hours	+31%
	Physician Time Saving	44 mn hours	82 mn hours	14 mn hours	+31%
OT	Productivity	12.2 bn days	22.8 bn days	3.8 bn days	+31%
	Welfare	\$88.8 bn	\$165.6 bn	\$27.6 bn	+31%
	Quality of Life	6.6 mn QALYs	12.3 mn QALYs	2.1 mn QALYs	+31%

Results refer to Cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.



SUB-SAHARAN AFRICA

There were **44 countries** considered in the Sub-Saharan Africa region, with the countries divided into two of the three Country Groups: seven in Group B and 37 in Group C. There are no Group A countries identified in this region. As expected, the total population of Group C (one billion) is significantly larger than that of Group B (84 million). In Sub-Saharan Africa, the number of OTC packs used are evenly distributed among Group B and C countries for the FT. Therefore, similar gains in cost containment, individual time savings and physician time savings are demonstrated in [Table 33](#). However, with a lack of access to primary healthcare, and longer distances required to travel to reach the next healthcare provider, it is evident that the majority of gains through self-care in the OT are observed in Group C countries.

Table 32: Current value of self-care in Sub-Saharan Africa

		Group B	Group C
		• 84 mn people • 73 mn FT packs • 220 mn OT packs	• 1,021 mn people • 74 mn FT packs • 1,402 mn OT packs
FT	 Cost Containment	\$1,046 mn	\$919 mn
	 Individual Time Saving	110 mn hours	141 mn hours
	 Physician Time Saving	15 mn hours	7 mn hours
OT	 Productivity	330 mn days	2,102 mn days
	 Welfare	\$7,702 mn	\$7,844 mn
	 Quality of Life	178,258 QALYs	1,135,274 QALYs

The cost containment in Group B and C is calculated to be about \$1 billion in savings for each group. A slight difference is observed between individual time savings (110 million hours in Group B and 141 million hours in Group C) and physician time savings (15 million hours

in Group B and 7 million hours in Group C). This is due to the longer travel distances and waiting time needed for countries with more limited access to healthcare in Group C than Group B, as well as the higher capacities of healthcare systems in Group B that allow

physicians to allocate slightly more time for each individual they treat. The most significant savings generated in Sub-Saharan Africa include the number of productive days achieved (2.1 billion days) as well as the number of QALYs (more than one million) realized through current self-care practices. The high values for productivity, welfare and QALYs gained emphasise the importance of the OT in this region and the potential of enhancing the benefits of self-care that can be achieved by increasing the number of individuals practising

self-care rather than choosing to wait and doing nothing.

Future value of self-care in Sub-Saharan Africa is summarized in Table 33 by country group and the overall value of self-care for this region divided by driver are highlighted in [Figure 17](#). These future projections can be compared to the current value, which are presented to analyze the extent of gains created by changes in demographics and economic welfare, as well as by enhanced self-care policy.

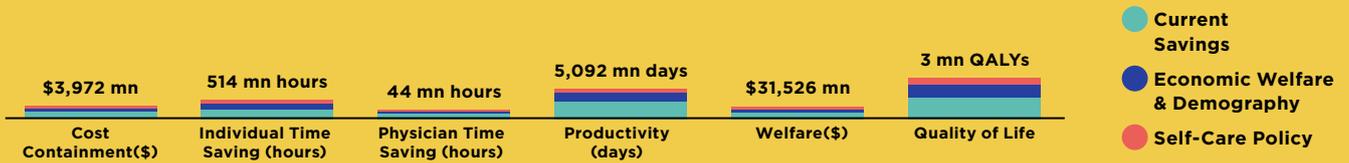
Table 33: Future value of self-care in Sub-Saharan Africa per Country Group

		Group B • 99 mn people • 143 mn FT packs • 429 mn OT packs	Group C • 1,351 mn people • 1 56mn FT packs • 2,965 mn OT packs
	 Cost Containment	\$2,004 mn	\$1,968 mn
	 Individual Time Saving	215 mn hours	299 mn hours
	 Physician Time Saving	29 mn hours	16 mn hours
OT	 Productivity	644 mn days	4,448 mn days
	 Welfare	\$14,823 mn	\$16,703 mn
	 Quality of Life	347,655 QALYs	2,402,020 QALYs

In the future potential scenario, the three OTC drivers generate a considerable amount of value generated through self-care for the Group B and C countries, as seen in Table 33 above. Productivity and quality of life emerge most prominently in this region, reinforcing the potential of self-care in the future to decrease the burden of STCs and improve standards of health in Sub-Saharan Africa. Moreover, increases in quality of life may contribute to productivity gains by decreasing loss of efficiency and absenteeism. Another

important gain in this region is saved individual time, which also increases in the future potential scenario, especially due to demographic changes and possible implementation of new self-care policy measures. In addition to the reasons behind the individual time savings outlined previously, this benefits individuals by freeing up their time for them to continue with their day-to-day tasks or to avoid a loss of wages by allowing them to go to work as usual.

Figure 17: Future value of self-care in Sub-Saharan Africa



Results indicate that Sub-Saharan Africa countries have great potential for self-care and that, in the future, gains from self-care could be doubled (in contrast to current gains). In addition to almost \$4.0 billion in monetary savings from the cost containment, the five billion days saved in productive time may translate into welfare gains of over \$31.5 billion

(Table 34). Moreover, an estimated 514 million hours will be saved for individuals as a result of not having to see a physician. These time gains can be associated with the elimination of travel and waiting times and may also lead to increased quality of life. The overall impact on quality of life is expected to increase from one million currently to almost three million.

Table 34: Value of self-care achieved through self-care policy in Sub-Saharan Africa

		Overall impact of self-care		Future value of self-care policies	Future contribution of self-care policies as a driver
		Current	Future		
FT	Cost Containment	\$2.0 bn	\$4.0 bn	\$0.6 bn	+30%
	Individual Time Saving	251 mn hours	514 mn hours	78 mn hours	+31%
	Physician Time Saving	22 mn hours	44 mn hours	6 mn hours	+29%
OT	Productivity	2.4 bn days	5.1 bn days	0.8 bn days	+34%
	Welfare	\$15.5 bn	\$31.5 bn	\$4.7 bn	+30%
	Quality of Life	1.3 mn QALYs	2.7 mn QALYs	0.4 mn QALYs	+34%

Factors impacting self-care practices

The extent to which self-care is practised and the overall value of self-care can be readily assessed by the level of OTC expenditure in each country.

OTC products are typically available without the need for a prescription and, therefore, without the need for a physician consultation. They can be obtained from brick-and-mortar retail pharmacies, hospitals, or retail outlets including drugstores, supermarkets, petrol stations, kiosks and online pharmacies [48]. OTC products facilitate the treatment of more serious health conditions that require physician involvement by enabling the efficient use of limited resources by healthcare systems and providing individuals with easily accessible treatment options to manage STCs, which is one of their major advantages.

OTC products are typically available without the need for a prescription and therefore without the need for a physician consultation.

OTC OUTLETS

OTC outlets vary around the world due to differences in regulations, individuals needs and health system infrastructures. Several OTC outlets contribute to the USA's OTC market, including brick-and-mortar, online and hospital pharmacies, as well as supermarkets and online retail outlets such as Amazon [49,50]. The main OTC outlets in China are retail pharmacies and hospitals, where OTC sales are made at a ratio of about three to two [51]. Hospitals are a common outlet to access OTC medicines in China, as people prefer to seek treatment at the hospital due to a higher degree of trust in hospitals and lack of infrastructure in primary healthcare [51]. In late 2005, OTC market liberalization started in Portugal, allowing OTC products to be sold outside pharmacies, such as in supermarkets [52]. Conversely, a 2021 study on the availability of medicines outside pharmacies found that the sales of medicines is restricted to pharmacies in 13 of the 29 European countries analyzed [48]. These cross-national distinctions in OTC outlets lead to differences in how convenience demands and individual needs are met. This consequently affects the level of individual access to fast and effective treatments, as well as the prevalence of self-care practices.



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AVAILABILITY

Another factor that influences OTC expenditure and the extent to which self-care is practiced is the number of active OTC substances available in a particular country. According to the OTC ingredients database from the AESGP³, Argentina has 69 OTC active ingredients on the market and Chile has 45. A higher number of active ingredients is demonstrated in Australia (160), Canada (108), China (105), and New Zealand (172) [53]. As indicated by these figures, there are large variations in the number of active substances that are available as OTC products worldwide. The availability of OTC active ingredients defines the types of STCs that can be treated by self-care without the need for prescription nor a physician visit. Therefore, widening access to OTC products, for example through Rx to OTC switches, can provide individual treatment options in new indications and more effective treatment alternatives for self-care, while empowering individuals to manage their health.

ARCHITECTURE OF HEALTHCARE SYSTEMS

Health systems require an adequate workforce of professionally-trained healthcare providers, sufficient healthcare facilities, and a reliable supply of pharmaceuticals and equipment. These components support self-care practices, predominantly in western countries where there is sufficient access to healthcare. However, in countries with limited access to formal health systems, such as in Sub-Saharan Africa and South Asian regions, healthcare infrastructure may play an even larger influential role in self-care practices. For example, in Pakistan and Iran, there is a lack of primary care providers, pharmacies are scarce and hospitals are concentrated in urban centers, which means healthcare is often hardly accessible to individuals living in rural, remote, or under-served regions [54–56]. Many health challenges caused by STCs in regions are treatable when these regions have access to primary healthcare. Regardless of how healthcare system infrastructure contributes to the practice of self-care, it is a key self-care determinant in all regions of the world.

³ The number of OTC active ingredients stated in this study are based on a selection of ten Anatomical Therapeutic Chemical (ATC) groups (1st level).



HEALTH LITERACY

Self-care uptake is also determined by the level of awareness about self-care and people's ability to access, process and understand health information. Efforts to improve health literacy enable individuals to better recognize when it is appropriate to treat an STC and be able to select suitable OTC products.

Self-care is a significant form of primary care in all regions of the world and individuals across all socioeconomic levels have the capability to practice self-care. Nevertheless, economic development is another self-care determinant, encompassing the question of willingness and ability to pay, as well as reflecting the causal effect between economic growth and the consumption of health-relevant commodities [56,57]. In theory, increased household incomes may provide individuals, especially those in developing countries, with the economic capacity to spend more on health, such as on OTC products to manage STCs. However, this also depends on the individuals' willingness to pay for OTC products.

Based on the self-care determinants related to healthcare system infrastructure and affordability, several socioeconomic determinants can be selected as proxies for OTC market data to assess the uptake of self-care. These socioeconomic determinants include income, healthcare expenditure per capita, GDP per capita, national healthcare system coverage and physicians per 1,000 people.

Policy Implications

Characteristics of certain socio-economic parameters are closely correlated with the political, economic and social conditions in a country or region. The preceding analysis demonstrates that the local or national framework conditions have a significant influence on the

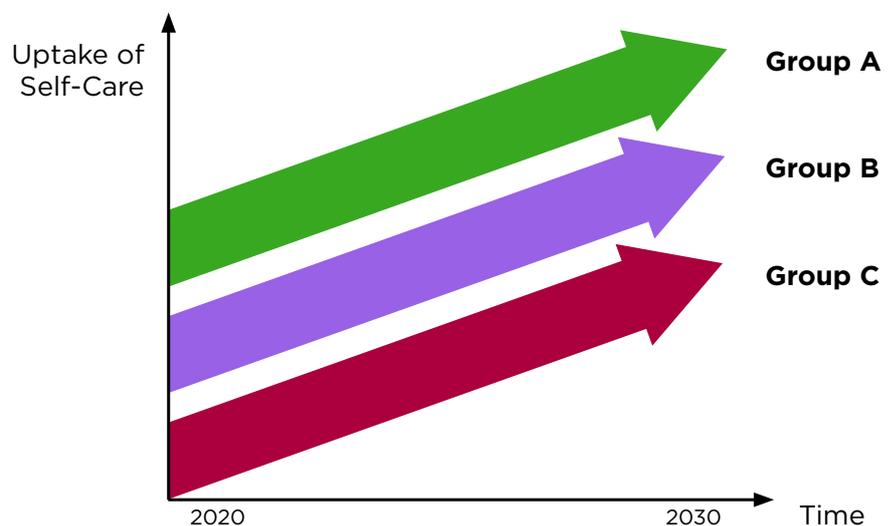
This means that the income per capita in a country and the purchasing power of a large proportion of the population have a significant influence on the status of self-care. To a lesser extent, this also applies to the average level of education of the population. The level of OTC consumption found in many high-income countries is not realizable in low-income regions due to a lack of ability to pay. This applies even if different purchasing power parities are taken into account.

Against this background, it is clear that the importance of self-care in Group A countries, such as the USA, Japan and Germany, is at a different level compared to Group C countries, such as India, Nicaragua and Nigeria. The same applies to Group B countries such as Brazil, China and Iran, where the importance of self-care is at a moderate level in a global

comparison. This relation is illustrated in the following figure. Accordingly, the individual countries lie schematically in different corridors with regard to the current significance of self-care. The expected future development of the respective self-care markets in specific countries lies within these corridors, which are determined by exogenous factors (Figure 18).

Despite this finding, each individual country has considerable political leeway, irrespective of its given framework conditions and the initial situation of self-care. In concrete terms, this means that each country has to develop the potential of self-care within its defined corridor with the help of suitable measures. Self-care policies can achieve significant increases (between 15% and 25%) in the various self-care metrics of cost containment, welfare and quality of life.

Figure 18: Increase in uptake of self-care over the upcoming years



Results refer to Cost and time savings per annum. The definition of self-care does include adopting healthy practices such as exercising, good diet etc. but in the context of acute self-treatable conditions, there is a lack of data on how this holistic behavior helps in comparison to other lifestyle behaviors.

Self-care policies can be applied at three levels (Figure 19). The basic prerequisite enabling individuals to opt for self-responsible treatment is the availability of OTC products. Access is met if OTC products can be purchased and are available without a prescription. The second basic prerequisite for self-care is that individuals are able to afford the corresponding products. Affordability is met when a large part of the population has sufficient ability to pay. Action requires a personal cost-benefit assessment of the individuals in each case.

Policies to improve access to OTC products must target regulatory requirements, actual market access by the manufacturer and products available without a prescription.

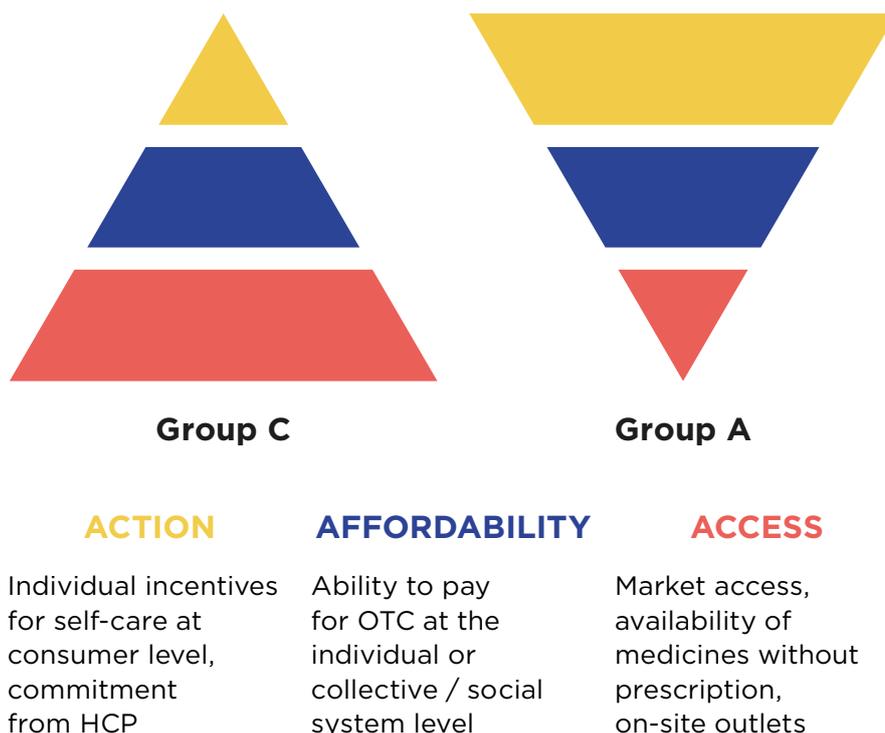
Policies that motivate and convince individuals to take action and practice self-care must highlight their expected benefits and/or offer an incentive to encourage people to treat themselves. On the benefit side, low-threshold access to user-friendly information is the starting point. Financial incentives can be

created in the form of partial reimbursement of OTC expenses or via tax benefits. In principle, the decision to practice FT also encouraged by cost-sharing for physician visits and co-payments for prescribed medicines.

The appropriate weighting of the three target levels of Access, Affordability and Action within the framework of a political strategy depends on the regional conditions currently. However, there is a tendency to give the highest weight to improving access to OTC products, especially in Group C.

In contrast, the political priorities in Group A countries are inverted, as the figure indicates. The decision for self-care in these countries depends largely on the decision-making situation at the individual level. A recent study on the value of self-care for 30 European countries has revealed that there is a wide range of framework conditions in Europe. The extent to which these are able to create a favorable climate for self-care varies significantly across countries.

Figure 19: Different weighting of enablers according to Country Groups



Conclusions

To date, scientific studies about the value of self-care have mainly focused on high-income countries with advanced healthcare systems. This applies in particular to Australia, and countries in North America and Europe. In these countries, the individual's convenient and time-saving access to treatment is seen as the main advantage of self-care. Moreover, on a societal level, the benefits of self-care result from relieving the burden on healthcare systems. In principle, self-care is seen as an alternative to the use of existing healthcare system facilities when dealing with STCs. The corresponding benefits therefore result from the self-responsible use of OTC products instead of consuming scarce resources, including physician time, in these healthcare systems.

In the course of this global study, it became apparent that health economic and pharmaco-economic approaches usually applied to assess the value of self-care cannot be transferred to lower-income regions. This is due to differing conditions, such as the health-related infrastructure and the prevailing socio-economic factors in these regions. Hence, in some of these regions, for example Sub-Saharan Africa and South-East Asia, self-care is not an alternative care option, but rather the only possible access to treatment in the event of health problems for most individuals. This is in contrast to wealthier countries, where there is usually wider access to health care.

Given the proven benefits and efficiency gains that have been and can be achieved through self-care, it is still too often ignored in health policy.

A consequence of this finding was the development of new conceptual approaches within the study, which reflect these deviant forms of self-care. These scientific approaches are based on specific behavioral patterns as well as on the benefit dimensions associated with the respective concept of self-care. In this context, especially in countries with low income

levels and limited access to healthcare, the positive impact on productivity, welfare and quality of life have proven to be outstanding parameters for measuring the benefits of self-care. This is in contrast to the cost and time savings that form the core of the quantifiable benefits of self-care in high income countries.

From the authors' perspectives, the most significant contribution of the present research project consists of this new conceptual approach and in the quantification of the various corresponding benefits of self-care. This approach enabled insights regarding the benefits of self-care to be obtained for regions that had previously been white spots on the world map in this context.

The relevance of these findings is particularly significant because they create a rationale for promoting better self-care policies globally. Given the proven benefits and efficiency gains that have been and can be achieved through self-care, it is still too often ignored in health policy. This applies to the wealthier industrialized nations as well as to the world's lower-income countries and regions.

In this context, even in most of the high-income countries, self-care is still not perceived as an essential pillar of the comprehensive healthcare system. Accordingly, there is a lack of targeted policy measures that provide incentives at the individual and collective level to promote self-care, with pharmacists in a prominent role.

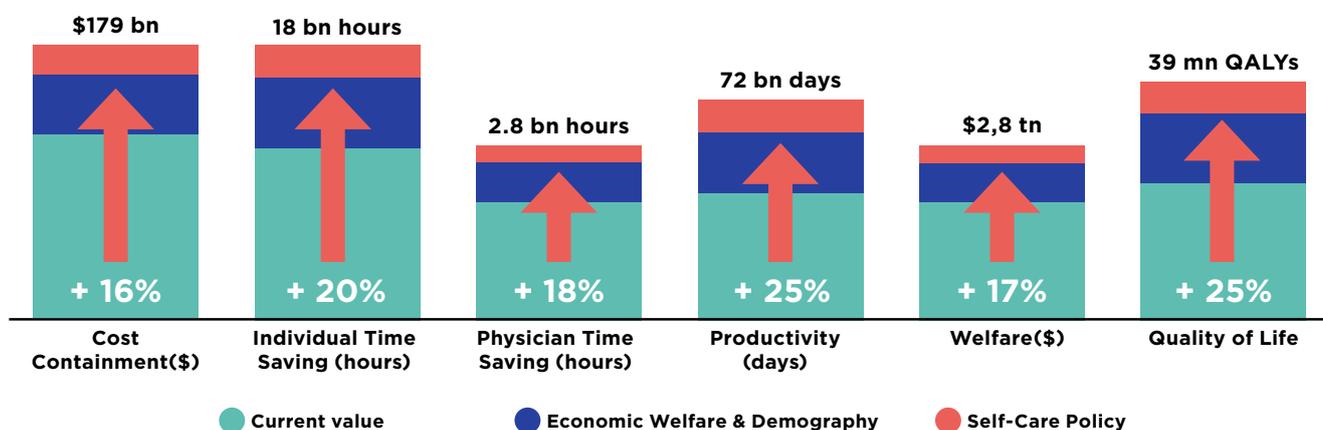
The future potential of self-care is influenced by changes in economic welfare, in particular increasing incomes and demographics, with aging populations and either population growth or decline. Additionally, the shaping of self-care policy measures plays a significant role in unlocking the future potential of self-care markets. At the same time, it is essential that self-care policy measures are adapted and customized at the country or regional level, by identifying the baseline situation and the areas that need to be promoted to maximize the benefits of self-care.

The more the access to OTCs grows overall in the future, the greater the individual and societal benefits that can be realized through self-care will be. In this study, the market volume of the OTC market in 2030 was calculated based on forecasts on the development of population and economic welfare. Contributions of economic welfare and demography are based on fixed forecasts available from the Global Burden of Disease Health Financing Collaborator Network and the United Nations. In addition, it was postulated that in the various country groups, additional impulses will be initiated to a certain extent through a targeted self-care policy. For the purpose of the calculations, the expected percentage changes based on expert knowledge and previous research were used. On the basis of access to OTCs in 2030 calculated in this way, all benefits of self-care were extrapolated for this forecast period.

The aforementioned calculations produce values which highlight the considerable potential of self-care between 2019 and 2030, driven by economic growth, demographic changes and self-care policy measures. The cost containment is estimated to be approximately \$178.8 billion. Time savings of 17.9 billion individual hours and 2.8 billion physician hours can also be achieved. Furthermore, gains in productivity of 71.9 billion productive days and about \$2,830 billion in welfare. Self-care also has the potential to significantly improve quality of life, achieving 39 million QALYs in the future potential scenario. The overall value of self-care in the future is depicted in Figure 20 below.

The future potential of self-care is influenced by changes in economic welfare, in particular increasing incomes and demographics, with ageing populations and either population growth or decline.

Figure 20: Future value of self-care and influence of self-care policy measures



The current value of self-care can potentially be increased by approximately 16% to 25% through the adoption of self-care policy measures. Self-care policy measures are estimated to increase monetary savings for healthcare systems and national economies by 16% per annum.

Moreover, the evidence from this study indicates that the value of self-care in the future are significantly influenced by self-care policy measures (see [Figure 20](#)). The current value of self-care effects can potentially be increased by approximately 16% to 25% through self-care policy measures. Self-care policy measures are estimated to increase monetary savings for healthcare systems and national economies by 16%. Additionally, the results suggest they have the largest influence on productivity and quality of life (25%), followed by individual time savings (20%), physician time savings (18%) and welfare (17%).

In Group A countries, self-care policy measures should focus on creating incentives to choose FT. This includes, in particular, the extension of indications in the course of the release from the prescription obligation (“Rx to OTC Switches”). In Group C countries, the main self-care policy challenge is to ensure that the population has the widest possible access to self-care products and information.

The research results indicate that, especially for countries with lower income levels and poorer access to health care, self-care must be regarded as a much higher priority in the context of a global health policy strategy in the future.

The actual relevance of the findings for health policy results from the fact that adequate self-care policies can significantly expand the benefits associated with self-care for individuals and society. This applies to health policymakers at national, regional and global levels. Although demographic and economic development as external factors contribute to this expansion, there is also considerable room for improvement through targeted self-care policies. If health policy misses the opportunity of positive gains through self-care, potential progress with regard to the efficiency and quality of healthcare will be limited. Neglecting to consider the positive effects of self-care from a policy perspective would result in foregoing potential advances in the efficiency and quality of healthcare. Ultimately, gains in welfare and quality of life for individuals, especially in low-income countries, can be realized through suitable self-care policies.

The results of this study clearly demonstrate that self-care delivers both social and economic benefits on a global scale, regardless of the country health system and demographic status. There is also great potential for increased benefits to be delivered to individuals and health systems with an increased uptake of self-care.

Appendix

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COUNTRY GROUPING

East Asia and Pacific					
Australia	Korea, Rep.	Hong Kong	New Zealand	Japan	Singapore
China	Mongolia	Indonesia	Philippines	Malaysia	Thailand
Cambodia	Papua New Guinea	Laos	Timor-Leste	Myanmar	Vietnam
Europe and Central Asia					
Austria	Italy	Belgium	Latvia	Croatia	Lithuania
Czech Republic	Netherlands	Denmark	Norway	Estonia	Portugal
Finland	Slovak Republic	France	Slovenia	Germany	Spain
Greece	Sweden	Hungary	Switzerland	Ireland	United Kingdom
Albania	Moldova	Armenia	North Macedonia	Azerbaijan	Poland
Belarus	Romania	Bosnia and Herzegovina	Russian Federation	Bulgaria	Serbia
Cyprus	Turkey	Georgia	Turkmenistan	Kazakhstan	Ukraine
Kyrgyz Republic	Uzbekistan				
Tajikistan					
Latin America and the Caribbean					
Argentina	Chile	Trinidad and Tobago	Uruguay		
Bolivia	Guatemala	Brazil	Jamaica	Colombia	Mexico
Costa Rica	Panama	Cuba	Paraguay	Dominican Republic	Peru
Ecuador	Venezuela, RB	El Salvador			
Haiti	Honduras	Nicaragua			

 Group A

 Group B

 Group C

COUNTRY GROUPING

Middle East and North Africa					
Israel	Kuwait	Qatar	Saudi Arabia	United Arab Emirates	
Algeria	Libya	Bahrain	Morocco	Iran	Oman
Iraq	Syrian Arab Republic	Jordan	Tunisia	Lebanon	
Egypt	Yemen				
North America					
Canada	United States				
South Asia					
Sri Lanka					
Afghanistan	Nepal	Bangladesh	Pakistan	India	
Sub-Saharan Africa					
Botswana	Equatorial Guinea	Gabon	Mauritius	Namibia	Senegal
South Africa					
Angola	Liberia	Benin	Madagascar	Burkina Faso	Malawi
Burundi	Mali	Cameroon	Mauritania	Central African Republic	Mozambique
Chad	Niger	Congo, Dem. Rep.	Nigeria	Congo, Rep.	Rwanda
Côte d'Ivoire	Sierra Leone	Eritrea	Somalia	Eswatini (Swaziland)	South Sudan
Ethiopia	Sudan	Gambia, The	Tanzania	Ghana	Togo
Guinea	Uganda	Guinea-Bissau	Zambia	Kenya	Zimbabwe
Lesotho					

 Group A

 Group B

 Group C

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RECOMMENDATIONS

Coherent healthcare policy and regulation supporting self-care is required

To significantly expand the benefits associated with self-care for individuals and society there is a need for increased political commitment and cohesive policies around self-care, with clear strategies and programs. Health and finance ministries need to jointly develop and implement cohesive self-care policies aimed at empowering individuals to take charge of their own health. This will also contribute to sustainable health systems and improved societal benefits.

Accountability and collective action is required from all stakeholders to ensure that self-care is a key driver in accelerating the delivery of Universal Health Coverage

Self-care policies need to be developed in consultation with other national policymakers, international organisations and non-governmental stakeholders, including healthcare professionals, and consumers and industry, to ensure the scientific basis is sound, and that there is consensus and transparency in implementation.

Self-care should be recognized as an indispensable solution in realising Universal Health Coverage by 2030, and self-care should be integrated into future health and economic policy, focusing on affordability and access.

Health literacy to be recognized as a fundamental catalyst for change, ensuring individuals understand and act upon credible health information to become active self-managers of their health

Education is inherently tied into incentivisation to ensure that all actors are aware of the value of self-care and that individuals are equipped with health literacy skills necessary to effectively manage their own health. Health and digital literacy are fundamental to realising the health and socioeconomic value of self-care. National governments and international organisations should mobilise resources to increase health literacy standards globally through awareness campaigns and educational programs, particularly in LMICs.

Self-care to be understood as multi-faceted and multidimensional concept which includes a variety of health-related practices. There needs to be a greater recognition of these elements and the benefits of self-care from all key stakeholders

Addressing self-care in a holistic way requires coordination and collaboration with multiple stakeholders beyond just health. Resources need to be made available to individuals so that they are empowered to make healthy lifestyle choices (e.g. diet, exercises), leading to improved health outcomes.



GLOBAL
SELF-CARE
FEDERATION

The Global Self-Care Federation is dedicated to a world where self-care increasingly contributes to better health and more sustainable healthcare systems. GSCF represents associations and manufacturers of self-care products, including non-prescription medicines, promoting sustainable and better global health outcomes for all.

GSCF is the go-to source of information for the self-care industry. We work closely with our members and relevant stakeholder groups to deliver better choice, better care and better value. By placing the benefits of self-care at the heart of what we do, supporting the appropriate use of health data and promoting industry transparency, we ensure that self-care

continues to play its increasingly vital role in sustainable healthcare worldwide.

As an NGO in official relations with the World Health Organization (WHO), GSCF contributes to WHO's public health goals through its specialized expertise in self-care and responsible use of non-prescription medicines. GSCF is working with WHO in several areas to address the overarching strategic priorities of achieving Universal Health Coverage and promoting healthier populations.

This research study is a part of GSCF's WHO collaboration plan.