Original Article

Vol. 6, No. 1, 16-26
http://dx.doi.org/10.15280/jlm.2016.6.1.16

Journal of Lifestyle Medicine

Health System Development and Performance in Korea and Japan: A Comparative Study of 2000-2013

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Background: The Japanese and Korean healthcare systems are very similar and thus, they have the same problems and weaknesses. This study discusses the problems and proposes complementary solutions based on the results of a comparative analysis of conditions in the healthcare systems of the two countries.

Methods: This article presents a comparative analysis of the healthcare status of the two countries based on certain health criteria used worldwide, a literature review, and data from the Korean Ministry of Health and Welfare, Japanese Ministry of Health, Labour and Welfare, World Health Organization (WHO), World Bank, and Organization for Economic Cooperation and Development (OECD).

Results: The scores of the healthcare systems were calculated for quantitative comparison. The performance of the Japanese health system was the best, followed by the Korean health system. Both countries observed an increased life expectancy and decreased infant and under-five mortality rates during the last 14 years. However, lower fertility rates were found, which could lead to a decreased working population and a subsequent increase in the economic burden of governments and households. A higher alcohol consumption rate was found in Korea, which was related to the establishment of interpersonal relationships.

Conclusion: The reform of the healthcare systems in Korea and Japan led to an increased life expectancy; concurrently, reduced fertility rates led to an increasing aging population. As a result, increasing health costs require additional measures to improve health equity and strengthen health promotion.

Key Words: Healthcare system, Health status, Health insurance, Lifestyle, Korea and Japan

INTRODUCTION

The Japanese and Korean healthcare systems are based on national health insurance schemes. However, the systems are developing in different political, economic and social contexts, as well as cultural environments, but encounter similar problems that are solved in different ways.

In 2014 White Paper Report, the Japanese Ministry of Health, Labour and Welfare mentioned that the most important goals are the extension of healthy life expectancy, longevity for each person with comfortable lives, and enjoyment of a long and healthy life [1]. In addition, it mentioned the importance of finding ways to reduce medical costs associated with a reduction in the national burden and to im-

Received: January 8, 2016, Accepted: February 7, 2016

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prove the sustainability of social security and long-term care.

In 2013 White Paper Report, the Ministry of Health and Welfare of South Korea identified the middle class as the target group because high cost health expenditures might facilitate household crises and re-entry into poverty [2]. Changing with the times is necessary to improve healthcare systems that will provide wider health and welfare services; a proactive healthcare system will facilitate a healthy longer life, social belonging, and solidarity. In this case, the main policy objectives are greater attention to the middle class, organized comfortable and healthy lives, and social integration for everyone.

Thus, both countries are facing aging populations, low birth rates, problems ensuring social security networks, and similar problems and needs for a healthy life. There are also many similar components and regulatory institutions, such as insurance and long-term care institutions. A comparative analysis of the situation in both countries identified strengths and weaknesses that help explore and solve the problems. This study identifies the strong and weak points of the healthcare systems of Korea and Japan and makes suggestions based on the current situation in both countries.

MATERIALS AND METHODS

This study reviewed secondary data from Korea's Ministry of Health and Welfare, Japan's Ministry of Health, Labour and Welfare, and the Department of Health and Human Data Services. We used statistical materials provided by Korea's National Statistical Information Service and Japan's Statistics Bureau under the Ministry of Internal Affairs and Communications, research reports, and policy papers by research and health institutions.

In this study, we focused primarily on comparing the main outcome, process, and structural indicators [3], socioeconomic indicators, and health expenditures [4]. Indicators were selected according to the World Health Organization (WHO) background document [5] and the Organisation for Economic Cooperation and Development (OECD) Health Working Papers. Outcome indicators included life expectancy at birth, mortality rate, infant mortality and under-five mortality [5,6]. Process indicators were morbidity, level of immunization, and prevalence of risk factors. Structural indicators were determined as health care resources, including rate of medical staff (medical doctor, dentist, nurse, and pharmacist) per 1,000 people, availability of medical facilities, and pharmaceutical care. Socioeconomic indicators included total population, ratio of population living in an urban area, gross domestic product (GDP), and per capita GDP. Health expenditure was selected as the total health expenditure and percentage of GDP, public-private mix health financing, and private out-of-pocket funding [4].

The health status of the two countries was compared using Health Accounts Country Platform information from the Global Health Expenditure Database developed by the WHO. Health expenditure data are annually collected through Health Account Country Platforms to a global standard (System of Health Accounts [SHA] 2011), and all indicators and figures in country-specific health accounts are standardized. Using Health Account Country Platforms allowed for easier comparison. In addition, the World Bank Open Data resource, the WHO Western Pacific Region Health Information and Intelligence Platform, and monitoring systems of vaccine-preventable diseases were used.

Health scores were calculated as the average of three groups of indicators: healthy lives, healthcare resources, and efficiency, based on a comparative analysis of nine indicators. Healthy lives and healthcare resources were calculated as the weighted average compared to the best index. Where higher rates would indicate a move in a positive direction, we divided the country average by the best indicator. Where lower rates would indicate a positive direction, we compared the lower rate to the country indicators [7]. For calculating efficiency, we used the Bloomberg rank methodology, ranking each country on three criteria with respective weights: life expectancy 60%, relative per capita cost of health care 30%, and absolute per capita cost of healthcare 10% [8].

RESULTS

1. Health status

1) Comparison of the main health indicators of Korea and Japan from 2000-2013

Korea has a total population of 51,141,460 [9]. As presented in Table 1, the overall population increased by 10.7%

Table 1. Indices related to socioeconomic data and health in Korea and Japan

Indicators	Years	Korea*	Japan**
Population (thousands)	2013	51,141.46	125,704.00
	2010	50,515.67	126,381.73
	2005	48,782.27	126,204.90
	2000	47,732.56	125,612.63
Population living in urban areas (%)***	2013	82.24	92.49
	2010	81.93	90.52
	2005	81.34	85.97
	2000	79.62	78.64
Life expectancy at birth (age), both sexes	2013	81.94	83.41
	2010	80.79	82.92
	2005	78.63	82.04
	2000	76.02	81.16
Total fertility rate (per woman)	2013	1.18	1.43
	2010	1.22	1.39
	2005	1.07	1.26
	2000	1.46	1.36
Mortality rate	2013	5.30	10.10
	2010	5.10	9.50
	2005	5.00	8.60
	2000	5.20	7.70
Infant mortality rate***	2013	3.00	2.10
	2010	4.00	2.30
	2005	5.00	2.80
	2000	5.00	3.20
Under-five mortality rate (per 1,000 live births)****	2013	4.0	3.0
	2010	4.0	3.0
	2005	6.0	4.0
	2000	6.0	5.0
GDP in 100 billion US dollars***	2013	13.0	49.2
	2010	10.9	54.9
	2005	8.9	45.7
	2000	5.6	47.3
Per capita GDP in 1,000 US dollars (PPP)***	2013	25.9	38.6
	2010	22.2	42.9
	2005	18.7	35.8
	2000	11.9	37.3

Source: *Korea National Statistical Office.
**Ministry of Health, Labour and Welfare.
***World Bank Open Data.
****WHO Global Health Observatory Data Repository.

between 2000 and 2013; the median age was 39. The percentage of those under 15 years of age was 15%, while those aged over 60 made up 17% of the population; the population living in an urban area was 82.24%. The annual GDP growth rate was 3.0%, and the gross national income per capita was 33,440.00 US dollars [10]. Japan's population in 2013 was 125,704,000 and fluctuated during the period between 2000 and 2013; the median age was 46 years [11]. Those under 15 years made up 13% of the population, and those aged over 60 years made up 32%. The total fertility rate per woman was 1.43, and between the observed periods, total fertility rates slowly rose; however, in 2005, the fertility rate was at its lowest, 1.26% [11]. The annual GDP growth rate was 1.6%. The gross national income per capita was 37,630.00 US dollars, and 92.46% of the population lived in urban areas [10].

2) Mortality and morbidity

The population in Japan is 2.5 times larger than that of Korea, but life expectancy has increased more rapidly in Korea than in Japan. Over the last 13 years, life expectancy at birth has increased by six years in Korea and by 2.3 years in Japan. The average life expectancy for both sexes has increased over the last 14 years; in 2013, it was 83.41 years in Japan [11] and 81.94 years in Korea [9]. The healthy life expectancy at birth was 73 years in Korea and 75 years in Japan [12].

Infant and under-five mortality rates are very similar in both countries; they have decreased and reached 3.0 and 4.0 in Korea and 2.1 and 3.0 in Japan, respectively [10,12]. The mortality rate increased over the last 14 years in Japan and reached 10.1 in 2013 [11]. In the same period, the mortality rate in Korea basically did not change and was 5.3 in 2013 [9]. The probability of dying between the ages of 15 and 60 years for both sexes was 62/1,000 in Japan and 66/1,000 in Korea [12].

In both countries, most infectious diseases have been controlled or eliminated. At the same time, reported cases of measles, mumps, pertussis, and rubella in Japan are much higher than in Korea [13]. Immunization coverage among one-year-olds is 99% for diphtheria-tetanus-pertussis (DTP3), polio, measles, hepatitis B (HepB3), and BCG vaccines in Korea [14]. Additionally, immunization coverage for DTP3 and polio in Japan is at the same percentage as Korea [15]; there is no available data regarding immunization for HepB3 in Japan. Other vaccination rates are less in Japan than in Korea, but not less than 90% [13-15].

The two countries have the same rates of tuberculosis case detection: 88% in Japan and 87% in Korea [1,2]. The prevalence and incidence of tuberculosis per 100,000 people is five times higher in Korea than in Japan. However, the tuberculosis treatment-success rate was 81% in Korea and 54% in Japan in 2012 [14,15].

Non-communicable diseases (NCDs) are the number one cause of death and disability in both countries (Fig. 1). NCD risk factors such as obesity, alcohol consumption, and smoking are more prevalent in Korea than in Japan.

2. Healthcare system

1) Health insurance

The health insurance systems in Korea and Japan have adopted a national health insurance system with social insurance schemes; the medical expense remuneration systems also have very similar structures and consist of similar items [16,17]. This type of system is an example of governmental control at the primary level and medical services provided by the private sector, with patients free to choose service providers and with differentiation of the roles and functions of medical institutions [18,19].

At the same time, the health insurance systems have differences; the Korea National Health Insurance Corporation incorporated all insurance funds and organized its management in a unified organization system, which has been in

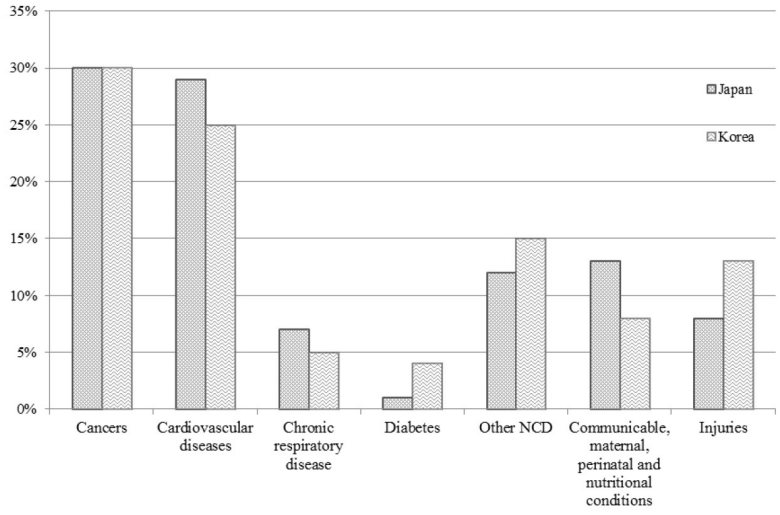

Fig. 1. Proportional mortality (% of total deaths, all ages, both sexes) in Korea and Japan, 2012. Source: World Health Organization – Non-communicable Diseases (NCDs) Country Profiles, 2014.

effect since July 1, 2000 [20]. Japan's health insurance management of health funds are divided and organized by workplaces and regions [21]. This type of management system was better developed than the one in Korea. Additionally, the Korean health insurance system contains mixed medical care benefits and mixed insurance [20]. In Japan, in principle mixed medical care does not cover costs for the latest medical care and technology such as organ transplants (with certain exceptions), patients pay 100% of amount out-of-pocket [21].

The reimbursement system for treatment is slightly different. In this system, an authorized body checks all payment bills. In the case of Korea, it is the Health Insurance Review and Assessment Service (HIRA); in Japan, it is handled by Health Insurance Claims Review & Reimbursement Services [16,18]. The main difference between Korean and Japanese reimbursement systems is that the Korean National Health Insurance Corporation directly disburses funds to medical institutions after receiving verification of medical fee claims from HIRA. All verification procedures and money receipts by medical care institutions occur within 22 days [17]. Unlike Korea, the Japanese reimbursement cost system does not provide money directly from the health insurer to medical care institutions, but through examination and payment agencies. The total period of verification and payment can take up to 51 days [19].

Co-payments in Korea and Japan are calculated in different ways. In Korea's case, the co-payment rate depends on the medical institution level and services provided. It ranges from 5-20% for inpatient services and 30-60% for outpatient services [17]. Payment is made every time the medical institute is visited. Patients pay 20% for inpatient treatment of general diseases; co-payment is 10% for rare diseases (e.g., hemophilia, chronic renal failure, etc.). If patients have serious diseases, such as cancer, cardiovascular and cerebrovascular diseases, tuberculosis, or severe burn injuries, patients only pay 5% of the payment. Co-payment rates of outpatient treatment depend on the level of medical facilities. For clinics and hospitals, it is 30%. In general hospitals, patients pay 45% of service costs, and in higher-level hospitals, co-payment is 60% [17]. Co-payment rates for pharmaceuticals vary between 35 and 40% [17].

Co-payment rates in Japan are basically 30% for public health insurance systems. Payment is made every time medical facilities are visited. Co-payment rates vary by patients' ages and incomes, such as 20% for children below school age, 30% for the high-income elderly over 70 years old earning the same level of income as the working generation, and 10% for most elderly people over 75 years old [16]. The statutory co-payment rate is 20% for the elderly between 70 and 74 whose income levels are not as high [21]. However, the co-payment rate for those people is temporarily at 10% due to a budgetary measure [21].

In order to analyze and improve healthcare services, both countries established different types of research institutes and associations. All organizations can be divided into three groups depending on the interest they cover: insured, government, and insurers and hospitals [16,17].

In the case of Japan, the Japan Council for Quality Health Care (JCQHC) was established as the neutral and scientific third-party organization in July 1995 to improve Japanese health and welfare [21]. JCQHC's main goal is enterprise quality improvement and reliability of the healthcare system.

For quality assurance provision, the Korean Government established the Korea Institute for Healthcare Accreditation (KOIHA) in November 2010, designated and entrusted by the Ministry of Health and Welfare [22]. KOIHA's main roles improve patient safety and provide information on hospitals doing their best to provide safer care. The KOIHA accreditation standards were developed specifically for Korean hospitals and cover four main areas: the basic value system, patient care system, administrative management system, and performance management system [22].

2) Long-term care insurance

Long-term care insurance (LTCI) in Japan was implemented in 2000 to offer institutional or home services for people aged 65 or over (category I) and some people aged 40-64 with specific disabilities (category II) [23]. Japan's LTCI system is administered by municipal governments (there are three categories of municipal governments: cities, towns, and villages, depending on population size) and insures all residents aged 40 years and older [21].

The long-term program in Korea was implemented in 2008 in order to support physical activities and household

chores for the elderly who have difficulties in their daily life and provide services to those aged 65 or over [17,20]. In contrast with Japan's system, the long-term care insurance system is administrated by national health insurance services.

Long-term care in Korea and Japan is very similar; particularly, in both countries patients pay a co-payment, which is directed to prevent overutilization of services. Also, both Japan and Korea use evaluation criteria to determine who should receive benefits [20,21]. As for their differences, Japan's municipalities act as an insurance pool fund and reimburse money to service providers. It is important to note that benefits for long-term care are provided by the local welfare department [24]. In Korea, National Health Insurance Services is the main insurer that collects funds and provides benefits for long-term care [17]. One of the differences between the two systems of long-term care is that Japan's long-term care provides services to people with specific diseases between the ages of 40 and 64 years [24]. In Korea, long-term service is granted only for the population aged 65 years and over [20].

3) Healthcare human resources

Provision of human resources also defines the quality of provided services. The WHO defined human resources as one of the three principal health systems' inputs. The rate of medical doctors per 1,000 people was 2.1 in Korea [2] and 2.4 in Japan [1]; these rates are below the average rate of the Organisation for Economic Cooperation and Development (OECD) countries, which was 3.1 in 2014 [25]. If we consider oriental medical doctors in Korea as medical specialists, the rates of medical doctors in Korea are the same as in Japan.

Fig. 2 is a comparative chart of healthcare human resources per 1,000 people in Korea, Japan, and the OECD average. The indices of doctors, dentists, and nurses per 1,000 people in Korea are significantly lower than the OECD average. We observe the same situation in Japan in the cases of medical doctors and nurses. On the other hand, the rate of pharmacists is higher in both countries compared to the OECD average.

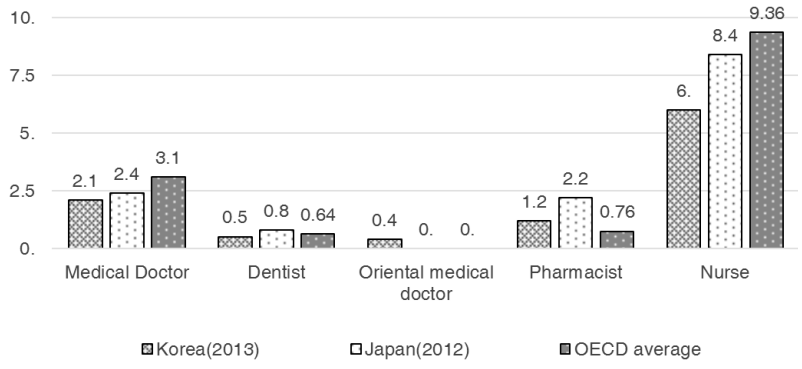

Fig. 2. Number of healthcare human resources per 1,000 people in Korea and Japan, 2013. Source: *2013 Health and Welfare Whitebook, 2014, Korea Ministry of Health and Welfare, **2013 Medical Facilities (trend) Survey and the Hospital Report, 2014, the Ministry of Health, Labor and Welfare of the Japan.

Table 2. Medical facilities and number of beds in Korea and Japan

	Number of Medical Facilities		Number of beds	
	Korea (2013)*	Japan (2013)**	Korea (2013)*	Japan (2013)**
Hospitals	3,047	8,540	537,648	1,573,772
Clinics	29,054	100,528	80,506	121,342
Dental clinics and hospitals	15,779	68,701	399	96
Oriental medical hospitals	203	-	14,534	-
Oriental medical clinics	12,816	-		
Total	60,899	177,769	633,087	1,695,210

Source: *2013 Health and Welfare Whitebook, 2014, Korea Ministry of Health and Welfare.
**2013 Medical Facilities (trend) Survey and the Hospital Report, 2014, the Ministry of Health, Labor and Welfare of the Japan [27].

4) Number of medical facilities

Medical facilities are another health system resource influencing the quality of services. Table 2 shows the provision of medical facilities. The number of medical facilities in Japan is many times greater than that in Korea. Japan has 8,450 hospitals [26] versus 3,047 hospitals in Korea [2], more than two times the number. Moreover, the number of clinics in Japan is more than three times the number of clinics in Korea (100,528 versus 29,054, respectively). Dental hospitals are also more prevalent in Japan than in Korea. There were 15,779 facilities in Korea in 2013 [2] and 68,701 hospitals in the same period in Japan [26]. It is important to note that Korea also has medical facilities of oriental medicine, including 203 oriental hospitals and 12,816 oriental clinics.

5) Healthcare expenditure

The total health expenditure as a percentage of GDP has steadily risen in both countries and was 7.2% in Korea and 10.3% in Japan in 2013. This increased by 2.8% in Korea and 2.7% in Japan from 2000-2013. Japan spends a higher percentage of available resources on healthcare than Korea. In Japan, 82% of the total health expenditure was the public expenditure, while in Korea, this figure was 53% in 2013 [27].

Comparing the health expenditures of both countries, the total expenditure in South Korea was 93,573 million dollars in 2013 [27]. For the same period, it was 504,811 million US dollars in Japan. Korean public expenditure was 49,952 million US dollars and private expenditure on health was 43,621 million US dollars in 2013 [27]. Japan's public expenditure on health was 414,301 million US dollars versus 90,510 million US dollars for its private expenditure in the same year [28]. In comparison of these absolute figures to Japan, Korea's public expenditure was approximately five times less and its private expenditure was two times less.

Fig. 3 presents the cooperative distribution of health expenditures. The out-of-pocket expenses were 37% of the total expenditures in South Korea, equivalent to about 2.5 times more than in Japan (14%) [1,2]. The burden per householder was higher in Korea than in Japan.

6) Lifestyle

The lifestyle of the populations of Korea and Japan do not differ much, which can be contributed to historical and cultural conditions. Dietary behavior is one of the important factors of a healthy lifestyle. For comparison, Japanese obese adult men made up around 3.8% of the population versus 3.4% of adult women [1]. In Korea, these percentages were 4.4% for males and 4.7% for females [2], which might be associated with dietary habits, as most Japanese people prefer to eat a lot of fish. However, Japanese dietary behavior has changed radically during the last few decades to include consuming more meat products, which can be attributed to increasing prices for seafood. The Korean diet includes vegetable dishes with a lot of variety [28]. A larger obese population in Korea in recent years is the result of an increased intake of 'fast-food,' particularly among children and adolescents [29].

Another factor influencing the obesity rate is physical activity. The populations of Korea and Japan are likely to have an active lifestyle; most of the population walks in their everyday life. Also, a big contributor to this healthy lifestyle was the development and implementation of the WHO Healthy City approach for developing healthy habits, such as exercising and outdoor activity, through the implementation of health promotion programs for the younger, working, and elderly populations [30,31]. The status of the elderly population is similar in both countries. People who follow a healthy lifestyle have good mental and physical functioning and are highly active, regularly participating in many activities [32].

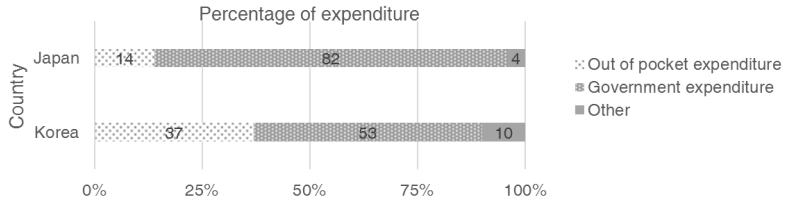

Fig. 3. Health expenditure in Korea and Japan (2013). Source: Global Health Expenditure Database 2015, http://who.int/health-accounts/en/.

At the same time, alcohol consumption among adults over 15 years is also important to examine. The annual consumption of pure alcohol in liters per person was 9.1 liters in Korea, while that figure was 7.2 liters per person in Japan [33]. Several studies showed that the younger Korean population was most likely consuming alcohol to maintain interpersonal relationships. However, the probability of being a heavy drinker in Japan was higher in health responsibility [33].

When it came to smoking, Japanese men tended to smoke less than Korean men, 36.3% and 51.7%, respectively [33]. It is important to note that there were higher percentages of smoking women in Japan than in Korea, 11.3% versus 4.4% [33].

3. Healthcare system score

To summarize the comparative evaluation of health system development and performance in Korea and Japan, a scoring system was developed. The scoring was analyzed based on nine indicators divided into three groups: healthy lives, health care resources, and efficiency. In addition, for a more comparable evaluation, the healthcare system of the United States, categorized as a pluralistic system with mixed insurance, financing, and services provision, was considered. The results of the comparison of the health systems' performances in the three countries are shown in Table 3.

Table 3. Comparative scores of the health systems

Area of performance	Score		
	Korea	Japan	USA
Healthy lives*	85.14	100.00	66.48
Healthcare resources**	65.05	76.38	52.62
Efficiency***	98.94	85.71	71.51
Overall score**	**83.04**	**87.36**	**63.54**

Note: *calculated average of four indicators: life expectancy at birth, infant mortality rate, health-adjusted life expectancy, and under-5 mortality rate.
**calculated average of threeindicators: medical staff, number of beds per 1,000 people, and medical technology per 1 million people.
***calculated using Bloomberg's rank methodology: efficiency = 60% * life expectancy / highest life expectancy + 30% * lowest per capita cost of health care / per capita cost of health care + 10% * lowest absolute per capita cost of health care / absolute per capita cost of health.
****Overall score was calculated as the average of the above three indicators.

Healthy lives include four indicators and describe the population health status: life expectancy at birth, infant mortality rate, health-adjusted life expectancy, and under-five mortality rate. These indicators were used in our evaluation as the WHO standard measures to summarize health and the development and well-being of the population [7].

Health care resources included medical staff, number of beds per 1,000 people, and medical technology per one million. These account for the physical terms and capacity building of health systems in each country.

Japan's overall health score was 87.36 and 4.32 points higher than Korea's (83.04) because Japan has the highest life expectancy globally and a lower infant mortality rate than Korea. In addition, Japan has more health resources than Korea, and medical technology use is more prevalent in Japan than in Korea. However, efficiency is higher in Korea, which is related to the fact that Korea's health expenditure is less than that of Japan, but there is no significant difference in outcome indicators.

DISCUSSION

Korea's increasing life expectancy and decreasing infant and under-five mortality rates during the last 14 years with relatively low healthcare costs is one example of its success. However, lower fertility rates may lead to a decrease in the working population in the next 20-30 years. In combination with the aging population, this will increase the economic burdens of governments and households.

The health insurance systems in Japan and Korea are similar, and both countries have established universal coverage. The health insurance scheme was presented in Japan in 1922 and took 34 years to reach universal coverage [35]; in Korea's case, it took 26 years from 1963 until 1989. One big difference in the health insurance of the two countries is the fragmentation of insurance providers and management organizations in Japan [36], as opposed to the integrated system in Korea [37].

The long-term care law, which influences the number of long-term facilities and the ability to provide sustained services, is stronger in Japan than in Korea. The same goes for

national health insurance; Japanese long-term care insurance management is organized by municipalities instead of the Korean integrated system. One of the strong points of both the LTCI systems is co-payment, which requires the patient to pay out-of-pocket. This co-payment is a tool to prevent the overutilization of services [24]. Also, LTCI in Korea provides benefits to the aged population without covering the population with chronic or mental disabilities less than 65 years old [20]. This could emerge as a problem soon because of the growth of mental and chronic disease among the middle-aged population.

Another determinant of the healthcare system is resource management. In both countries, rates of beds per 1,000 people are very high compared with the OECD average. On the other hand, the numbers of medical doctors and nurses per 1,000 people are less than the OECD average [37,38]. As aging populations rise steadily in Japan and more rapidly in Korea, the problem of ensuring physicians and nurses will become more severe. As opposed to Japan, the Korean health system recognizes oriental and western medical doctors separately but equally [14]. Oriental medical doctors play important roles in providing healthcare services to patients. In both countries, the proportion of pharmacists is higher than the OECD average.

Korea had a slightly higher percentage of obese population compared to Japan. The elderly population was found to practice a healthy lifestyle in both countries [32]. A higher consumption of alcohol was recorded in core, which could be attributed to people establishing respectable relationships [34].

The health insurance system largely determines the health expenditure. In both countries, the governments, which are funded by social health insurance contributions, finance most health expenditures [14,15]. However, out-of-pocket expenditures remain very high in Korea, around 37% (versus 14% in Japan), imposing a great burden on patients [36]. Nevertheless, high out-of-pocket expenditures decrease overutilization of services, as mentioned above. Therefore, an increase in out-of-pocket expenditures in Japan, but a reduction in Korea, should be considered. Finally, aging populations will increase the burden of health expenditures in the future, requiring further improvement of the health financing system [39].

Performance assessments of healthcare systems have developed mainly in recent years. The methodology presented in this paper includes both input and output indicators of health systems and other methodologies such as Bloomberg's ranking. Obtained results suggest that the health system performance of Japan is the best, followed by the Korean health system. This result is similar to Bloomberg's rankings in 2014 [7].

In this study, the authors compared the Korean and Japanese health systems. The existing system of providing healthcare services has both strengths and weaknesses. There are some points that would be good to apply in Korea from Japan; Japan should also take into account and consider adapting some reforms implemented in Korea.

The provision of medical doctors and nurses was lower than the OECD average in both countries. Korea had 2.1 doctors per 1,000 people, which was 1.0 point less than the OECD average. At the same time, this index in Japan was 2.4. The rate of nurses was also less in Korea (6 per 1,000 people) than in Japan (8.4) and the OECD average (9.36), indicating a decline in the quality of services.

The distinctive features of the Korean health system were the existence of oriental medical facilities and very high numbers of long-term care facilities. At the same time, Japan had a high number of dental clinics and hospitals, 4.4 points higher than in Korea. This requires reconsidering the existing policy on the operation of long-term care in Korea and the decrease in overlapping facilities providing dental care in Japan.

The overall expenditure on health in Japan is many times more than that in Korea, but out-of-pocket expenditures as a proportion of the total expenditure are much higher in Korea than in Japan. This imposes a great burden on patients and their households.

Both countries have similar challenges in health system development, as aging populations, decreasing fertility rates, increasing non-communicable, mental, and chronic diseases, and other problems will be burdens for future generations. However, health expenditures will grow in the future, as we can observe from current trends. In combination with rising aging populations, financial burdens of future generations will multiply. The process of improving the financial system for more effective financial expenditures must start now.

Health system reform should be focused on subsequent problems, based on 21st century paradigms of health, including the new public health.

ACKNOWLEDGEMENTS

We would like to gratefully acknowledge a National Research Foundation of Korea grant from the Korean Government (NRF-2013S1A01055336) for the support of this study.

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