Japan – medical and psychological security approach under Covid-19 pandemic

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Abstract

Health is not only a public good, but also a means of prosperity, and a strategically important goal in the policy of any state. In this article we discuss how Japan has dealt with epidemics over time, the evolution of the Japanese healthcare system especially related to patient safety and life expectancy, and the current confrontation with the Covid-19 pandemic, including the Covid-19 vaccination in a difficult and controversial global context.

Japan sparked imagination and curiosity long ago. It is interesting to follow the specific cultural approach, on the one hand tributary to extreme traditionalism, and on the other hand to modernization and technologization at the highest level visible especially in urban spaces applied in many Japanese fields of activity, including the health system.

Keywords: Japan; health; pandemic; Sars-cov 2; Covid 19; health safety; WHO

1. Introduction

Nicolae Cajal, the founder of the Romanian school of virology, said in 1990:

"Infectious diseases and virology as a science, mainly, have shed light on a number of unknowns related to the birth, structure and becoming of living matter on our planet, perhaps even in the universe" (Samasca, 2012).

On a global level, the evolution of health systems begins with the setting up of the World Health Organization (WHO) on April 7, 1948, based in Geneva, which emerged with the aim of responding through concrete action to humanity's great problems. It now has 194 member countries, including Cook Island and Niue. In the post-Cold War era, the pandemic emergence and re-emergence of infectious diseases was a challenge to global security.

Japan has no border with any other country. This has the geographical advantage of helping people to prevent severe infectious diseases from entering the country or spreading to other countries. However, the modernization of transport has allowed infectious diseases to cross borders more easily, causing the COVID-19 pandemic.

The third Tokyo Global Ministerial Summit on Patient Safety was held in April 2018, so pre-dating and anticipating the current situation. In 2016 and 2017, the UK and German governments hosted the first two Summits respectively. In 2018, the Japanese government held its third Summit in Tokyo as the first Asian host country. There were about 500 participants, including delegations from 44 countries with 18 ministers/vice ministers, delegates from international organizations, patient safety experts and other stakeholders. At the Summit, Mr. Katsunobu Kato, Minister of Health, Labour and Welfare of Japan, said " I stressed my sincere hope that universal

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health coverage and patient safety will be promoted hand-in-hand and in a holistic manner, leading to coherent and effective policy measures, tailored to the circumstances of each country" (Katsunobu Kato, 2018). At the end of the summit, the "Tokyo Declaration" was endorsed by the majority of participating countries.

If we look at Tokyo Declaration on Patient Safety we can highlight:

"We reaffirm our commitment to improving patient safety in order to reduce all avoidable harm and the risk of harm to all patients and people during their interactions with health care systems, whoever they are, wherever they live, by 2030 ..." (Third Global Ministerial Summit on Patient Safety, 2018). We hope that our experiences in Japan can contribute in other countries to the global movement for patient safety and then ultimately universal health coverage (Taneda, 2019).

2. Methodology

2.1. The evolution of Japanese health care. Origins and topicality

The most interesting features of Japanese medicine are the extent to which it was derived and the speed with which, after a slow start, it became Westernized and scientific. In early times, illness was regarded as sent by the gods or produced by the influence of evil spirits. Treatment and prevention were largely based on religious practices such as prayers, incantations and exorcism; at a later date drugs and bloodletting were also used.

From 608 CE, when young Japanese doctors were sent to China for a long period of study, the Chinese influence on Japanese medicine was paramount. In 982, Tamba Yasuyori finished the 30-volume *Ishinhō*, the oldest Japanese medical work that crossed through time. This work classifies diseases according to the organs or parts affected and discusses their treatment. It is based entirely on older Chinese medical works, with the concept of yin and yang underpinning the theory of disease causation (Yasuyuki, 2002).

Before introducing the European medicine by Jesuit missionaries in the 16th century, Menase Dōsan wrote a significant manual of medical practice named *Keitekishū* (1574) and later on Nagata Tokuhun argue about the psychological link and cooperation between the patient and the physician beyond the stereotypes of the treatment (books: *I-no-ben* (1585) and *Baika mujinzo* (1611)). A translation to medical books of European medicine was made only in the 18th century. In 1857, a group of Dutch-trained Japanese physicians founded a medical school in Edo (later Tokyo), which is considered the beginning of the Empire's medical faculty, the Imperial University of Tokyo.

The Japanese medical school has developed and became known at least for discovery of the plague bacillus in 1894, the discovery of a dysentery bacillus in 1897, the isolation of adrenaline (epinephrine) in crystalline form in 1901.

Japan was also influenced by various epidemics that affected the population: 735-737 the Japanese smallpox epidemic (天平の疫病大流行, *Tenpyō nu ekibyō dairyūkō*) killed 1/3 from the population with enormous repercussions in terms of health security, human psychology, religion.

The health care system in Japan has its modern beginnings in the "Health Insurance Law" of 1922, which was mainly for miners and factory workers.

A new health insurance law was introduced in 1961, under which all Japanese citizens and foreign residents were entitled to have health insurance in one of six schemes. The 2 main schemes were the one for employees of private firms- 健康保険 (*kenkō-hoken*) and the one for students, housewives, self-employed etc. - 国民健康保険 (*kokumin-kenkō-hoken*). There were also special schemes for sailors, government officials, private school employees, etc.

Since 1983, all people over the age of 70 enter a special health insurance scheme.

Currently it is compulsory for everyone living in Japan to be a member of one scheme or another. The patient usually pays 30% of the cost of treatment, and the rest is paid by the insurance.

2.2. Evolution and specificity of Japan's economy and public health policies for communicable diseases in the pre-Covid 19 global context

Less than 30 years after the great post-World War II crisis, the Japanese economy is experiencing a surprising growth, becoming the world's largest shipbuilder by the end of the 1960s, and becoming the United States' strongest competitor in the production of automobiles, synthetic fibers and plastics. No other country has seen such a rapid and beneficial boom, a quality that has been preserved to this day, especially in the medical field.

One of the most important pillars of the Japanese economy is considered to be paternalism - a "strategy of development under state monopoly capitalism", particularly aimed at the care of employers or boards of directors towards employees (Murgescu, 2020). In other words, while Romania was going through a period of abusive dispossession carried out by the communist state, Japan was implementing measures to improve workers' welfare as well as living standards and working conditions. One of the reasons for the success of this uniquely Japanese approach is surely the cultural element of the group, with society perpetuating this value from generation to generation. So, it was not social status that dictated each citizen's place, nor membership of a party, but rather membership of a group: be it a university, an estate or an enterprise. Thus, contrary to Western societies, even the employer is part of the same group as the employees, forming together a "distinct corporate group" (Murgescu, 2020). This fact explains why among the measures adopted by the Japanese healthcare system, one includes the encouragement of teamwork in hospital units (Andreoli 2010; Blegen, 2010; Weaver, 2010).

What differentiates the internal structure of a Japanese company from those in the West is the "vertical structure" that gives the company a one-sided character, applicable to all national institutions. Its peculiarity is that a worker will acquire his/her rank among the other members of the group according to the length of time spent or worked together and according to the seniority system of pay and advancement. Thus, the group is interconnected by the awareness that all are working and stay together for a common purpose knowing that two people cannot be equal but are in a vertical relationship of subordination. This is where the Japanese concept that no one can serve two masters at the same time originates from - which can be correlated with the Japanese devotion to the groups they are part of (Murgescu, 2020) and their tendency to work effectively as a team, as explained above.

It is also worth mentioning that the main characteristic of Japanese economic society is represented by groups - unlike the Western concept, where individualism is the predominant one. As the structure of a Japanese company is similar to that of a traditional family, the leader/supervisor-employee relationship is similar to that between father and child. The particularity of this similarity is that employees will relate to the same value system, maintain as much as possible the family 'unity' and share emotional needs in common. The disadvantage is that this type of community is very prone to internalize a large number of internal tensions, but comes in handy in moments of adjustment to the world outside the group (Murgescu, 2020).

The United Nations Security Council, in 2000, holds a special session dedicated to HIV infection and the challenge this problem poses to international security. It was the first time that a public health issue was put on the agenda of the highest international forum. The global dimensions of health are driven by a number of factors, among which the globalization of epidemics, one of the challenges of the 21st century.

The danger posed by this virus to humans has highlighted the need for concerted global action in influenza surveillance programs, namely:

- early detection of outbreaks and definition of the etiological agent involved;
- estimating the impact of influenza on morbidity and mortality levels;
- definition of population groups exposed and at risk of complications;
- updating the influenza vaccine

2.3. Japanese medical system

Japan's medical system addresses one of the most effective ways of treating patients, so quality and safety issues in healthcare continue to receive increasing attention. What seems to be crucial in addressing these is the care given to patients, the key to which is the patient safety culture (PSC). A positive PSC is seen as one that guides the discretionary behaviours of healthcare professionals towards making patient safety a priority.

PSC is defined as the product of individual and group values, attitudes, perceptions, competencies, and behaviour patterns that determine an organization's health and safety management commitment, style, and competence (Fujita, 2013).

If an international comparison of PSC is aimed at - for example, comparing Romania with Japan, different values should be considered, as PSC could be affected by factors such as race, religion, health system and other similar variables. The characteristics of PSC in countries with different values have not been sufficiently explored so far, and their study can be a very important step for the overall understanding of PSC. Once a more detailed analysis of global PSC is carried out, patient care system can be improved (Fujita, 2013).

Regarding patients' responses on the safety, they feel in hospitals in Japan, questionnaires administered in hospitals are conducted according to the standards of the Ethical Guidelines for Epidemiological Research, developed by the Japanese government. According to it, responses are anonymous and self-administered, without any third-party intervention and without imposing any pressure on patients (Fujita, 2013). In East Asian societies, people may be more inclined to express ambiguous opinions, given their fear that clear or extreme views may occasionally produce adverse effects on the harmony of the group to which they belong, which may even lead to a decrease in group solidarity (Chiang, 2010; Hu, 2011).

Insufficient or incomplete reporting of adverse events in healthcare settings is a common problem worldwide (Fujita, 2013; Weiner, 2008). Several studies have shown that healthcare workers often do not report adverse events for fear of the reactions of superiors: either to avoid being blamed or to avoid being considered incompetent. A culture of non-punitive error response is needed in healthcare settings (Kim, 2007; Weiner, 2008; Chiang, 2010).

However, one of the factors that has contributed to the evolution and prosperity of the Japanese healthcare system is the propensity of healthcare workers to report potentially harmful events or events in which patients were on the verge of death, despite Japan being an East Asian country. It is likely that Japanese healthcare workers have become familiar with event reporting systems, as it has been nearly two decades since all Japanese hospitals established a legal internal event reporting system in 2002, and employees have a higher response rate than those in neighboring countries and even the US (Fujita, 2013).

In 2015, the Medical Accident Investigation and Support Centre (ISC) was established and then operated by Japan Medical Safety Research Organization (Medsafe Japan). This new system aims to prevent recurrences of serious events that lead to unexpected patient deaths at all medical institutions, including small clinics. The ultimate "medical accident" decision is made by a manager of a concerned medical institution under the concept of "Professional Autonomy and Self-Regulation". The "Hospital Investigation" reports sent to the ISC count more than 900 cases in total since February 5, 2019. Based on the reports, ISC has published booklets to facilitate the prevention of medical accidents, including "Central venous catheterization", "Acute pulmonary thromboembolism" and "Anaphylaxis caused by injections".

In 2018, the MHLW initiated the new financial incentive to facilitate mutual learning and support between local hospitals.

Hospitals may receive better reimbursement if they could establish local networks to improve patient safety. Hospitals are required to hold regular meetings and site visits to learn patient safety activities from each other.

Due to several serious accidents at teaching hospitals, MHLW organized the working group committee for improving patient safety management at advanced treatment hospitals such as teaching hospitals in 2015. Since 2016, the drastic reform of patient safety management proposed by the committee was implemented in case of advanced treatments in hospitals.

2.4. SARSCoV-2 and Covid-19 in Japan

The first case of SARS-CoV-2 infection in Japan was confirmed on January 16, 2020, in Kanagawa, on the central coast of Japan's largest island, Honshu, the person in question having returned from Wuhan, China. In addition, in early February, passengers on the cruise ship Diamond Princess were quarantined after returning to Yokohama, the capital of Kanagawa, half an hour south of Tokyo, because a passenger who disembarked in Hong Kong was confirmed positive for SARS-CoV-2. By the end of February, several cases of COVID-19 had been identified nationwide. At the end of February, in order to prevent and mitigate COVID-19, the Japanese government decided to temporarily close all Japanese kindergartens, primary schools, middle schools and high schools.

COVID-19 spreads through the formation of clusters, and Japan has developed a response based on how clusters spread, consisting of prospective and retrospective tracking to identify common sources of infection. A basic three-directional strategy has been implemented, which consists of: 1. early detection and early response in combating clusters early; 2. early patient diagnosis, providing intensive therapy and a system of medical services for very sick patients; and 3. citizens' behaviour modification. The latter focused on avoiding: 1. enclosed spaces with poor ventilation; 2. crowded places; and 3. close human-to-human contact, such as short-distance conversations. This strategy is believed to have helped control the spread of the virus, as the total number of COVID-19 cases reported in Japan by the Ministry of Health, Labour and Welfare was 97,074, with one of the lowest per capita death rates in SARS-CoV-2 (13.56 deaths/million population) (Amengual, 2021).

There is not yet enough information to interpret the low mortality rate in Japan during the COVID-19 pandemic, but some possible explanations have been suggested. The Japanese population may have had relative immunity conferred by the mandatory Bacilli Calmette - Guérin (BCG) vaccine against tuberculosis or may have been exposed to a milder strain of the virus before the spread of a more virulent strain. The possibility of reduced expression of angiotensin-converting enzyme receptor 2 (ACE2), the SARS-CoV-2 cell entry receptor, in the respiratory tract has also been noted. Other possible explanations include Japanese cultural traits characterized by social distance or receptivity in the use of protective masks (Iwasaki, 2020).

Thus, Japan has a milder COVID-19 phenotype than other countries, even though the Japanese population is older, has comorbidities, and the restrictive measures applied in the country have not been as strict as elsewhere. The number of diagnostic tests performed in Japan is smaller compared to other populations and focused on clusters, so the total number of infections in Japan cannot be known. It is possible that factors related to lower susceptibility to pulmonary manifestations of SARS-CoV-2 may have favoured a lower mortality rate in Japan (Amengual, 2021).

2.5. Covid-19 virus vaccine

In a study carried out by Yoda and Katsuyama (2021) of a Japanese sample (N = 1100) with a mean age of 44.8 years, 723 (65.7%) of participants reported their willingness to be vaccinated against Covid-19 if a vaccine was available to them. Another 242 (22.0%) of participants said they were not sure and 135 (12.3%) said they would not want to be vaccinated. Almost all participants believe that vaccination is effective and that it is a preventive tool both for themselves (N = 625, 86.4%) and for people around them (N = 437, 60.4%). However, about a quarter of participants (N = 154, 21.3%) felt that after vaccination they should not engage in further preventive measures such as social distancing or use of protective masks. Nearly two-thirds said

they were concerned about potential side effects of a vaccine, although this concern was more common among women than men. The same trend was shown for their perception of the safety of the vaccination itself. Nearly a fifth of participants lack confidence in the effectiveness of the vaccine.

Comparing with previous research in European countries, France and Germany had similar results in terms of citizens' willingness to be vaccinated (60-70%), while the UK and Denmark had a much higher willingness than those previously mentioned (76-80%). The WHO SAGE Working Group categorised the reasons and factors responsible for vaccine hesitancy and refusal by the population as follows: 1. contextual (due to history, socio-cultural, environmental, institutional, economic or political factors); 2. individual and group (personal beliefs and attitudes about prevention or previous experiences with vaccinations); and 3. vaccine or vaccine-specific (concerns about a new vaccine or about how it is administered or delivered; Yoda, 2021, Macdonald, 2015).

Looking at the reasons for vaccine refusal and uncertainty about vaccination, one can see that the main reason for these feelings is fear of side effects. Logistic regression analysis revealed that younger, female, undiagnosed with chronic disease and central area groups felt more concern about side effects. Most vaccines have side effects and, because COVID-19 vaccines are fairly new, additional side effects other than those identified in clinical trials are unknown. This fear is not understandable and widespread. It is therefore of utmost importance to ensure transparency of the information provided about COVID-19 vaccines regarding not only their efficacy but also their side effects. According to the authors, the foundation of vaccine acceptance is public trust, namely trust in vaccines and vaccine manufacturers, the medical profession and responsible political authorities (Yoda, 2021).

Since the middle of the last century, Japan has shown tremendous strength in recovering from its losses, which already suggests the country's capacity for rapid progress. Surprisingly, Japan has been able to move forward on many fronts, not just recovering from the war crisis. Today, it is recognised above all for its ability to cope with times and situations of crisis, such as that caused by the current pandemic. One of the most important factors in both the prevention and treatment of Covid-19 among the Japanese population is the cluster culture, where communities act in an altruistic manner, which has also allowed the testing and administration of treatments in clusters. Furthermore, patients who responded to surveys about the level of safety they feel in the hospital reported high levels of satisfaction, and the medical staff seem to be very dedicated to making the mental and physical comfort of patients a priority.

This new virus, which seems to have appeared out of nowhere, is not so new, it seems, because it is merely a mutation of older viruses, the so-called coronaviruses, which have been warning us for tens of thousands of years that we are not alone on this earth. SARS CoV2 is part of the coronavirus family, which contains four genera, namely alphaCoV, betaCoV, deltaCoV and gammaCoV, which have their natural reservoir in different animals, from rodents to bats. Since 1960, several human CoVs have been isolated, mainly alpha and betaCoV. And it has been found that 10% of current human respiratory infections are produced by these coronaviruses.

Unlike the current epidemic, they usually produce common viroses that are confined to the upper respiratory tract. The current epidemic is produced by SARS CoV2, which is a betaCoV and is, as we can see, much more contagious and much more aggressive than the other CoVs. In fact, these coronaviruses have tried to attack our health a couple of times before, such as in 2002 when they caused severe acute respiratory syndrome, the so-called SARS, which also affected many people. The virus that produced SARS, called SARS CoV, came from wild animals. But at some point, it mutated and began to spread to humans and then from human to human. And this happened in China's Guangdong province. From there, SARS CoV spread very quickly to about 26 countries, from Vietnam to Canada, and it seemed to have an even higher mortality than SARS CoV2 does. In 2012, another mutation of a coronavirus emerged, which also produced a severe acute respiratory syndrome, spreading mostly in the Middle East, hence the name MERS CoV. The virus was first identified in Saudi Arabia, from where it quickly spread to Qatar, Jordan, Tunisia, and as far as

France and England. But these outbreaks gradually died out and, just when we were happier, although we already had a measles epidemic and then a flu epidemic, which were causing enough deaths, at the end of last year, SARS CoV2 appeared and spread - or rather, we spread it - with unbelievable speed across the globe that we went into a panic even greater than that for virosis. That is to say, we are now dealing with three very aggressive types of coronavirus that produce severe acute pulmonary syndrome - namely SARS CoV, MERS CoV and SARS CoV2. Some say that SARS CoV2 was produced in laboratories. Others say that the first cases of COVID 19, produced by SARS CoV2, appeared in December 2019 in a livestock market in Wuhan, which is a city of more than 11 million people in China and is therefore a very crowded area.

3. Results

The evolution of this pandemic leads us to conclude that it has found us completely uncovered, both medically and socially. But if we could not do much in case of chronic diseases either, because we could not cure them and that is why they are constantly on the increase, the situation is even more difficult in the case of COVID 19, because COVID 19 is a very contagious disease, which evolves acutely, produces many very serious complications and therefore overloads the medical apparatus, which is sized to the slower demands of chronic diseases, which also produce their own emergencies. This is why many authors argue that those who will escape this challenge will have to completely rethink both medicine and the society in which we live. Medicine has focused too much on the hospital. By ignoring prevention, it waited too long for people to fall ill before admitting them to hospital. But while this was somewhat possible in chronic diseases, which progressed very slowly, in the case of COVID 19, which progresses very quickly, it is no longer possible, given the extremely large number of patients. This is why medicine had to come out to society a long time ago.

But neither does SARS CoV2 always cause the disease. But even if it does, the virus has to be carried from human to human. The patient's behaviour also plays a big role, this is equally true for SARS CoV2 infection. Because the virus does not get to a contact alone. It is spread by a sick human. Then it is taken over by a healthy human, who will be able to pass it on to others. And the more crowding, the more agitation, and the closer the contact between people, the faster the epidemic will develop, which is what happened with SARS CoV2. And it is precisely the avoidance of contact that we are fighting to combat the epidemic that has taken hold. Because modern man is a restless man. There is a reason why we talk about the agitation and inattention syndrome in children. But it is also present in adults who are constantly on the move. Bureaucracy, harassment, the modern family, which is often spread across several cities and even several countries, and his dependence on many other factors force him to be constantly on the move. Nor is tourism, which should not even be obligatory, any less. Contemporary man likes to travel for fun. His entertainment is usually very hectic, in very crowded and very large communities.

All this shows that not only the virus, but also the external environment and our lifestyle can play a very important role in the emergence and evolution of epidemics.

Japan ranks 18th among OECD member countries for cheap healthcare and ranked first for its high level of health attainment and healthy life expectancy. Japan has one of the best health systems in the world in terms of availability and cost. Many researchers attribute the success of its healthcare system to the balance between supply and demand and the control of medical costs through the universal health insurance system. However, Japan's super-ageing population puts a lot of pressure on the sustainability of its healthcare system. Although the Japanese health system has the advantages of medical availability, it cannot meet the needs of a super-aged society.

Previous studies suggest that life expectancy is influenced by medical resources such as hospital bed capacity, the health workforce and healthcare spending. Medical resources have had short- and long-term effects on the health studied in terms of

health output (e.g. number of doctors) or health outcomes (e.g. life expectancy and mortality rates).

Ultimately, good overall population health is essential for a productive and developed society. Health resources, including the number of beds and the size of the workforce, is one of the most important factors influencing health status. And the Japanese health system is the best organized in the world.

4. Discussions

The successful management of Covid-19 pandemic in Japan consists in several security strategies both of the people's psychological mentality and also in Government strategies. The mask-wearing habit in Japanese population was long before the coronavirus pandemic struck. It became first a habit after the Spanish flu pandemic of 1918 when the population realize the necessity to protect themselves and the others (as prof. Makoto Watanabe stated for Deutsche Welle). Also, the mask was used to protect themselves from allergies caused by numerous trees planted to reconstruct Japan after World War II. Nowadays there can be identified at least two positive psychological reasons for wearing the mask: high perception of public norms, feeling relief from anxiety. More-over the missing approach between people, given for example by hand-shaking or kiss cheeks to greet friends or family in Western population, was always a habit in Japan. They keep distance one from another and they have cultural deep roots regarding the cleanness, washing hands in the entire society.

From the scientist and Government point of view, they early identify the spread of the virus via air (aerosol) and adopted a highly specific cluster-based approach aimed at reducing the incidence of high-risk settings where the virus can spread more easily.

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