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Legacy of Research in Japanese Gerontology

In recent decades, the elder care nursing initiative has flourished globally due to an aging population. Out of all the countries with such a growing silver haired class, Japan has led the way in old age. This has necessitated new fields of academia to open up in order to answer newly created questions. Different mediums of research have played a major part in achieving a better overall community environment for promoting nursing care. These pieces of research are governmental run, private institutions, international studies, or personal inquiries, each contributing to the overall nursing care narrative in their own unique ways. New technologies and outlets that allow communities to respond to research have also flourished in the last decade. It is the cooperation between these different forms of studies that have positively shaped the nursing care situation as it is today in Japan, while also leading to some negative repercussions. Other countries need to look to Japan as an example of what may come in the next years as their aged populations increase. The past 30 years has seen the Japanese system of home health and nursing care for elders completely reformed, and this is due to different forms of research, be it governmental, college studies, or global research groups, and their discoveries.

Old Age has increased globally at an alarming rate for over one hundred years, and it is vital for countries that have the largest population of elders, such as Japan, to be the trendsetters in new research, policies, and technologies. These trends must be met in both the governmental and privately funded sectors, or a disparity occurs between the wants and needs of the people.

Extensive gerontological issues, such as increasing the national welfare budget and finding the needed care for elderly patients, burden the whole of Japan. In response, the Japanese government and people have had to adapt to the aging population through multiple means, mainly taxation and workflow changes.

Every year millions of yen are being funneled from other portions of the annual budget to pay for increased welfare costs. In the 1999, the total expenditures of the Japanese Government had Social Security at 19%, while education and was near 8%.¹ Moving ahead to the total expenditures in 2015, the social security rose to 32% of the budget and education dropped to 5.6%.² This is a massive change for 16 years, especially the almost 14% increase of total spending for social security. Very little can be done by the government to lower social security costs, and trends indicate this increase will continue exponentially and eventually overrun most of Japan's budget. First and foremost, an increased need for health care has led to the needed budget expansion, but this is also affected by research and its interpretation.

Every year, many workers are forced to retire early, or take a leave of absence in order to take care of family members. This affects middle aged women in particular.³ People leaving work to care for elders creates a deficit in workers. In order to combat this problem the government has promised to make policy changes. The Health and Welfare Bureau for the Elderly's portion of the Ministry of Health Labour and Welfare's (MHLW) "2016 Service Guide" denotes the 100,000 people who normally leave their jobs each year to take care of a relative will be completely eliminated by 2020.⁴ This is a lofty goal, as the only real change the government has implemented thus far in the early months of 2017, in order to make Nursing

¹ Budget Bureau, *The Budget in Brief* 1999, (Japan, 1999) Ministry of Finance. online, 22-23.

² Budget Bureau, *Highlights of the Budget for FY2015*, (Japan, 2015) Ministry of Finance. online, 5.

³ Margaret Lock, Keeping Pressures off the Japanese Health Care System: *Contribution of Middle-Aged Women* in Containing Health Care Costs in Japan (Univ. Michigan: 1996) 222.

⁴ Ministry of Health, Labour and Welfare, *Service Guide 2016* (Tokyo: Japan, 2016) online, 19-20.

Care jobs more sought after, was a bonus of 10,000 yen added to the salary of all nursing care staff.⁵ No matter how much attention nursing care is given by the government, pursuing a career in the field itself is undesirable due to education requirements, the long hours, and unfair pay.

Solutions need to be discovered to solve the above problems. Taxation cannot continue exponentially as people financially cannot afford this. Nursing cannot survive as a career option when the government does not take necessary steps to make it desirable. To find solutions to these problems, the government and private sectors have stepped up in research.

Governmental and Private Research

Multiple governmental plans have been enacted to alleviate the financial burden on the working generations, such as the Gold Plan (ゴールドプラン) in 1989, its revision the Gold plan 21 in 1999, as well as the Long Term Care Insurance Act (介護保険) in 1999.

In order to understand how the research for these plans is enacted, one must understand the separation of departments and research facilities. The major research on gerontological subject is funded through grants by the Ministry of Health Labour and Welfare (MHLW) and Ministry of Education, Culture, Sports, Science and Technology (MEXT). A number of major gerontological research institutes in Japan are directly funded by these ministries. These include the National Institute of Population and Social Security Research, which focuses mainly on the population and the effects of the decline in birth along with the increased number of elderly⁶. Another is the National Institute of Public Health, which focuses on studies in Child-rearing, Health crisis, and the more instantaneous problems such as radiation leaks and how to stop them,

⁵ Minna no Kaigo, 第239回2018年度、介護職員給料を1万円上乘せ!? And comments (March 2017) online.

⁶ Akira Morita, *Message from the Director General*, National Institute of Population and Social Security Research (Tokyo: Japan, 2014) online.

alert the public to such things, and prevention etc.⁷ For example, the organization tested the safety of childbirth after gamma radiation treatments, and found it to be safe.⁸ These institutes are responsible for data collecting when the government asks for major research.

An example of one such study was the research enacted to enforce the Gold Plan. In the late 1980's hospital beds were being over crowded with long-term elder cases and the government insurance plan at the time paid for their hospital stays. This was not sustainable and the government had to take new action to save money. Beginning in 1989 a large scale survey was created to task every prefecture with creating a new health care plan that would improve their prefecture's number of nursing facilities and beds, along with raising home health care awareness. These prefectures then had to work together to organize care recipients in order to allow those at high care levels to receive greater attention than those at low care levels.⁹ The Gold Plan also promoted in-home nursing care with the creation of new agencies to coordinate the home-care cases.¹⁰ In the following year the Gold Plan went into action; five levels of care were formed and each prefecture had a set goal of nursing care facilities to meet by the ten year mark. However, these changes did not come without cost. After the Gold plan went into action, the Japanese annual budget's social welfare section started rising.¹¹ Only a governmental organization such as the MHWL could organize such a large scale operation. Receiving the study's data took much more effort than most private organization would be able to achieve. The Gold Plan had drawbacks after its implementation and was supplemented by insurance taxation.

⁷ National Institute of Public Health, 概要, (Saitama: Japan) online.

⁸ National Institute of Health Sciences Research Department, ガンマナイフでの治療後に子供と接触してもよいですか. (Japan: 2010) online.

⁹ Pedro Oliveares-Tirado and Nanako Tamiya, *Trends and Factors in Japan's Long-Term Care Insurance System* (Springer: New York London: 2014). 19.

¹⁰ Ibid., 18.

¹¹ Health and Welfare Bureau for the Elderly, *Long-Term Care Insurance System of Japan. Nov. 2016 Edition* (Japan: 2016) online. 15-16.

In 1997 the Long-Term Care Insurance (LTCI) Act was proposed and in 2000 was implemented.¹² This system caused LTCI to be required for every citizen over 40, which would help ease the rising rates of health care insurance. It also allowed the users to choose more of their options when needing home health.¹³ It reworked the Gold Plan's classification of nurse care need levels and added two sections to the original five. These were patients requiring the least amount of aid and became Support Levels 1 and 2, which meant that they only needed care maybe a few times a week and were mostly independent.¹⁴ These new support levels were implemented to influence communities to take care of the lower support levels rather than relying on nursing facilities.¹⁵ There were also major revisions to both plans after a few years, but they did not change the overall structure and only edited how money was distributed, what classes were required for nurses, and added more features for dementia patients.

Just as the Gold Plan had issues with economics so too does this LTCI Act. Overall insurance premiums required by the LTCI are skyrocketing faster than national normal inflation can keep up with. The MHLW November 2016 report makes it clear that in 2000-2002 the average national monthly premium was 2,911 yen where it is now 5,500 yen a month.¹⁶ The reason for this is obvious; more elders are living longer, requiring more funds. However if this increase does not level off soon the future generations will be paying a large lump sum every month for this required insurance. The Japanese government has to focus more of their attention on leveling off the social security by cutting budget from other areas, including the 2.4% drop of funds set aside for science and education, which is the portion that contained these research

¹² Ibid., 4.

¹³ Ibid., 6.

¹⁴ Ibid., 10.

¹⁵ Pedro, *Trends*. 44-48.

¹⁶ Health and Welfare, *Long Term*. 16.

funds. As the funds for such research dwindled, outsourcing to private institutions became more common.

A majority of the large-scale and successful research projects are being done by privatized companies and colleges. Most of these studies themselves are funded in part by the MHLW in special grants if the research in question is what the government is looking for. One example would be Osaka University's lab studying Research on Human Resource Development in International Health¹⁷. While research on the subject of gerontology is being split between the private and governmental sectors; large scale collaboration efforts between the two have been successful.

As the 21st century began, the Japanese MHLW wished to assess the benefits of both the Gold Plan and LTCI, and found they were not being implemented fast enough. The number of nursing care facilities created since the plans start was under half of what was required¹⁸, and results from a private-study by scholars Tsutsui and Muramatsu also found the average nursing home to be severely lacking. In 2005, they (Tsutsui and Muramatsu)¹⁹ sampled 51 of the highest rated nursing facilities. The data was gathered by researchers in a 48 hour observation window amongst over 2,000 professional caregivers. This extensive study took almost a year to complete and netted about 90 weeks of results. This shows the maximum limit of a privately funded study and is really more of an outlier to the norm. Tsutsui and Muramatsu were not researching for Japan itself, but for an international organization. Therefore, the results of this study showed that the Gold Plan and LTCI had to be changed even further to meet international standards. In this instance it was their private study that ended up overhauling the government program.

¹⁷ Osaka University Hospital, *Human Resource Development and Research for Internationalization of Medicine* (Japan 2014) Online.

¹⁸ Pedro, *Trends*. 24-26.

¹⁹ Takako Tsutsui and Naoko Muramatsu, *Care-needs certification in long term care insurance system of Japan* in American Geriatrics Society 53.3 (Wiley 2005) 522-527.

The outlier of massive research by Tsutsui and Muramatsu show just how far a private organization may go, but oftentimes colleges and research facilities achieve less intrusive and cheaper studies that are also useful. These private institutes can further be broken down into two major groups: Japanese groups who need the data for a specific scientific purpose and outsiders (international organizations, political structures looking for guidance etc.) who study the Japanese system for their own merits. The latter could be seen in the earlier study on the Gold Plan and LTCI by Tsutsui and Muramatsu. The former can be seen through Saga University. Saga researchers wished to find out why dementia patients' caretakers were suffering from high burnout rates. This study was introduced because of the high number of cases of dementia and the difficulty that care takers have in dealing with more than one dementia patient at a time, something especially difficult near the university.²⁰ With 2.5 million cases of dementia in 2008, and an increasing number occurring each year the researchers wanted to find more information about the stress of these caretakers. This study was just a small scale study for the benefit of the researchers and the college. It only looked at 121 care givers over 5 months, making it weak due to the small sample size. The research was done in as nonintrusive as possible to avoid more burnout in the form of a voluntary questionnaire. The results are not any less interesting or useful, just less accurate; and if a larger scale sample were pulled from the results would be near the same. In the end, the conclusion of the researchers is that over 65% of care givers deal with high levels of stress and have poor mental health due to their jobs, leading to even higher rates of burnout. Lastly, the research discusses ways in which to fix this problem in order to assist the community. They give ideas such as creating better family support groups for the dementia

²⁰ Kimura Hiromi, *Subjective Well-Being and Burnout among Care Givers for Dementia Patients in Japan* in *Asian Pacific Journal of Disease Management* 4.2 (Japan: 2010) 31-32.

patient so that all reliance is not placed on a sole caregiver.²¹ The secondary goal of this study is to get it published to add to the school's repertoire. Many Japanese colleges leave all of their studies online with open source use for this exact purpose.

Private studies often lead the way in new technologies not common enough for governments to focus on. Technologies and electronics have multiplied in their complexities leading to new studies. These can be more advanced studies that were not practical beforehand, or studies that are based around the specific technology. One private collegiate study was based around a safety observation robot created for home health care use. The goal was to test the usefulness of this robot by the home health care workers who would be its main users. Along with many other private institutions' studies this one was a questionnaire by those that had tested the robot, and the results showed requests for many improvements.²² It is not just technological advancements that bring about new research ideas, but the internet has greatly influenced the global academia.

Research on the Macro and Micro Level

Besides collegiate and governmental works, gerontological research is gathered by international societies; usually disseminated for non-profit means. Oftentimes these studies get published in other mediums, such as scholarly journals. As Japan is one of those prime examples of research with its declining and 'super-aged' populations it is no surprise that other countries would look at to as an example of the future of their own. One such study collection done through the past 20 years by an international research group questions if Japan's recent changes will be implementable into other countries. Titled *Trends and Factors in Japan's Long-Term Care Insurance System* this collection of studies claims the years from approx. 2000-2010 have

²¹ Ibid., 38.

²² Yuya Chiba, *Development of a Safety Observation Robot for Home Health Care* (Hakodate: Japan. 2013) 75-77.

been successful in improving social welfare amongst elderly, but there is room for improvement. It explains the history of the health insurance in Japan and the problems that led to the Gold Plan are repeated here. The overfilled hospitals also led to many medical errors and untimely deaths that could have been otherwise avoided had the workers in the hospitals received the special training needed to take care of these high-care patients.²³ One portion of the study explains how the LTCI expenditures shift as elders get closer to death; with the greatest increase occurring from the costs institutionalization. Unlike other countries, Japan is unique where age does not affect this expenditure increase. The trend is for Japanese to die within the same year major shifts in LTCI expenditures occur. This is attributed to the Gold Plan's tiered care system correctly filtering funds.²⁴ Hopefully other countries will see this as a successful part of the entirety of Japanese health care and make similar changes to their own.

Another international study actually helped the health care system technologically. In this case a study of high home death rates was made by the Geriatrics Gerontology International Society and was published by Wiley Publishing Asia as "*Characteristics of visiting nurse agencies with high home death rates: a prefecture-wide study in Japan*". This study explains in the beginning that high home death is desirable as opposed to nursing facilities.²⁵ The data was collected by a prefecture-wide questionnaire distributed to all the nursing agencies in Ibaraki Prefecture (茨城県) as it contained the lowest home death rate nationwide [a bad thing]. The goal of the study was to understand why Ibaraki had the lowest rate and what could be improved. In this case they used the nonintrusive method of questionnaire. Overall, they found that Visiting Nurse Agencies needed to create a more effective medical charting system to share information

²³ Pedro, *Trends*. 10-15.

²⁴ *Ibid.*, 112-115.

²⁵ Kishigawa Masayo, *Characteristics of Visiting Nurse Agencies with High Home Death Rates in Geriatrics and Gerontology* 15.8 (Japan: 2015) 936-937.

between nurses and outside clinics. This was one of the major problems in this prefecture but it was detrimental to others.²⁶

On the opposite end of the spectrum from the macro international level, is the smallest level of researcher: the individual. The introduction of the internet has been a wonderful way for individuals to do personal research. The best Japanese website for placing one's inquiries about nursing care is on Minna no kaigo (みんなの介護). This site serves dually as one dedicated to helping elders find and compare nursing care facilities as well as a social media platform for nursing caregivers. One page was dedicated to discussing the nursing care pay increase the government plans to implement in 2018 and is responded to through comments below. These range from "10000 yen is not going to make a difference, it is too little" to "influencing all of these workers to join the elder care industry is killing other industries. My children's school is having trouble finding teachers" It is surprising that these posts and comments were discussed amongst the community and had hundreds of いいね (like in English)²⁷. This website is just one of the many new improvements to the entire home health care scene as it allows for nurses and caretakers, along with the computer savvy elders to communicate with each other.

This website also serves as the platform for user generated questions, the purest form of data collection. The communal aspect of nursing care allows the questioner to get results from like-minded individuals. The downside to these responses is that there is usually no scholarly justification to their answers. For instance the top user generated survey on a particular day in 2017 is "What is the honorific I should be using when addressing my patients?"²⁸ There is no scholarly answer to be given for a question like that. Most user-generated questions similar to

²⁶ Ibid., 942.

²⁷ Minna no Kaigo, 第239回 and comments. Online.

²⁸ Tokumei, 職員の言葉遣いが気になって仕方ないのですが on Minna no Kaigo Community (2017). Online.

this need no scholarly bias as they are looking more for reassurance than data. These community created surveys are another facet of the website that better connects its users, keeping the site popular. The website does include its own surveys and news of its own such as “Should elders be forced to migrate to different prefectures to get better care to suit their needs”²⁹ and surveys like these could end up being the basis for an actual academic study.

It was this call for a greater community wishing discuss and research through their own experiences that forced the Japanese government to step in and support the local and national nursing communities. In 2010, MHLW created a new national annual day of recognition for nursing care: **kaigo no hi** (介護の日).³⁰ All prefectures are required to host their own version of kaigo no hi, and the 2016 flyers describing each prefecture’s events can be found on the MHLW website. Mascots, YouTube stars such as Sekine Risa, and radio DJ’s are brought in to promote and outreach to the younger generations.³¹ As it has only existed for 7 years this holiday is still quite unknown by those not personally affected by disability or age. Rather the popular Asian treat Pocky (Asian chocolate biscuit treat) has claimed it as a brand holiday. The ones in 11/11 representing pocky sticks. Efforts are being made to promote it more every year. As an example of ways these prefectures are trying to get more publicity the Gifu prefecture poster shows images of mascots Tomonin and Kokoron, who will make an appearance for kids.³² The Miyagi prefecture poster advertises both a popular athlete and a band.³³ Lastly, some prefectures are turning to more alternative means of promotion as is the case of Okinawa. Its poster just has an elder lady sporting a big smile with the captions in a mix of Japanese and English “Help me. I

²⁹ Minna no kaigo, 第49回. Online.

³⁰ Ministry of Health, Labour and Welfare, 介護の日について～11月11日は介護の日. (Japan 2012) Online.

³¹ Ministry of Health, Labour and Welfare, 介護の日・福祉人材確保重点実施期間 (Japan 2016) Online.

³² Ibid., Image 21, 岐阜県.

³³ Ibid., Image 4, 宮城県.

need 介護”. This poster goes straight for the guilt factor that nursing care should be something everyone is willing to help with already.³⁴ It is the hope of the government that by making these events as popular as possible nursing care will be more visible in society.

Negative Outcomes from Research

Many governmental studies at times seem fruitless. In a 2015 study at the National Center for Geriatrics and Gerontology, funded entirely by MEXT, a group of scientists tested whether or not Pneumonia negatively affects patients that have different forms of Dementia. This particular study took 157 autopsies and neuropathological exams of patients who were deceased since 2005 who had one of the many forms of dementia. Then after comparing the results it was concluded that dementia often times ended with pneumonia complications, but as the research points out, pneumonia is one of the leading causes of death of elders globally³⁵ Not only is outcome of this study obvious, but the resources and researchers needed to perform it could have been used in more vital studies. This is not to say dementia and pneumonia are not vital, but the answer itself is already so simple and not necessary to have a large scale study done. Other published governmental research over the past three years by the Center for Geriatrics and Gerontology include “Implications for regional vulnerability in Alzheimer’s disease”, “A genome-wide association study of late-onset Alzheimer's disease in a Japanese population”, and “Relationship between skeletal muscle mass and swallowing function in patients with Alzheimer’s disease”.³⁶ To explain further how fruitless this research is the last of the above listed is based on the idea that elders who have Alzheimer’s disease and face difficulty with oral

³⁴ Ibid., Image 41, 沖縄県.

³⁵ Toshie Manabe, *Influence of pneumonia complications on the prognosis of patients with autopsy-confirmed Alzheimer’s disease, dementia with Lewy bodies, and vascular dementia* in *Psychogeriatrics* 16 (Japan: 2016) 305.

³⁶ National Center for Geriatrics and Gerontology, 平成27年度 長寿医療研究開発費研究課題一覧, (Japan 2015) Online.

functions have decreased skeletal muscles. This specific study was taken from 232 living patients of an average age of 85 who have Alzheimer's. The results were not 100% legitimized as "[as] it was a cross-sectional study; it was impossible to clarify causal relationships." However the study still concluded that Alzheimer's patients with decreased skeletal muscle mass will need to eventually find ways to manage swallowing dysfunctions.³⁷ Both of these explained studies did not bring any revolutionary ideas to the table, but rather just connected two very simple dots. There is no doubt that dementia is one of the most difficult challenges Japan is facing, but the research choices are sub-par. On the upside, other research firms may use this data for their own purposes.

The government also fails, not only by funding and performing studies that have little scholarly merit, but failing to act on alarming results of others. The previously mentioned private study on 'burnout' has not been solved because nurses are now required to take even more schooling and are faced with more patients than ever. The Japan Times recently posted an article of the number of abuse incidents against elderly by their caretakers that occurred in 2014. The total number of reported incidents was at 16,000 with only 300 occurring at nursing facilities (this is the highest number at nursing facilities it has ever been). Surprisingly enough, the rest of the cases were family caretakers, especially sons.³⁸ The MHLW's goal of 0 employees leaving the workplace to take care of their family members by 2020 nears and yet this abuse still persists. If new facilities are supposed to be easing the burden on family members, it is not apparent in this case. This abuse problem is not even a new issue and has previously caught the attention of the government leading to a research project by the International Longevity Center-Japan (The

³⁷ Daisuke Takegi, *Relationship Between Skeletal Muscle Mass and Swallowing Function in Patients with Alzheimer's Disease* in *Geriatrics Gerontology* 2017.17 (Japan: 2016) 402-409.

³⁸ Kyodo, *Abuse of Elderly by Caregives hits Record High in Japan* in *Japan Times* (2016) online.

Japanese chapter formed under the United Nations in 1990 from MHLW³⁹). This research taken from the Japanese census found that three-generation households are almost faded from Japan. This was seen as important because it means that grandchildren are not seeing their parents taking care of their grandparents, which means they will not expect this in the future. However this data was more apt to be used for more statistical purposes, such as figuring out if elders living alone should be given a cash bonus as they do not have the support of their full family on a day to day basis. This is one case where the governmental research is interesting, but twenty years later has had no effect in helping to avoid home-related cases of abuse.

Lastly, as the community searches for more ways to reach out with one another there are negative repercussions as well. This includes the near illegal monetization of nursing care, as institutions are not normally allowed to make money other than from the government from nursing. Another interesting aspect about the previously mentioned Minna no kaigo website is that it is a business first. The website moderators generate weekly surveys for their users to fill out. This allows the community to become more involved with the website, earning more money for the company. One example of a survey that the site itself created is “Why does elder abuse occur so often?” with 3 choices: “A: Burnout of the nurses, B: It is an easy crime as the abused elder may be incapable of reporting the abuse, or C: Other with a blank tab to write in your own ideas”. This mode of data collection is not useful as it is completely unfiltered and unorganized and so has no place in academia. On top of this the results could in fact be tilted one way or another by use of hacking as it is a digital means, although this would be unlikely to occur on such a site. The sample of study is completely unorganized as well as I, an American not part of their intended research audience, was able to answer the questions without creating an account. So what can the developers actually use these surveys for? As the site is a platform for nursing

³⁹ International Longevity Centre, ILC-Japan : 概要 (ILC-Japanとは Online.

care news, nursing facility recruitment for patients, as well as a social media outlet, the more people accessing the site daily are the more people accessing these services. In addition, the developers can publish the answers to curious questions such as the one above as another one of their news story; another link with ads that will generate revenue. This form of 'research' sours the whole of the nursing care industry as it tries to make a profit out of a necessary community.

Concluding Thoughts

Overall curiosity and a hunger for knowledge have led the Japanese in major changes of the home health care system today. Governmental studies were the forefront to major economic shifts made more effective through private and international studies. The community that recognizes and assists in nursing care has grown due to new technological advancements, especially through social media. New holidays and community efforts are also improving the nursing care system as a whole, and allow the low care tiered patients new ways of receiving assistance; all while the government focuses on properly distributing the ever growing social security funds. The system as a whole is not perfect, but without these aspects of society interacting with each other, the health care system would not be such system that foreign nations would look to mirror.

Bibliography

- Arita, Seizaburo. *Home Health-Care at the aging town OHYA using Fuzzy inference* Annual Meeting of Biomedical Fuzzy Systems Association 1999 Kansai Medical.
- Budget Bureau. *The Japanese Budget in Brief 1999* Ministry of Finance (Japan: 1999) Accessed Online 2017 http://www.mof.go.jp/english/budget/budget/fy1999/budget_b.htm
- Budget Bureau. *Highlights of the Budget for FY2015* Ministry of Finance (Japan: April 2015) Accessed Online 2017 <http://www.mof.go.jp/english/budget/budget/>
- Chiba Yuya, and Moriya Kenji, *Development of a Safety Observation Robot for Home Health Care* Hakodate National College: Japan, 2013
- Kyodo, *Abuse of Elderly by Caregivers hits Record High in Japan* in Japan Times 2016,2,06 Accessed Online 2017 <http://www.japantimes.co.jp/news/2016/02/06/national/social-issues/abuse-elderly-caregivers-hits-record-high-japan/#.WQRWKty1uUl>
- Health and Welfare Bureau for the Elderly. *Long-Term Care Insurance System of Japan* from Ministry of Health, Labour and Welfare website. November 2016 Accessed Online 2017 http://www.mhlw.go.jp/english/policy/care-welfare/care-welfare-elderly/dl/ltcisj_e.pdf
- Ikegami, Naoki and Campbell, John C. Special Report: *Medical Care in Japan* in The New England Journal of Medicine, Massachusetts 1995.
- Iijima, Setsu. *Position Statement from the Japan Geriatrics Society 2012: End of Life Care for the Elderly*, The Japanese Geriatric Society Ethics Committee, 2014.
- International Longevity Centre, ILC-Japan : 概要 (ILC-Japanとは) (Japan) Accessed Online 2017 <http://www.ilc-japan.org/about/index.html>
- Iwate Prefecture, 介護看護保育 (NURSING CARE) Poster for Nursing Care Day 11/11 2016 from Iwate Prefecture branch of Ministry of Health, Labour and Welfare.
- Kanamori S, Kai Y, Aida et al. *Social Participation and the Prevention of Functional Disability in Older Japanese* in PLOSone Volume 9 Issue 6 (June 2014)
- Kimura, Hiromi. *Subjective Well-Being and Burnout among Care Givers for Dementia Patients in Japan* in Asian Pacific Journal of Disease Management Volume 4 issue 2 (Saga University: 2010)
- Lock, Margaret. *Keeping Pressures off the Japanese Health Care System: Contribution of Middle-Aged Women* in Containing Health Care Costs in Japan Univ. Michigan: 1996 207-225
- Maekubo, Megumi. *The Effect of Family Function of Home Care Givers nursing Frail Elderly* 保健科学部紀要第12号, 31-38, 2007

- Manabe, Toshie, *Influence of pneumonia complications on the prognosis of patients with autopsy-confirmed Alzheimer's disease, dementia with Lewy bodies, and vascular dementia* in *Psychogeriatrics* 16 (Japan) 2016
- Masayo, Kashiwagi. *Characteristics of Visiting Nurse Agencies with High Home Death Rates in Geriatrics and Gerontology International* Volume 15.8, University of Tsukuba Japan, 2015.
- Ministry of Health, Labour and Welfare. *Ministry of Health, Labour and Welfare Service Guide 2016* Online (Ministry of Health, Labour and Welfare, Chuo Godo Chosha Tokyo) November 2016
- Ministry of Health, Labour and Welfare, 介護の日について～11月11日は介護の日 (Japan 2012) Accessed Online 2017 <http://www.mhlw.go.jp/seisaku/2010/07/04.html>
- Ministry of Health, Labour and Welfare, 介護の日・福祉人材確保重点実施期間 and contained images (2016) Accessed Online 2017 http://www.mhlw.go.jp/stf/seisakunitsuite/bunya/hukushi_kaigo/seikatsuhogo/kaigo-day/
- Minna no Kaigo (みんなの介護), “第239回 2018年度、介護職員給料を1万円上乘せ!?” (March 2017) And “第49回 高齢者の6割以上が地方移住に「NO」”(July 2015). All accessed online 2017 <https://www.minnanokaigo.com/news/N26781216/> <https://www.minnanokaigo.com/news/N49097217/>
- Morita, Akira, *About Institute: Message from the Director-General* National Institute of Population and Social Security Research. (Tokyo: Japan 2014) Accessed Online 2017 <http://www.ipss.go.jp/pr-ad/e/eng/index.html>
- National Center for Geriatrics and Gerontology, 平成27年度 長寿医療研究開発費研究課題一覧, (Nagoya Japan) 2015, Accessed Online 2017 <http://www.ncgg.go.jp/ncgg-kenkyu/kadai27.html>
- National Institute of Health Sciences Research Dept, ガンマナイフでの治療後に子供と接触してもよいですか, (Japan 2010) Accessed Online 2017 http://trustrad.sixcore.jp/gamma_knife.html
- National Institute of Public Health, 概要, (Saitama: Japan) Accessed Online 2017 <http://www.niph.go.jp/information/index.html>
- Olivares-Tirado, Pedro and Tamiya, Nanako, *Trends and Factors in Japan's Long-Term Care Insurance System* (Springer: New York London) 2014.

Osaka University Hospital, *Human Resource Development and Research for Internationalization of Medicine* (Osaka: Japan 2014) Accessed Online 2017
<http://www.cgh.med.osaka-u.ac.jp/en/education/index.html>

Takagi, Daisuke *Relationship Between Skeletal Muscle Mass and Swallowing Function in Patients with Alzheimer's Disease* in *Geriatrics Gerontology* 2017.17

“Tokumei-san (Username:匿名さん)”, *職員の言葉遣いが気になって仕方がないのですが.* Minna no Kaigo Community (March 2017), accessed online 2017,
<https://www.minnanokaigo.com/community/C14208847/>

Tsutsui T, and Muramatsu N, *Care-needs Certification in the long-term care insurance system of Japan* in *Journal of American Geriatric Society* 53.3 (2005)