

Perspectives on the role of orthoptists in Japan

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Abstract

The authors summarized history of orthoptists. Demand for orthoptists in ophthalmology is on the increase. However it was revealed a shortage in the number of orthoptists. If awareness of orthoptists is increased, it is expected that the number of students wishing to become orthoptists will increase, leading to a growth in those qualified in orthoptists, thus making a contribution to ophthalmology. A greater variety of PR activities are required in order to increase awareness.

1. The first orthoptist and the start of education in orthoptics

Mrs Mary Lowndes-Yates (nee Maddox) was the first documented orthoptist to practice orthoptics [1]. She was the daughter of Dr. Ernest Maddox who worked in Bournemouth, and did a great deal to elucidate the problems of abnormalities of the ocular muscles and anomalies of binocular vision. In the treatment of these conditions he saw the possibilities of a new medical auxiliary profession and taught his daughter the principles of orthoptics.

Mary Maddox therefore became the first orthoptist. She moved from Bournemouth to set up a practice in London's Wimpole Street where she treated patients and taught others the skills learned from her father. In 1929 she was invited

to join the staff of the Royal Westminster Ophthalmic Hospital (now the High Holborn branch of Moorfields Eye Hospital) and to open what in those days was called the "Squint Department". In the 1930's, institutions for training in orthoptics opened one after another, and a total of 22 orthoptists were nurtured in this way. Following this, investigations took place into the national program of education and examination by 1934. By 1937, the original 22 orthoptists were joined by another 49, all of whom after a period of training had been properly examined by the Council's examiners and found to have sufficient knowledge and practical ability to carry out the work [1].

2. The establishment of a vocational school for orthoptists in Japan

In Japan, in 1970, the School of Orthoptics National Children's Hospital, which was a one-year national vocational school was created, starting the traditional education of orthoptists [2]. The following year in 1971 saw the establishment of the orthoptists act and the first state examination for orthoptists was conducted [2]. In 1975, the School of Orthoptics Osaka National Hospital was founded as the second one-year vocational school for orthoptists [2], and in 1991 the Kawasaki University of Medical Welfare was established as a four-year University for

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orthoptists [3]. Post-graduate education started in 1996 [4], and it became possible to attain post-graduate master's degrees and doctorate degrees related to orthoptics. Orthoptic students receive education in a wide range of clinical skills which enables them to practice not only in the traditional areas of orthoptics but also within the field of general ophthalmology [5]. Following this the number of orthoptics vocational schools increased and these numbered 30 as of April 2015.

3. Needs of the age in regard to orthoptists

The work at the time that the orthoptists act was established it was stipulated as follows "a person performing work, under the direction of a medical doctor, involving orthoptic training and the necessary examinations to enable those with defects in their binocular disability functions to recover such binocular function". In fact, at that time, the main work was examinations and training in relation to amblyopia and strabismus in children. In 1993, the orthoptists act was partly revised and general ophthalmological tests, other than those that might cause severe harm to the body, began to be carried out by orthoptists. With the declining birth rate and aging society, there was an increase in age-related ocular diseases, and in the 1980's orthoptics was the main work, but in recent years, the main work has started to change to general ophthalmological tests [6]. Further, recently, in addition to general visual function tests at ophthalmological clinics, and training guidance for strabismus and amblyopia, the scope of the work has increased to include participation in preventive medicine fields, such as the 3-year old health check and adult health checks carried out by local governments, and guidance on low-vision rehabilitation for people with visual impairment.

4. Demand for orthoptists and recognition surveys

Demand for orthoptists in ophthalmological

treatment is on the increase. Abe [7] took a questionnaire of the number of resources for the ophthalmological facilities in Niigata and 7 neighboring prefectures, and it was found the against the ideal ratio of 3.1 orthoptists per facility, the actual number was 1.9, revealing a shortage in the number of orthoptists. Nohara et al. [8] discovered in her survey of Gifu prefecture that whereas most of the ophthalmological facilities within the prefecture were looking to employ orthoptists, the vocational schools in the prefecture could not fill their places, showing the current state in which it is not possible to keep up with the needs of recruitment. The cause of this is thought to be that awareness of orthoptists is still low.

We will explain the results of our survey [9] into the level of awareness of orthoptists among University students. The survey method chosen was an anonymous Web questionnaire, in which the undergraduate students of University A were sent requests by E-mail. The questionnaire items were created with reference to the report of Satoh et al. [10], asking respondents to select the specialist fields they know.

Responses were received from 270 students. In order to eliminate bias, answers from students belonging to the vocational department of orthoptists were excluded from the data, and an analysis was performed on the answers from 243 remaining respondents (Fig 1). According to the survey of Satoh et al. [10], awareness of nurses was 92.7%, and as this was 97.1% in our data, there was no significant difference. However, awareness of orthoptists in the survey Satoh et al. [10] was only 5.7%, our data showed this to be 51.9%, which is a significant difference between the two ($p < 0.01$). In the same way, the data of Satoh et al. [10] showed awareness levels of 15.5% for physical therapists and 14.0% for occupational therapists, whereas in our data physical therapists were at 93.0% and occupational therapists were 90.1%, revealing a

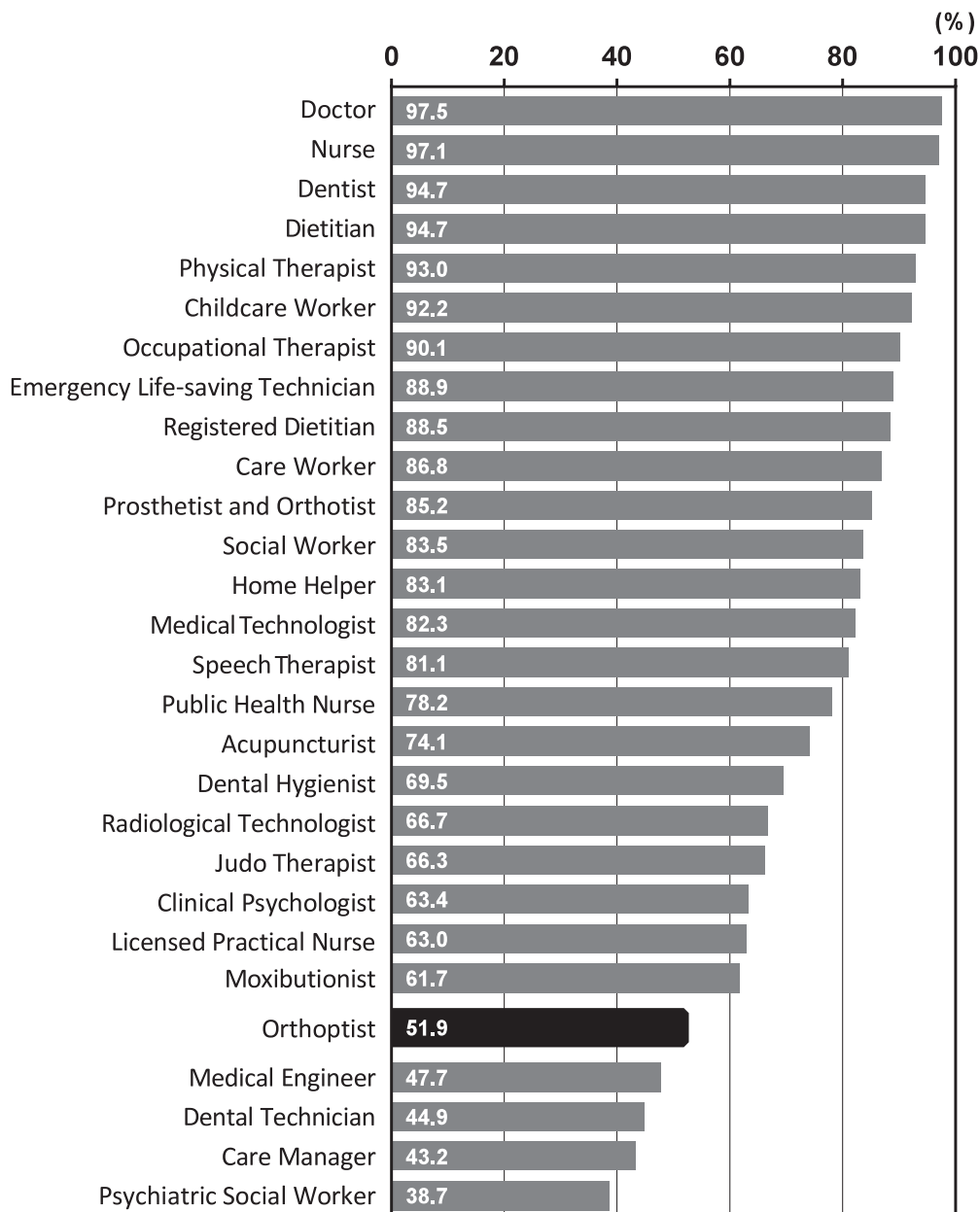


Figure 1. The level of awareness of orthoptists and other special qualifications among University students (n = 243).

significant difference between the two ($p < 0.01$). These differences in University A were seen in the vocational fields of orthoptists, physical therapists and occupational therapists, and are thought to be affected by the fact that is a University concentrating on health, medicine,

welfare and sport. However, the awareness levels of orthoptists in University A was significantly low compared to physical therapists and occupational therapists ($p < 0.01$). Further, outside of the school, few respondents knew of orthoptists, and it is estimated that the actual

awareness level is certainly not high [9].

It is difficult to say that the awareness of orthoptists is high compared to other medical professions, but, as was clarified in the survey by Abe [7], latent demand is high. There were an estimated 1.64 million people with visual impairment in 2007 in Japan [11]. Of these, 187,800 were estimated to be blind. The prevalence of visual impairment in Japan increased with age and half of the people with visual impairment were aged 70 years or older. The prevalence of visual impairment was projected to increase from 1.3% of the population in 2007 to 2.0% by 2050 [11]. Visual impairment imposes substantial costs on society, particularly to individuals with visual impairment and their families [12]. Eliminating or reducing disabilities from visual impairment through public awareness of preventive care, early diagnosis, more intensive disease treatment, and new medical technologies could significantly improve the quality of life for people with visual impairment and their families, while also potentially reducing national health care expenditure and increasing productivity in Japan [12].

If awareness of orthoptists is increased, it is expected that the number of students wishing to become orthoptists will increase, leading to a growth in those qualified in orthoptists, thus making a contribution to ophthalmological treatment. It is clear that an increase in awareness would also lead to intervention by orthoptists in 3-year old health checks, contributing to accuracy in the checks [13]. A greater variety of PR activities are required in order to increase awareness.

References

1. Lee BM. The first fifty years. Japanese Orthoptic Journal. 1982; 10: 70-87.
2. Uchida S, Kawamura M. The current review of orthoptics in Japan. Japanese Orthoptic Journal. 1982; 10: 32-36. (in Japanese)
3. Fukai S, Tsutsui J. A doctrine of bachelor degree course for orthoptist. Japanese Orthoptic Journal. 1991; 19: 160-163. (in Japanese)
4. Fukai S. Plan of postgraduate education for orthoptist education and future development of teachers. Japanese Orthoptic Journal. 1997; 25: 195-200. (in Japanese)
5. Tabuchi A, Maeda F. Education for orthoptists. In: Maruo T, editor. Practical Ophthalmology. Tokyo: Bunkodo; 2009: 215-224. (in Japanese)
6. Usui C. The report of actual condition and future prospect of Japanese orthoptists in 2010. The white paper committee of the Japanese Association of Certified Orthoptists. 2011; 1-79. (in Japanese)
7. Abe H. Present conditions and outlook of orthoptists in ophthalmology. Nihon Ganka Gakkai Zasshi. 2013; 117: 957-958. (in Japanese)
8. Nohara N, Matsui K, Yamamoto Y, Makita K, Takahashi H. Consciousness investigation to the orthoptist employment in Gifu -The questionnaire results to member of Gifu ophthalmologist association-. Japanese Orthoptic Journal. 2010; 39: 207-215. (in Japanese)
9. Morita Y, Maeda F, Abe H. The survey of awareness of orthoptists among University students. Niigata Iryou Fukushi Kaishi. 2014; 14: 87. (Abstract) (in Japanese)
10. Satoh N, Watanabe A, Torii Y, Koheguchi S. Research on the acknowledgment level of the special qualifications regarding medicine, care, and welfare systems: comparison of postgraduate dental doctors under training with general university students. Medicine and Biology. 2009; 153: 540-544. (in Japanese)
11. Yamada M, Hiratsuka Y, Roberts CB, Pezzullo ML, Yates K, Takano S, Miyake K, Taylor HR. Prevalence of visual impairment

- in the adult Japanese population by cause and severity and future projections. *Ophthalmic Epidemiol.* 2010; 17: 50-57.
12. Roberts CB, Hiratsuka Y, Yamada M, Pezzullo ML, Yates K, Takano S, Miyake K, Taylor HR. Economic cost of visual impairment in Japan. *Arch Ophthalmol.* 2010; 128: 766-771.
 13. Nakamura K, Tanji H, Tsunekawa M, Saruya J, Nagao M. Overview and problems of the vision-check program at the age of three -The result of questionnaire by Japan orthoptics society-. *Japanese Review of Clinical Ophthalmology.* 2007; 101: 85-90. (in Japanese)