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RESEARCH ARTICLE

History and State of Neuropsychology in Japan: A Modest Proposal from a Clinical Psychological Perspective

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ABSTRACT

Introduction: Neuropsychology is a branch of clinical psychology that specializes in brain-behavior relationships by assessing cognition, behavior, and emotion. Neuropsychology was initially developed in the United States and Europe, and their practices have shaped other countries' practices such as Japan. However, neuropsychology in Japan also has its own unique history. **Aims:** The present paper aims to discuss the history, work environment and licensure, and prospects of Japanese neuropsychology by comparing them to those in the United States.

Methods: Information on four topics, including 1) the history and development of neuropsychology and the license of a clinical neuropsychologist in the United States, 2) the history and current situation of neuropsychology in Japan, 3) the background and process of the licensure in clinical psychology and neuropsychology in Japan, and 4) future directions and recommendations, were gathered through literature searches, official organization websites, and personal communication with clinical psychologists and other professionals in Japan.

Results: While clinical neuropsychologists in the United States have a background in clinical psychology, most of the people conducting neuropsychological assessments and research in Japan are physicians, occupational therapists, and speech-language-hearing therapists. This is believed to be due to differences in the system of health insurance, education and training, cultural factors shaping psychology practice in Japan, funding opportunities, and the research environment.

Conclusion: The care of patients who have neurological injuries and illnesses is one of the most crucial tasks for clinical neuropsychologists. It is important for clinical neuropsychologists in Japan to improve their knowledge and skills in clinical psychology to match global standards.

Introduction

Neuropsychology is a branch of clinical psychology that specializes in brain-behavior relationships by assessing cognition, behavior, and emotion. The discipline of neuropsychology was mainly developed in the United States and Europe, which influenced other countries such as Japan. However, Japan retained its own unique history of the development of neuropsychology. We explore and compare the history, current situation of work environment and licensure, and prospects of the United States and Japanese neuropsychology based on four topics: 1) the history and development of neuropsychology in the United States, 2) the history and current situation of neuropsychology in Japan, 3) the background and process of the licensure in clinical psychology/neuropsychology in Japan, and 4) future directions and recommendations.

1. The History and Development of Neuropsychology and the License of a Clinical Neuropsychologist in the United States

Clinical neuropsychology first emerged out of laboratory studies designed to formally study brain-behavior relationships which predate the twentieth century. Physicians such as Paul Broca and Hermann von Helmholtz were among the first pioneers to identify links between different brain structures and human behavior.¹ Broca, for instance, was a pioneer in the theory of cortical localization, or the theory that specific regions of the brain controlled different

functions that are universal among humans. Experimental psychologists such as William Wundt began testing out aspects of cognition in their laboratories. Wundt was responsible for identifying a relationship between reaction time and "nerve conductance".²

Wundt's students formed their own labs to study the interplay between cognition and behavior. William James and Mary Whiton Calkins were psychologists whose studies in memory and attention laid the groundwork for some of the neuropsychological measures used today. Hans-Lukas Teuber proposed that a relationship between experimental psychology and behavioral neurology was possible and may have been among the first individuals who referred to this merging as the field of "neuropsychology".³ One distinction of these early experimental researchers was that they primarily studied healthy individuals; the application of neuropsychology towards clinical populations developed later by researchers and clinicians such as Ward Halstead and Ralph Reitan in the United States,¹ Kurt Goldstein in Germany, and Alexander Luria in what was then the Soviet Union.⁴

The history of neuropsychology in the twentieth century involved the development of psychometric measures as well as methods of observing the patient approach brain-behavior tests. Intelligence testing garnered much interest in the public and coincided with the rise of statistical methods designed to identify objective methods of quantifying performance.⁴ The IQ batteries designed by Alfred Binet and David Wechsler and their

students remain in use today. Along with these batteries, additional tests were requested by governments during the first and second World Wars to determine “fitness for duty” for recruits. The *Army Alpha* and *Army Beta* tests developed by the United States are examples and include some measures that are still used today (e.g., the Trail Making Test).¹

The post WWI period was a time in which many tests were developed, including the Wechsler-Bellevue battery.⁵ Wechsler was notable for using standardized scores based on Gaussian theory to establish norms and percentiles. Halstead and Reitan adapted the Wechsler methods to their battery and posited that quantifying relative levels of performance on their tests can inform on the nature and severity of neurological disease.⁶

The advancement of neuroimaging in the 1970s likely was responsible for a shift in clinical neuropsychology away from diagnosing neurological conditions towards a more functional perspective. Edith Kaplan’s group in Boston developed the “Boston process approach” toward neuropsychological assessment which incorporated flexible batteries that were tailored toward individual needs and approaches towards testing.⁷ There became an increased interest in identifying how assessment might predict functional capacity and outcome.

At the present time, American Psychological Association (APA) defines clinical neuropsychology as a specialty field within clinical psychology, dedicated to understanding the relationships between

brain and behavior, particularly as these relationships can be applied to the diagnosis of brain disorder, assessment of cognitive and behavioral functioning and the design of effective treatment.⁸ The National Academy of Neuropsychology (NAN) defines a clinical neuropsychologist as a professional within the field of psychology with special expertise in the applied science of brain-behavior relationships.⁹ As minimal criteria to become a clinical neuropsychologist in the U.S., candidates are required to have: 1) a doctoral degree in psychology from an accredited university training program, 2) an internship in a clinical psychology, 3) two years of supervised experience and specialized training in the practice of clinical neuropsychology, and 4) license in his/her state to practice psychology and/or clinical neuropsychology independently.⁹

Specific guidelines towards training were established 1987, when a joint task force of neuropsychologists developed the first formal guidelines of clinical neuropsychology.¹⁰ With the formation of these Houston guidelines there came a plethora of training programs at the graduate, intern, and post-doctoral level. One salient proposal in the Houston Conference recommended that a neuropsychologist should possess background in “Cultural and Individual Differences and Diversity”.¹⁰ However, a definition of what this might actually entail has remained vague and warrants further discussion, as our broader field has acknowledged. Specific to Asian and Asian American populations, there are now book chapters and research papers on cultural

competency within the pan-Asian American and Pacific Islander community.¹¹ The recent formation of the Asian Neuropsychological Association (ANA) in 2017 and other groups also speak to the renewed focus on diversifying our methods towards other cultures, nationalities, and languages.

More and more programs are developing across the country as more and more neuropsychologists enter the workforce. Such programs generally follow the Houston guidelines and provide comprehensive training, usually first in general psychological methods including assessment and therapy at the graduate level, with specialization in neuropsychological methods at the intern and post-doctoral level. Board certification in neuropsychology is now considered an important step by many as it guarantees that a practitioner has satisfactorily met all the criteria of the Houston guidelines.¹² More recently, the upcoming Minnesota Guidelines will provide an update on the training and educational guidelines for neuropsychology with particular attention towards incorporating diversity, equity, and inclusion into its training models.

Neuropsychology as a practice has become increasingly recognized in the United States as an important specialty. There are approximately 1400 ABPP board-certified neuropsychologists in the United States at the time of this publication with additional neuropsychologists board-certified through other organizations (e.g., ABPN and ABPdN),¹³ or working without certification. Today, you can find neuropsychologists in academic medical centers, Veterans Affairs,

children's hospitals, rehabilitation clinics, private practices, and academia. Neuropsychologists teach, conduct research that can span experimental methods and applied medicine, and practice across a wide array of populations across the lifespan. Neuropsychological evidence meets the Daubert standard for medical-legal testimony and forensic neuropsychology continues to be a growing field. There is little doubt that clinical neuropsychology is here to stay in the United States, particularly as there is an increasing need and recognition for our services throughout the country.

2. The History and Current Situation of Neuropsychology in Japan

The History of Neuropsychology in Japan

The concept of neuropsychology was introduced to Japanese clinicians not long after the late nineteenth century when Western ideas and technology were imported and adopted during the Meiji Restoration in Japan.¹⁴ After the term "aphasia", was first discussed in Japanese medical journals around 1875, research papers on other neuropsychological syndromes including "apraxia" and "agnosia" were translated into Japanese.¹⁵ The first two neuropsychological papers that focused on aphasia were published in 1893.¹⁶⁻¹⁸ Language disorders were the initial focus of neuropsychological research in Japan, partly due to the unique reading/writing system (hiragana, katakana, and kanji) in the Japanese language.¹⁹ Interest in neuropsychology and neurology eventually

grew and broadened beyond language disorders, and Dr. Hiroshi Ohashi, a psychiatrist, who is often credited as the founder of contemporary neuropsychology in Japan wrote the first comprehensive textbooks in the 1960s: *Aphasia, Apraxia, Agnosia*²⁰ and *Clinical Neuropsychology*.²¹

The growth of the research and clinical activities in neuropsychology and neurology led to the formation of professional neuropsychological organizations in the 1960s and 1970s, which included: The Japanese Society of Neurology (1960), the Japanese Society of Logopedics and Phoniatics (1960), and the Japanese Society of Aphasiology (currently the Japan Society for Higher Brain Dysfunction, founded in 1977).²² Over the next several decades, neuropsychology-related professional associations continued to grow, and researchers and clinicians have been presenting their findings and sharing information through annual conferences and meetings.^{14,23} Two prominent associations, the Neuropsychology Association of Japan and the Japanese Society for Higher Brain Dysfunction share a close relationship with the International Neuropsychological Society (INS) which was founded in 1967,^{24,25} and many Japanese clinicians and researchers present their research at the annual and mid-year conferences of INS.

Clinical Practice of Neuropsychology in Japan

At the present time, neuropsychology in Japan is primarily practiced in rehabilitation hospitals and clinics, largely due to the

process of insurance and employment practices. The Japanese medical insurance and reimbursement system for clinical services is greatly different from the United States' system. Like many countries with universal health care, clinical delivery is offered through a health care insurance system that provides relatively equal access for everyone, and with medical fees being set by a governmental committee. In Japan, almost every person must be enrolled in one of three types of health insurance: employed-based insurance, national health insurance administered by local governments for persons without employer-based insurance, and government-sponsored health insurance for the elderly. It is critical to note that Japanese medical insurance is *physician-driven*, and clinical services can be reimbursed only by a physician's orders.¹⁴ Each service is assigned points that are fixed at the national level, and as a result, the same services cost the same fees regardless of different hospitals and physicians. In general, physicians will order specific neuropsychological tests to be administered for a patient, and often a speech-language-hearing therapist or occupational therapist will administer the tests as a "psychometrist."

There are no established guidelines for what entails a psychometrist. Given that the administration of neuropsychological tests does not require a specific license and only requires a physician's order, speech-language-hearing therapists, occupational therapists, and even clinical laboratory technicians, who often work at hospitals and clinics as full-time employees, tend to

administer the tests, and the quality of their training in psychometric methods remains unclear.^{26,27}

Due to its multidisciplinary nature, neuropsychology in Japan has been developed and practiced primarily within rehabilitation settings where speech-language-hearing therapists and occupational therapists work with patients who have suffered from neurological disorders and higher brain dysfunction caused by various accidents. Interpretation of results, diagnoses, and treatment plans are typically dictated by the physician. As such, clinical psychologists themselves are not even required in a “neuropsychological assessment”. This also influences the research setting as physicians are often the primary investigators funded by research grants, and speech-language-hearing therapists, occupational therapists, and clinical psychologists only support the studies. It would be ideal to see more non-physicians independently conduct neuropsychological research.

While the credentialing of a clinical neuropsychologist in the United States is well defined, as outlined earlier in this paper, and currently managed by the American Board of Professional Psychology (ABPP),²⁸ most Japanese who are involved in neuropsychological work and research are not psychologists. For instance, the Japan Society for Higher Brain Dysfunction has approximately 4,300 members, and about 60% are speech-language-hearing therapists, 18% are physicians, 13% are occupational therapists, and only 4% are psychologists.²⁹ The speech-language-hearing therapists and

occupational therapists are required to learn and understand certain neuropsychological tests in their curriculums; however, it is important for the examiners to observe and understand the examinee’s psychological states, behaviors, and other factors which may influence results during the testing. As compared to the requirements in the United States, it is clear that the health care providers who conduct neuropsychological assessments and rehabilitations in Japan need more knowledge and training in clinical psychology.

Thus, the current practice of neuropsychology in Japan differs from other countries due to the development of the field, the process of medical insurance, employment at hospitals, and the education and training requirements to become a clinical psychologist. The development of licenses, education, and training for clinical psychologists and neuropsychologists in Japan will be discussed in the next section.

3. The Background and Process of the Licensure in Clinical Psychology and Neuropsychology in Japan

The History and Background of the License of a Clinical Psychologist in Japan

In 1988, the Japanese Certification Board for Clinical Psychologists (JCBCP) was founded by the Association of Japanese Clinical Psychology (AJCP) to issue its first certification of what is now referred to as the certified clinical psychologist.³⁰ As of April 1, 2022, there are 39,576 certified clinical psychologists.³¹ Clinical psychologist candidates are required to obtain at least a

Master's degree from a graduate school designated by the JCBCP and pass the clinical psychologist examination.³² The responsibilities of a clinical psychologist are: 1) clinical psychological assessment, 2) clinical psychological counseling, 3) clinical psychological community assistance, and 4) surveys and research related to 1) through 3) above.³¹

In Japan, the license of a clinical psychologist is a private one as opposed to a national certification. The AJCP and JCBCP have been striving for many years to establish a national qualification standard for clinical psychologists; however, due to differences in the ministries with jurisdiction over health care and schools, as well as differences in thinking within clinical psychologists, the license for clinical psychologists often results in ambiguity. For example, clinical psychologists expanded their profession by working as school counselors, which are under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). On the other hand, if clinical psychologists want to work in the health care field, the qualifications are required to be under the jurisdiction of the Ministry of Health, Labor and Welfare (MHLW).

In 2005, A law was submitted to the parliament combining the qualifications of medical psychologists, who are qualified to work in the health care field under the direction of a physician under MHLW, and clinical psychologists under MEXT. However, the law did not pass due to opposition from medical professional associations.³⁰ The

Japan Medical Association stated that the scope of clinical psychologists' work is too broad and that they are not qualified to work under the direction of a physician in this law. They strongly argued that there are many points that need to be corrected, that the profession was in its early stages, and that further investigation was warranted.³³

After repeated legal setbacks, the certified public psychologist was finally established in 2018 as a new qualification different from the clinical psychologist, under the jurisdiction of both the MHLW and the MEXT. This has made it necessary for most clinical psychologists considering future work in the health care field to obtain a separate certification as a certified public psychologist. To become a certified public psychologist, students must complete 25 courses at the undergraduate level and 10 courses at the graduate level. Details of the courses are given in Table 1.³⁴ One of the differences between certified public psychologists and clinical psychologists is the area of study. As shown in Table 1, the courses required for certified public psychologists cover a wide range of psychology-related areas. Certified public psychologists are now required to study neuropsychology and learn about basic brain functions, and neurological and medical disorders. This has led to an increased need for certified public psychologists in the health care field and perhaps can be viewed as a positive step towards integrating practicing psychologists into the field of neuropsychology.

Table 1 Courses required for the Certified Public Psychologist³⁴

Undergraduate level	
1	Professionalism of Certified Psychologist
2	Introduction to Psychology
3	Introduction to Clinical Psychology
4	Psychological Research Methods
5	Psychological Statistics
6	Psychological Experiments
7	Psychology of Perception and Cognition
8	Psychology of Learning and Language
9	Psychology of Emotion and Personality
10	Neuro- and Physiological Psychology
11	Social, Group and Family Psychology
12	Developmental Psychology
13	Psychology for Adults & Children with Disabilities
14	Psychological Assessment
15	Methods of Psychological Support
16	Health and Medical Psychology
17	Psychology for Social Welfare
18	Educational and School Psychology
19	Forensic and Criminal Psychology
20	Industrial and Organizational Psychology
21	Human Body Structure, Function and Diseases
22	Psychiatric Disorders and Treatments
23	Legal and Administrative Systems
24	Seminar in Psychology
25	Practical Training in Psychology
Graduate level	
1	Support Theory and Applications in Medical and Health Area
2	Support Theory and Applications in Social Welfare Area
3	Support Theory and Applications in Educational Area
4	Support Theory and Applications in Forensics and Criminology Area
5	Support Theory and Applications in Industry and Work Area
6	Theory and Practice of Psychological Assessment
7	Theory and Practice of Psychological Support
8	Support Theory and Practice for Family, Group, and Community
9	Theory and Practice for Mental Health Education
10	Advanced Practical Training in Psychology

Unfortunately, “clinical psychology” in Japan still typically is viewed primarily as a method of delivering psychotherapy. Psychodynamic (especially Jungian) therapies remain the most popularized model in AJCP.³⁵ Even with the establishment of certified public psychologists, other health care providers often believe that clinical psychologists (including certified psychologists) focus on psychotherapy for the client’s various psychiatric problems, and not on neuropsychology or other assessment practices.³⁶ It could be argued that one of the purposes of establishing certified public psychologists was to provide knowledge of neuropsychology to licensed psychologists with a clinical psychology background who work in this field by creating a neuropsychologist qualification that would be obtainable via a workshop.³⁷

The History and Background of the Development of the License of a Clinical Neuropsychologist in Japan

The clinical neuropsychologist subspecialty was only recently established in 2019 as an academic certification by the Japan Society for Higher Brain Dysfunction and the Neuropsychology Association of Japan. The first clinical neuropsychologist certification examination was held on May 29 and July 12, 2022, and a total of 401 Clinical Neuropsychologists were born for the first time in Japan.³⁸ The requirements for qualification as a clinical neuropsychologist in Japan are: 1) a certified psychologist, occupational therapist, physical therapist, speech-language-

hearing therapist, or physician, 2) membership in the Japanese Psychological Association or the Japanese Society for Higher Brain Dysfunction for at least three years of experience in practice or education related to neuropsychology, 3) having attended courses organized by the Certification Board within the past five years, and 4) passing an examination for a clinical neuropsychologist.³⁹ Clinical neuropsychologists in Japan are therefore unique in that they are composed of medical professionals with these various official qualifications and are not exclusively reserved for psychologists. One of the reasons for the composition of clinical neuropsychologists in other professions is the delay in the national certification of certified public psychologists. As mentioned above, certified public psychologists were not nationally licensed until 2018, but physicians have been licensed since 1874 when modern Japan began.⁴⁰ The national license of physical therapists and occupational therapists were both established in 1966,⁴¹ and that of speech-language-hearing therapists was established in 1997.⁴² There were many professionals who were against excluding speech-language-hearing therapists and occupational therapists from the field of neuropsychology,³⁶ and a result, the establishment of the clinical neuropsychologist focused more on training neuropsychology experts involved many professions including physicians, speech-language-hearing therapists, and occupational therapists.³⁷ It should be quite apparent that clinical neuropsychology in Japan is not necessarily a specialized profession of clinical psychology.

The Qualifications and Guidelines to Become a Clinical Neuropsychologist in Japan

The knowledge and skills required for clinical neuropsychologists in Japan are indicated in the distribution of examination questions for the first clinical neuropsychologist examination in 2022. Table 2 shows the content and percentage of content of the clinical neuropsychologist examinations. Hessen et al⁴³ summarize guidelines for seven countries with established training programs for clinical neuropsychologists in Europe, North America, and Australia. Its guidelines are as follows: 1) knowledge of general psychology, 2) knowledge about the clinically relevant brain-behavioral relationships, 3) knowledge about, and skills in, related clinical disciplines, 4) knowledge about and skills in neuropsychological assessment, 5) competencies about diversity and culture, 6)

communication competency of neuropsychological findings and test results to relevant and diverse audiences, and 7) knowledge about and skills in psychological and neuropsychological intervention. In comparing Table 2 with these guidelines, the proportion of psychological knowledge and skills required for clinical neuropsychologists in Japan is considerably lower. For example, considering the clinical neuropsychologist's approach to memory impairment, knowledge of cognitive psychology is necessary to understand the mechanisms of memory and how the impairment shows up. It is also important to have a deep understanding of behavioral psychology when planning errorless learning for severe memory impairment. Thus, acquiring a broad range of psychological knowledge and skills is crucial for clinical neuropsychologists in order to avoid being delegated as psychometricians.

Table 2. The content and percentage of content of the clinical neuropsychologist examinations³⁸

	Content	%
1	Knowledge of the structure and function of the nervous system and its disorders	15
2	Knowledge and skills in conducting, evaluating, and describing the findings of neuropsychological assessments	25
3	Knowledge and skills in understanding and identifying symptoms	25
4	Knowledge of medicine (including diagnosis, treatment, and rehabilitation), psychology, neuroscience, and rehabilitation	25
5	Knowledge and skills related to cooperation with other related professions	10

4. Recommendations and Future Directions for Clinical Neuropsychologists in Japan

Clinical neuropsychologists are expected by physicians to be part of the medical team and to be experts in the neuropsychological assessment and treatment of cognitive impairment and dementia resulting from brain injury.²⁹ For clinical neuropsychologists to be able to work with a level of expertise meeting with the global standard model, they need to have a strong foundation of psychological knowledge and skills. Alongside this, there is also a need for certified public psychologists to obtain more knowledge and skills in neuropsychology given that its importance has been noted even before the license of the certified public psychologist was created.^{14,32,44} We must develop additional training and workshops that teach various neuropsychological assessments and clinical interventions related to neuropsychology, as well as more opportunities in clinical practice for certified public psychologists. Practical training in the area of clinical neuropsychology at the postgraduate level should be made available; moreover, to enhance the knowledge and skills of specialized clinical neuropsychologists, there should be a psychology-based doctoral program for clinical neuropsychologists.

This latter step is perhaps the most challenging to surmount, as educational systems in Japan continue to consider the clinical practice of psychology to be complete at the Master's level. It might be helpful for doctoral training programs in Japan to

incorporate some clinical practice alongside teaching and research, following the scientist-practitioner model used in the United States. Such "scientist-practitioners" might then go on to obtain an additional specialty in neuropsychology and be eligible to administer and interpret data. It is unfortunate, however, that at the present time physicians already are qualified, and so the appeal of pursuing clinical neuropsychology through the traditional doctoral model in Japan may be limited.

Summary and Conclusions

The concept of neuropsychology was introduced to Japan in the late 1980s when western ideas and technology were imported during the Meiji Restoration¹⁴. It appears that the history of Japanese neuropsychology is like that of western countries; however, the field in Japan is more multi- and interdisciplinary, and most people who engage in neuropsychological work are not psychologists due to the process of medical insurance, employment at hospitals, and education and training to conduct neuropsychological tests. Furthermore, the training guidelines and professional roles of clinical psychologists are profoundly different from those in the United States and Europe. When comparing the guidelines to become a clinical neuropsychologist in other countries to those in Japan, the proportion of psychological knowledge and skills in Japan is considerably limited. There are concerns that the level of clinical neuropsychology in Japan may not meet the global standard given that the other countries have clear and precise

requirements in education and training to become a professional clinical neuropsychologist with a deep understanding of clinical psychology. Psychological knowledge and training in administering neuropsychological tests and providing rehabilitation and psychological support are crucial in patient care; therefore, it is important for Japanese clinical neuropsychologists to have better education and training in clinical psychology.

Demands for neuropsychological evaluations in Japan are increasing. For instance, Japan is a super-aging society in which the number of dementia assessments is drastically increasing.³² For pediatrics, the demand to assess children who may have special educational needs is also increasing. The clinical neuropsychologist certificate was newly established in 2019 as a primary academic certification by the Japan Society for Higher Brain Dysfunction and the Neuropsychology Association of Japan, and so its application towards standardizing training and practice remains uncertain. For clinical neuropsychologists to be able to work with a level of expertise that aligns with the global standard model, they must have a solid foundation of essential psychological knowledge and skills. Moreover, it is crucial for certified public psychologists to obtain more knowledge and skills in neuropsychology because its importance has been noted even before the license of the certified public psychologist was created. Given that the field of neuropsychology in Japan is more multi- and interdisciplinary than in other countries, it is important to

communicate and improve their knowledge and skills in non-expertise areas to provide the best medical care for the patients. Participating and presenting clinical cases and research studies not only domestically but internationally will help Japanese neuropsychology progress even further.

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