Chapter **1**

Introduction

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1.1. Background and Objective of the Study

The working-age population in the Association of Southeast Asian Nations (ASEAN) Member States is estimated to peak in 2050 and then decrease (United Nations, 2017), followed by the ageing of the population. These countries are facing challenges in systematic collaboration models in medical and nursing care and in the development of regional systems and industry to support ageing societies, including rehabilitation and long-term care. Specialist human resources are insufficient.

Japan has the most ageing population (World Bank, 2017) and has a great deal of experience, knowledge, and lessons on population ageing, which can be shared with other Asian countries, including the introduction of long-term care insurance and advancement of industries related to long-term care. Many issues remain, however, such as prevention of diseases, self-care, collaboration between medical and nursing care operators, and rehabilitation for patients transitioning from an acute to a chronic stage. Long-term care operators have difficulty providing services sustainably because of human resource shortages and insurance finance restrictions. Policies are, therefore, necessary to ensure that the medical and nursing care industry is developed and reformed by 2030, when it is expected to overtake manufacturing as the largest employer in Japan (The Japan Institute for Labour Policy and Training, 2018).

Japan's government launched the Asia Human Wellbeing Initiative (AHWIN) in 2016. It aims to promote bilateral and regional cooperation to foster sustainable and self-reliant healthcare systems. AHWIN's goal is closely related to Sustainable Development Goal 3: 'Ensure healthy lives and promote well-being for all at all ages', and particularly universal health coverage that ensures all people have access to quality essential healthcare services without suffering financial hardship. This study was conducted in line with the concept of AHWIN.

In Japan, where universal and compulsory medical insurance was introduced in 1961 and advanced medical treatment procedures, equipment, and drugs are widely covered by the insurance system, national medical care expenditure is skyrocketing as the population ages. Older people generally have more diseases and ailments, while advances in technology and science increase medical costs. ASEAN Member States can expect similar dramatic increases in medical care expenditure as their birth rates decline and their populations age. ASEAN Member States can meet social challenges by learning from Japan's experience in, for example, establishing the medical and nursing care system, which can be adapted to the realities of each country and the level of human resources in medical and nursing care. The

system can be the basis for a healthcare industry, including prevention, rehabilitation, and self-supporting long-term care, in anticipation of the extent of population ageing.

We investigated the rehabilitation environment for patients with brain injuries in Viet Nam, Cambodia, and Lao People's Democratic Republic (Lao PDR). We collected information on the provision of rehabilitation, establishment of a rehabilitation system, and education for rehabilitation staff members. We aimed to provide education for patients' family members at counterpart hospitals. Finally, we recommend ways to provide rehabilitation, considering the countries' situations.

1.2. Why Is Rehabilitation Important?

First, acute-stage rehabilitation aims to prevent disuse syndrome, improve activities of daily living (ADL), and achieve social rehabilitation. Active rehabilitation should be implemented as soon as possible after the onset of events that cause patients' physical deterioration. Early rehabilitation requires risk control, as patients in the early stages are generally unstable. A systematic review in 1991 showed that early intervention and longer training improved motor function after paralysis, and the group given 1.5-fold more intense rehabilitation than standard practice within 1 week after onset improved significantly, with the effect retained for 12 months (Wagenar and Meijer, 1991a, 1991b). Early rehabilitation achieves satisfactory trunk function, improved functional prognosis, and marked suppression of the risk of relapse (Wagenar and Meijer, 1991a). The addition of early supported discharge – intensive rehabilitation support at the patient's home for several weeks – resulted in shorter hospitalisation (Saka et al., 2009).

The acute stage of stroke may be followed by recurrent stroke or accompanied by symptoms such as convulsions, delirium, and depression, as well as complications such as aspiration pneumonia, respiratory tract infections, urinary tract infections, decubitus ulcers, cholecystitis, arrhythmia, cardiac failure, and deep vein thrombosis. Complications can increase the chance of mortality and deteriorate functional outcome (Johnston et al., 1998; Davenport et al., 1996; Langhorne et al., 2000; Martino, 2005; Sellars et al., 2007), but complications caused by a prolonged bedridden period could be prevented by early gait rehabilitation (Raicevic, 2000).

Seamless intervention – from acute-stage rehabilitation to early supported discharge – improves physical function and ADL, prevents disuse symptoms, shortens hospitalisation, and lowers the cost of inpatient medical care and improves its efficiency (Saka et al., 2009). Some studies show that if hospitals and long-term care providers collaborate closely, early rehabilitation for stroke patients can reduce the inclusive cost of medical care and welfare by 20%–40% compared with 6-month hospitalisation in general hospitals without rehabilitation (Langhorne et al., 2000; Martino, 2005; Sellars, 2007). A cohort study in Switzerland shows that the long-term cost for stroke patients is significantly reduced by careful triage from the early stage and by acute stage rehabilitation (Mahler, 2008). A review of the cost of general care of stroke patients (Tummers, 2012) shows that early supported discharge reduces cost more than conventional care.

The commencement of rehabilitation should be carefully timed for every case, considering the severity of conditions. Earlier rehabilitation does not necessarily produce better outcomes. The result of a randomised controlled trial in 2015 suggested that intensive rehabilitation in the ultra-acute stage resulted in poor prognosis (Bernhardt et al., 2015), whilst practising the sitting position as early as within 24 hours of the onset of stroke was likely to improve ADL 3 months after the onset without any adverse events (Herisson and Godard, 2016). Studies show that careful assessment of the target disorder, detailed planning of interventions, including the duration as well the timing of commencement, must be considered to maximise the effect of rehabilitation.

The prognosis of ADL is related to age, ADL before the stroke, presence of dementia, and severity of physical dysfunctions. Even the simplest models consisting of only six variables – age, living alone, independent ADL before stroke, verbal function, ability to lift arms, and walking ability – can predict the prognosis of 'independent' at 6 months as accurately as other models using other detailed variables such as patients' history or results of examinations (Counsell et al., 2002). Amongst the variables entered in the simplest model, 'independent before stroke' has the highest odds ratio: 15.55. Simple background information of patients can be useful in predicting their prognosis.