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# Comparative Analysis on the Policy Approaches in the National Dementia Plans of G7 Countries and Korea and Their Implementation

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## ABSTRACT

**Background:** The World Health Organization (WHO) proposed a global action plan for dementia and aimed to have 75% of their member states formulating National Dementia Plans (NDPs) by 2025. The Organization for Economic Cooperation and Development (OECD) proposed the ten key objectives of dementia policy in 2015. Among previous studies on NDPs, few studies have investigated measures for proper implementation of NDPs. This study aimed to compare the implementation basis and specific action plans of NDPs between the G7 countries and South Korea.

**Methods:** We investigated the measures for proper implementation of the NDPs of G7 countries and South Korea. To compare the specific policy approaches, the seven action areas of the WHO action plan and the ten key objectives of dementia policy proposed by the OECD were integrated into 11 targets (prevention, diagnosis, awareness, caregiver support, appropriate environments, long-term care, health service, end-of-life care, care coordination, research and technology, information systems).

**Results:** Although most NDPs included specific action plans of the 11 targets, caregiver support, safe environments, healthcare services, and end-of-life care were lacking in some NDPs. For implementation, some countries reinforced the policy priority of their NDPs by timely updates, evaluation, legislations, or head-of-state leadership. However, only three countries had a legislative basis, and three countries included outcome measures in their latest NDP.

**Conclusion:** Effective measures for feasible implementation are needed. The WHO should promote not only the establishment of NDPs, but also their proper implementation.

**Keywords:** Dementia; Public Policy; National Dementia Plan; Dementia Policy; National Health Policy

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## INTRODUCTION

Dementia has become a grave public health concern globally as the number of people with dementia (PWD) and the socioeconomic burden due to it have been rapidly increasing.<sup>1</sup> Between 1990 and 2016, the global population of PWD increased by over 100%.<sup>2</sup> The Organization for Economic Cooperation and Development (OECD) proposed ten key objectives of dementia policy<sup>3</sup> while the World Health Organization (WHO) recommended seven action areas<sup>4</sup> for policy guidelines to respond to the dementia epidemic. In addition, the WHO encourages the development of a national dementia plan (NDP) and aims to have 75% of their member states formulating NDPs by 2025. However, only 34 countries (17.5%) have adopted NDPs by 2020.<sup>5</sup>

There have been helpful reports on dementia policies, such as the practice examples of Alzheimer's Disease International (ADI), which was a collection of detailed snapshots rather than comprehensive mapping,<sup>6-8</sup> progress reports of the ADI and Global Coalition on Aging (GCOA)<sup>9,10</sup> and global status reports on the WHO's action plan.<sup>5</sup> In our previous comparative analysis, the latest NDPs of G7 countries (Canada, Germany, Italy, the UK, the US, France, and Japan) and South Korea were found to largely follow the policy recommendations of the WHO and OECD, although some policy targets (adequate health facilities, appropriate environment, end-of-life [EOL] care for PWD) found to receive less attention.<sup>11</sup>

However, even if an NDP is prepared and properly formulated, it will be difficult to operate properly in the field unless specific strategies to achieve policy targets and legislative bases to implement the strategies are prepared together. This study aimed to compare the implementation basis and specific action plans of NDPs between the G7 countries and South Korea.

## METHODS

### Comparative analysis

NDPs are defined as standalone and comprehensive national strategies, policies, plans, or frameworks to address dementia.<sup>4</sup> The latest NDPs of Canada, Germany, Italy, the UK, the US, France, Japan, and South Korea were compared using official documents and government websites. Plans complimentary to the most recent NDPs were also analyzed, such as the UK's "Prime Minister's Challenge on Dementia 2020: Implementation Plan."

We investigated the implementation of NDPs by comparing the NDP legislation, level of leadership, outcome measures, and timelines of updates. We investigated the specific action plans based on the 11 targets that we previously proposed based on seven action areas recommended by WHO<sup>3</sup> and the ten key objectives recommended by OECD<sup>2</sup>; dementia risk reduction (Target 1), early diagnosis of dementia (Target 2), dementia awareness and friendliness (Target 3), support for dementia carers (Target 4), safe and appropriate environment for PWD (Target 5), safe and high-quality long-term care services for PWD (Target 6), adequate health facilities for PWD (Target 7), EOL care for the dignity of PWD (Target 8), coordinated and proactive care closer to home (Target 9), dementia research and innovation (Target 10), and information systems for dementia (Target 11). Although the formulation of the NDPs varied, common frameworks such as the WHO action areas and OECD key objectives could be useful. The WHO action plan supplied an inclusive framework,<sup>12</sup> but this has a broad criterion. The fourth action area includes diagnosis,

treatment, care, and support, each of which was important policy theme in previous studies. In contrast, the OECD's key objectives offer a meticulous framework through disease progress. By combining both, our 11 targets could provide a practical blueprint. The details of the 11 targets are described in our previous work.<sup>11</sup> The comparisons were mainly based on content of the latest NDPs. When the content was ambiguous or insufficient, an additional search was conducted with focus on the official document.

### Ethics statement

As this study did not involve human participants or animals, ethical approval was not required.

## RESULTS

### Implementation of NDP

France was the first country to prepare an NDP. Germany adopted its first NDP in 2020. France, the UK, Japan, and Korea revised their NDPs several times, while the US has updated its NDP annually since 2012. France expanded its NDP to the National Neurodegenerative Diseases Plan (NNDP) in 2014 and transitioned it to the Neurodegenerative Diseases Roadmap in 2021. The NNDP has been identified as the latest NDP because of its comprehensiveness and inheritance from previous NDPs. The Roadmap was a transitional extension to maintain essential action<sup>13</sup> rather than a new NDP.

NDPs are announced by the head of the state in the UK, France, the US, and Japan, and by the Ministry of Health and/or Welfare in other countries. In Korea, the president announced the National Dementia Initiative (NDI) as a complementary plan to the third NDP. The US, Canada, and Korea had a legislative basis for their NDPs: the National Alzheimer's Project Act,<sup>14</sup> the National Strategy for Alzheimer's Disease and Other Dementias Act,<sup>15</sup> and the Dementia Management Act,<sup>16</sup> respectively.

The UK, Japan, and Korea included outcome measures in their latest NDPs (Table 1). Although France's third NDP included 77 measures,<sup>17</sup> their fourth NDP did not include any.<sup>18</sup> The US specified completed activities as implementation milestones without quantified measures (Table 1).<sup>14</sup>

### Specific action plans of NDP

All countries covered Targets 1 (prevention), 2 (diagnosis), 3 (awareness), 6 (long-term care), 9 (care coordination), 10 (research and technology), and 11 (information systems). Canada did not cover Targets 5 (environment), 7 (health facilities), and 8 (EOL care). Italy did not cover Targets 4 (caregiver support), 5, and 8. Korea lacked coverage for Target 8 (Table 2).

#### Target 1. Dementia risk reduction

This target is recommended as the objective 1 by OECD and as the action area 3 by WHO. All NDPs included this target. The target's policy approach was "intensifying awareness, activities, and research for prevention."<sup>3</sup>

All countries, except France, enhanced their preventive awareness. There were public campaigns such as the "Mind Your Risks" in the US<sup>14</sup> and "3-3-3 Rules for Preventing Dementia" in Korea.<sup>16</sup> The National Institute for Health and Care Excellence (NICE) published guidelines on mid-life approaches to prevent dementia in the UK.<sup>19</sup> All countries

**Table 1.** National dementia plans of G7 countries and South Korea<sup>a</sup>

Country	Title	Period	Charge	Announcement	Legislation	Formation	Measures
Canada	A Dementia Strategy for Canada <sup>b</sup>	2019 <sup>c</sup>	Public Health Agency	Minister	National Strategy for Alzheimer's Disease and Other Dementias Act	3 objectives, 14 area, 54 actions	-
Germany	National Dementia Strategy <sup>b</sup>	2020 <sup>c</sup>	Federal Ministry for Family, Seniors, Women, and Youth and the Federal Ministry for Health	Minister	-	4 fields, 162 actions	-
Italy	Italian National Dementia Plan 2015 <sup>b</sup>	2015–2018	Ministry of Health	-	-	4 objectives, 24 actions	-
The UK	Living Well with Dementia	2009 <sup>c</sup>	Department of Health	Prime Minister	-	3 themes, 17 objectives	-
	Prime Minister's Challenge on Dementia 2015	2012–2015			-	3 areas, 14 commitments, 34 actions	-
	Prime Minister's Challenge on Dementia 2020 <sup>b</sup>	2015–2020			-	4 themes, 18 commitment, 27 actions	101
	Prime Minister's Challenge on Dementia 2020 Implementation Plan <sup>b</sup>						
France	National Plan for "Alzheimer and Related Diseases" 2001–04	2001–2004	Ministry of Social Affairs, Health and Women's Rights	-	-	6 objectives, 52 actions	34
	National Plan for "Alzheimer and Related Diseases" 2005–07	2005–2007		-	-	10 objectives, 31 actions	-
	National Plan for "Alzheimer and Related Diseases" 2008–12	2008–2012		President	-	3 sections, 11 objectives, 44 measures	77
	French Neurodegenerative Diseases Plan 2014–19 <sup>b</sup>	2014–2019		President	-	4 areas, 12 objectives, 96 actions	-
	Neurodegenerative Diseases Roadmap 2021–2022 <sup>d</sup>	2021–2022		-	-	10 axes, 18 actions	40
The US	National Plan to Address Alzheimer's Disease <sup>b</sup>	2012– <sup>e,f</sup>	Department of Health and Human Services	President	National Alzheimer's Project Act	6 goals, 29 strategies, 114 actions	-
Japan	Five-Year Plan for Promotion of Dementia Measures	2013–2017	Ministry of Health, Labor and Welfare	Prime Minister	-	7 perspectives, 31 actions	-
	Comprehensive Strategy to Accelerate Dementia Measures (New Orange Plan) <sup>b</sup>	2015–2020			-	7 pillars, 17 actions	19
South Korea	Dementia Comprehensive Management Measures	2008–2012	Ministry of Health and Welfare	Minister	-	4 areas, 34 actions	-
	The 2 <sup>nd</sup> National Dementia Plan 2013–2015	2013–2015		Director General of Senior Policy	Dementia Management Act	4 areas, 45 actions	-
	The 3 <sup>rd</sup> National Dementia Plan 2016–2020	2016–2020				4 areas, 38 actions	11
	National Dementia Initiative	2017 <sup>c</sup>		President	-	7 areas, 17 actions	-
	The 4 <sup>th</sup> National Dementia Plan ('21-'25) <sup>b</sup>	2021–2025		Minister		2 axes, 8 areas, 87 actions	14

<sup>a</sup>As of September 2022, the latest national dementia plans were selected for analysis; <sup>b</sup>Identified as the latest national dementia plan; <sup>c</sup>End date is not specified;

<sup>d</sup>Since Neurodegenerative Diseases Roadmap 2021–2022 was a transitional extension to maintain essential action rather than a new national dementia plan, French Neurodegenerative Diseases Plan has been identified as the latest one; <sup>e</sup>Annually updated; <sup>f</sup>The latest 2021 update was selected for analysis.

except Italy and France promoted preventive activities such as exercise or cognitive training, including the "Dementia Prevention Exercise" in Korea.<sup>16</sup> The UK and Korea provided personalized dementia risk calculators to promote preventive activities and awareness.<sup>16,19</sup> All countries, except Italy, supported research on prevention, including clinical trials on lifestyle intervention such as "Lifestyle Alzheimer's Disease Prevention"<sup>6</sup> and prospective cohort studies such as the "Three-City (3C) study,"<sup>18,20</sup> and "Korean Longitudinal Study on Cognitive Aging and Dementia."<sup>21</sup>

#### Target 2. Early dementia diagnosis

This target is recommended as the objective 2 by OECD and as the action area 4 by WHO. All NDPs included this target. The policy approaches were "more available diagnostic services," "training primary staff in identifying dementia," and "intensifying post-diagnostic support."<sup>3</sup>

**Table 2.** Comparing eight countries' national dementia plans by possible policy approaches for the 11 targets

The 11 targets	Possible policy approaches	Canada	Italy	Germany	The UK	The US	Japan	France	South Korea
1. Dementia risk reduction	1.1. Intensifying preventive awareness	●	●	●	●	●	●		●
	1.2. Intensifying preventive activities (lifestyles, program)	●		●	●	●	●		●
	1.3. Research for prevention	●		●	●	●	●	●	●
2. Early diagnosis of dementia	2.1. Increase the availability and accessibility of diagnostic services	●	●	●	●	●	●	●	●
	2.2. Provide training to primary care staff in identifying dementia	●		●	●	●	●	●	●
	2.3. Post-diagnostic support to link people to appropriate services			●	●		●	●	●
3. Dementia awareness and friendliness	3.1. Public awareness campaigns to reduce stigma	●	●	●	●	●	●	●	●
	3.2. Targeted education of those who come into contact with people with dementia	●		●	●	●			●
	3.3 Dementia education in schools				●		●		
4. Support for dementia carers	4.1. Increase the availability and uptake of respite care services	●		●	●	●		●	●
	4.2. Provide training to carers (informal caregivers)	●		●	●	●	●	●	●
	4.3. Provide support to carers (focused on peer-to-peer support)	●		●	●		●		●
5. Safe and appropriate environment for people with dementia	5.1. Supporting the improvement of the residential environment			●	●			●	●
	5.2. Introduction of an alternative housing model			●	●	●	●	●	●
6. Safe and high-quality long-term care services for people with dementia	6.1. Standardizing long-term care services	●		●	●	●		●	●
	6.2. Training dementia-related workforce for care service	●	●	●	●	●	●	●	●
	6.3. Monitoring the management of BPSD				●	●			
	6.4. Promoting human rights and decision-making for people with dementia	●		●	●	●	●	●	●
7. Adequate health facilities for people with dementia	7.1. Training staff in recognizing and responding to people with dementia		●	●	●	●			●
	7.2. Establishing specialized staff and dedicated wards in hospitals			●	●			●	●
8. EOL care for the dignity of people with dementia	8.1. Improving accessibility to EOL care for people with dementia			●	●		●	●	
	8.2. Training care home staff in EOL care for people with dementia			●	●	●	●		
9. Coordinated and proactive care closer to home	9.1. Establishing multidisciplinary services	●	●	●	●	●	●	●	●
	9.2. Providing acute services outside of the hospital			●	●	●		●	
10. Dementia research and innovation	10.1. Promoting user-centered development and assessment of technologies	●		●	●	●	●	●	●
	10.2. Developing measures to facilitate research	●	●	●	●	●	●	●	●
11. Information systems for dementia	11.1. Developing national systems to gather information	●	●	●	●			●	●
	11.2. Recording and sharing patient data					●	●	●	●
	11.3. Enabling access to data of available services and resources	●	●	●	●	●	●	●	●

Cells painted in gray indicate that the target area is addressed in the national dementia plan; Blank cells indicate that the policy approach lacks in the national dementia plan.

BPSD = behavioral and psychological symptoms of dementia, EOL = end-of-life.

All countries tried to enhance the availability of diagnostic services. There were centers/clinics to promote diagnosis: “Center for Cognitive Disorders and Dementia” in Italy<sup>22</sup>; “Memory Consultation” and “Resource and Research Memory Center” in France<sup>18</sup>; “Medical Centers for Dementia” in Japan<sup>23,24</sup>; and “Dementia Reassurance Center” in Korea.<sup>16,25</sup> Diagnostic tools and guidelines were developed for specific targets, such as people with black, Asian, and minority ethnic backgrounds<sup>19</sup>; veterans<sup>14</sup>; and immigrants.<sup>26</sup> All countries, except Italy, strengthened the capacity of primary physicians to recognize dementia. The UK<sup>19</sup> and Japan<sup>23</sup> offered specialized training programs. There were post-diagnostic support services, such as regional advisory services in Germany,<sup>26</sup> dementia advisers in the UK,<sup>19</sup> short-term intensive support in Korea,<sup>16</sup> and liaison to post-diagnostic services in France<sup>18</sup> and Japan.<sup>23</sup>

### Target 3. Dementia awareness and friendliness

This target is recommended as the objective 3 by OECD and as the action area 2 by WHO. All NDPs included this target. The policy approaches were “awareness-raising for general population and students” and “tailored education to the service providers.”<sup>3</sup>

All countries provided information or conducted campaigns to increase public awareness. Furthermore, all countries, except France and Italy, had dementia supporters: “Dementia Friends,”<sup>19</sup> “Dementia Supporters,”<sup>23</sup> and “Dementia Partners.”<sup>16,26</sup> All countries, except Italy, employed the concept of “dementia-friendly community” in their NDPs, promoting an accepting social environment. The UK<sup>19</sup> and Japan<sup>23</sup> had dementia education in schools.

Canada,<sup>27</sup> Germany,<sup>26</sup> the UK,<sup>19</sup> the US,<sup>14</sup> and Korea<sup>16</sup> educated their service providers to support PWD-bank employees,<sup>19,28</sup> retailers,<sup>19,27,28</sup> transportation providers,<sup>19,26-28</sup> police,<sup>14,26,28</sup> and firefighters.<sup>26</sup>

#### *Target 4. Supports for dementia caregivers*

This target is recommended as the objective 4 by OECD and as the action area 5 by WHO. All countries, except Italy, included this target. The policy approaches were “more accessible respite care” and “training and peer-to-peer support for caregivers.”<sup>3</sup>

All countries, except Italy and the US, promoted the provision of respite services. Germany planned to expand the daycare service hours to include holidays.<sup>26</sup> Japan provided multifunctional daycare, and short-term and long-term institutionalization facilities.<sup>23</sup> Korea provided a seven-day respite program per year.<sup>16</sup> All countries, except Italy, provided training and educational material. Germany insurance funds offered free training online or at home.<sup>26</sup> Canada,<sup>27</sup> Germany,<sup>26</sup> the UK,<sup>19</sup> Japan<sup>23</sup> and Korea<sup>16</sup> promoted peer-to-peer support. Germany provided a mobile application offering online self-help services.<sup>26</sup> Korea provided lists of self-help groups through websites and application.<sup>16</sup>

Caregivers received other forms of support: online/offline psychological support,<sup>14,16,19</sup> online mental health screening,<sup>16</sup> national helpline,<sup>14,16,26</sup> tax credit or medical care benefits,<sup>16,19,23,27</sup> and care-compatible work schedules.<sup>18,19,22,26,27</sup>

#### *Target 5. Safe and appropriate environments for PWD*

This target is recommended as the objective 5 by OECD and as the action area 4 by WHO. The NDPs of all countries, except Canada and Italy, included this target. The policy approaches were “improving the residential environment” and “introducing an alternative housing model.”<sup>3</sup>

To improve the home environment, Germany<sup>26</sup> and Korea<sup>16</sup> provided guidelines and advice, the UK developed a design tool, and Germany<sup>26</sup> and France<sup>18</sup> provided financial support. Germany provided a loan program funding home remodeling.<sup>26</sup> In France, the National Old Age Insurance Fund and National Housing Agency agreed to provide financial assistance and modification consulting.<sup>18</sup> Germany,<sup>26</sup> Japan,<sup>23</sup> and France<sup>18</sup> improved the social environment, including transportation and public buildings. All countries, except Canada and Italy, tried to develop or expand alternative housing models, including residential houses or group homes, to long-term institutionalization.

#### *Target 6. Safe and high-quality long-term care services for PWD*

This target is recommended as the objective 6 by OECD and as the action area 4 by WHO. All NDPs included this target. The policy approaches were “standardizing long-term care,” “training formal caregivers,” “monitoring the management of behavioral and psychological symptoms of dementia” (BPSD), and “promoting human rights and decision-making.”<sup>3</sup>



All countries, except Italy and Japan, implemented care guidelines or standards, such as the NICE Quality Standards.<sup>19</sup> All countries provided education to care workers. The UK tried to educate all National Health Service (NHS) staff.<sup>19</sup> The UK<sup>19</sup> and the US<sup>14</sup> monitored the inappropriate prescription of antipsychotics, while Japan,<sup>23</sup> France,<sup>18</sup> and Korea<sup>16</sup> tried to improve the management of BPSD. All countries except Italy tried to improve the autonomy and human rights of PWD. Strategies were implemented to help decision-making, such as advance planning,<sup>14,19,27</sup> adult guardianship,<sup>16,18,19,23</sup> and alternative models to guardianship.<sup>14,25</sup> France provided a national center promoting ethics and human rights for PWD.<sup>18</sup> Germany,<sup>26</sup> the US,<sup>14</sup> Japan,<sup>23</sup> and Korea<sup>16</sup> tried to reduce the abuse of PWD.

#### *Target 7. Adequate health facilities for PWD*

This target is recommended as the objective 7 by OECD and as the action area 4 by WHO. All countries, except Canada, included this target. The policy approaches were “training medical staff” and “specialized staff and wards in hospitals.”<sup>3</sup>

All countries, except Canada and France, provided education to healthcare staff. Germany<sup>26</sup> and the UK<sup>19</sup> tried to provide all employees having contact with PWD with basic education. The UK provided dementia-friendly hospitals.<sup>19</sup> Germany promoted dementia-sensitive hospital care by optimizing treatment plans, the environment, and nursing practice standards.<sup>26</sup> Germany,<sup>26</sup> the UK,<sup>19</sup> France,<sup>18</sup> and Korea<sup>16</sup> provided specialized hospital staff or wards. There were specialized services for BPSD management, like “cognitive-behavioral units”<sup>18</sup> and dementia-specialized wards.<sup>16</sup>

#### *Target 8. EOL care for the dignity of PWD*

This target is recommended as the objective 8 by OECD and as the action area 4 by WHO. The NDPs of all countries, except Canada, Italy, and Korea, included this target. The policy approaches were “improving accessibility to and educating care workers on EOL care.”<sup>3</sup>

Germany,<sup>26</sup> the UK,<sup>19</sup> Japan,<sup>23</sup> and France<sup>18</sup> provided enhanced access to EOL care. Germany tried to implement outpatient palliative care.<sup>26</sup> France planned to disseminate tools and recommendations for EOL care for PWD.<sup>18</sup> The UK<sup>19</sup> and France<sup>18</sup> offered planning services for person-centered EOL care and bereavement support for caregivers. Germany,<sup>26</sup> the UK,<sup>19</sup> the US,<sup>14</sup> and France<sup>18</sup> offered training or educational resources for staff on EOL care for PWD.

#### *Target 9. Coordinated and proactive care closer to home*

This target is recommended as the objective 9 by OECD and as the action area 4 by WHO. All countries' NDPs included this target. Among the policy approaches in the OECD reports, “proactive primary care,” “comorbidities management,” and “recording and sharing of patient data” were integrated to Targets 7, 9, and 11, and “multidisciplinary services” and “acute out-of-hospital services”<sup>3</sup> remained.

All countries encouraged multidisciplinary and coordinated services. There were centers for integrated support, such as “dementia reassurance centers”<sup>16,25</sup> and “houses for the autonomy and integration of Alzheimer's patients.”<sup>18</sup> Japan had a “community dementia support promotion member” service linking healthcare and long-term care.<sup>23</sup> Germany set dementia-specific contact points for each municipality.<sup>26</sup> Germany,<sup>26</sup> the UK,<sup>19</sup> the US,<sup>14</sup> and France<sup>18</sup> provided acute out-of-hospital services. The US tested a home-based primary care model.<sup>14</sup> France provided improved access to “home hospitalization” providing care

at home.<sup>18</sup> The concept of a “care pathway” was incorporated in action plans or planning framework for continuous services,<sup>16,19,23,26</sup> such as the UK’s “Well Pathway for Dementia.”<sup>19</sup>

#### *Target 10. Dementia research and innovation*

This target is recommended as the objective 10 by OECD and as the action area 7 by WHO. All countries included this target in their NDPs. Several policy approaches suggested by the OECD and WHO were integrated into “user-centered development and assessment of technologies” and “strengthening research.”

All countries, except Italy, provided strategies for technology development. Canada<sup>27</sup> and the UK<sup>19</sup> promoted the development and utilization of assistive technologies. Japan encouraged the utilization of information, communication technology, and robots.<sup>23</sup> France promoted cooperation platforms for the development and evaluation of home support technologies.<sup>18</sup> Canada<sup>27</sup> and France<sup>18</sup> emphasized the integration of technologies to health and care systems. All countries strengthened their research governance, including funding, flexible regulation, cooperation with PWD and stakeholders, international exchange, and organization integrating investment and agendas. All countries, except Italy and Korea, encouraged participation in research. The UK facilitated “join dementia research” websites with helpline support, providing information, registration, and matching with suitable studies.<sup>19,29</sup>

#### *Target 11. Information systems for dementia*

This target is recommended as the objective 9 by OECD and as the action area 6 by WHO. All NDPs included this target. The policy approaches were “national systems to gather information,” “sharing patient data,” and “providing information of available services.”

All countries, except the US and Japan, collected nationwide data. France had the “National Alzheimer’s Data Bank”<sup>18,30</sup> and Korea had the “Korean Dementia Registration and Management System.” Korea published an annual report, the “Korean Dementia Observatory,”<sup>16</sup> while Germany had the “Digital Supply Act,” allowing health insurance companies to transfer data to authorized researchers.<sup>26</sup> The US,<sup>14</sup> Japan,<sup>23</sup> France,<sup>18</sup> and Korea<sup>16</sup> had strategies for sharing patient data. The US developed the “Electronic Long-Term Services and Supports” initiative to identify electronic standards to exchange service plans.<sup>14,31</sup> Japan planned a “dementia information linkage sheet” to promote communication.<sup>23</sup> All countries provided access to information on the available services. Germany presented the website “Guide to Dementia.”<sup>26,32</sup> Korea had a website, mobile application, and an annually updated guidebook. Japan demanded that local governments develop a care pathway mapping the available services.<sup>23</sup>

## DISCUSSION

Previous studies compared the NDPs on specific topics (immigrants,<sup>33</sup> palliative care,<sup>34</sup> driving regulations,<sup>35</sup> implementation strategies,<sup>36</sup> dementia-friendliness,<sup>37</sup> service access points<sup>38</sup> and service transitions).<sup>39</sup> Several reports from international organizations<sup>1,5-10,40-42</sup> captured the progress or beneficial examples of dementia policies. Previous comparative studies using the WHO action areas focused on the factors associated with the likelihood of having an NDP.<sup>43</sup> A systematic comparison of NDPs can provide practical references to low- and middle-income countries (LMICs) that urgently need NDPs because of the fast increase in PWD and low availability of resources.<sup>44</sup> In our previous work, we systematically compared



the formulation of NDPs between G7 countries and South Korea using the WHO action areas and OECD policy objectives as framework for the first time and found that the NDPs were generally well formulated by adapting the recommendations of OECD and WHO.<sup>11</sup> However, without concrete action plans and implementation basis, the NDPs would be nothing but “documents with good intentions.”<sup>8</sup>

NDP implementation was ensured by legislation in the US, Canada, and Korea. These laws required an effectiveness evaluation,<sup>14,15</sup> policy updates,<sup>14</sup> and regular NDP establishment.<sup>16</sup> Without a legal basis, the momentum may weaken or disappear when the regime changes. Another key to solidifying implementation is the head of state-level leadership. In the UK, the leadership achieved an increased diagnosis rate and the education of over 1 million NHS staff.<sup>45</sup> In Korea, the president introduced the NDI, enabling a large budget input and cross-ministerial support. Furthermore, only some NDPs included outcome measures. The UK and Korea pictured the shape of success, while Japan and Korea set quantified goals. The third NDP of France specified their executors, funding, schedules, and indicators. Since measures to ensure proper implementation needed improvement even in eight high-income countries (HICs), the WHO should promote not only establishment but also proper implementation of NDPs.

Regarding the action plans, previous reviews have reported that the action plans of many NDPs were obscure<sup>46,47</sup> Similarly, we found that specific action plans were not adequately prepared for several targets. The level of specificity of action plans varied across different policy targets, even within a single country. For Target 7, Korea has developed specific implementation plan and operational guidelines for dementia-specialized wards,<sup>16</sup> and has also conducted a pilot project for them. These wards provide a dementia-friendly environment with single rooms for intensive care, program rooms for non-pharmacological treatment and counseling, and common living areas to promote social interaction. They aim to offer a comprehensive treatment for BPSD from admission to post-discharge linkage, including non-pharmacological and pharmacological intervention. On the other hand, regarding Target 8, Korea lacks concrete plans. This stands in contrast to France, where individualized palliative care is provided for PWD in terminal stage, support services are provided to families, and advance planning is promoted, including advance directives and lasting power of attorney.<sup>18</sup> There were also differences in the level of preparedness of the action plan, not only depending on the target, but also within the target. To improve awareness of dementia (Target 3), Korea has effectively implemented initiatives for the general public, such as dementia partners. However, specific plans to educate students on dementia are lacking in the latest NDP.<sup>16</sup> Conversely, in Japan, elementary and middle schools offer dementia supporter training courses, and universities promote volunteering opportunities related to dementia.<sup>23</sup> In the UK, all primary and secondary schools are encouraged to include dementia awareness in their programs.<sup>19</sup> An eight-week dementia education program for children has demonstrated efficacy in enhancing dementia knowledge and attitudes.<sup>48</sup>

The NDPs of eight HICs largely followed the WHO and OECD recommendations and shared similar policy targets. Previous studies have reported that NDPs share common themes such as early diagnosis (Target 2), improving awareness (Target 3), caregiver support (Target 4), long-term care (Target 6), care coordination (Target 9), and workforce training (Targets 6 and 7).<sup>7,40,46,47,49-51</sup> However, risk reduction (Target 1) tended to have less clear targets or indicators<sup>7</sup> and was included in only 25% of 16 NDPs.<sup>52</sup> Modifiable risk factors are found to be implicated in almost half of Alzheimer’s disease cases.<sup>53</sup> Recent reports indicate an actual

decrease in dementia incidence in HICs,<sup>54-56</sup> including Korea.<sup>57-59</sup> Strengthening preventive measures should be considered a public health priority at a national level,<sup>60</sup> particularly in LMICs. Just as the Pan American Health Organization recommended strengthening dementia prevention policies,<sup>61</sup> the WHO should actively support LMICs in establishing them, beyond simply issuing guidelines.<sup>62</sup> Research (Target 10) was sometimes regarded as an “additional strategy”.<sup>6,49</sup> Technology (Target 10) and information systems (Target 11) were rarely mentioned.<sup>6,43,47</sup> Assistive technology received the least attention among dementia-friendly initiatives, and only 10 countries compiling dementia-specific data out of the 62 participants at the Global Dementia Observatory.<sup>5</sup> However, our study found that all NDPs included these targets, probably due to their adequate resources. In contrast, LMICs may not have sufficient resources. Of the 540 research collaborations since 2019, only 2.6% had LMICs.<sup>5</sup> Global strategies and platforms are needed to secure cooperation between HICs and LMICs. Appropriate environment (Target 5) and EOL care (Target 8) were not included in all NDPs. Only 8 of the 16 NDPs were reported to address housing.<sup>52</sup> NDPs rarely mentioned physical environments because of the lack of education for architects and designers and the stigma marginalizing PWD.<sup>42</sup> A qualitative review revealed that only three NDPs had a dedicated category for palliative care.<sup>34</sup> As the NDPs are often motivated by politics,<sup>34</sup> the perception that the target population is small may make the topic less appealing.

This study has several limitations. First, separate plans or legislations other than NDPs often contained dementia-related content, especially research, information systems, and long-term care. Second, sub-national plans were not included in the analysis, but they may complement the NDPs in countries with a substantial local autonomy, such the US, Canada, or Japan. Third, the mere presence of policy does not guarantee its successful implementation. Even implemented plans may still be ineffective in achieving the intended policy target. The specificity and cooperation of policy actors, along with the effectiveness evaluation, and budget allocation can significantly impact the success of policy implementation. Despite these limitations, the current study of the NDPs may provide policymakers and researchers with practical references for developing, updating, and evaluating their NDPs.

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