original article

How can behavioural science contribute to elderly care? Lessons from Japan

Alden Lai

National Healthcare Group, Singapore

Yoshiki Ishikawa

Cancer Scan Inc., Tokyo

Estimated to be 26.9% in 2015, Japan has the highest ageing rate in the world (Organisation for Economic Co-operation and Development [OECD], 2009). Not only is Japan grappling with economic and social issues surrounding the greying baby boomers, it further faces the problem of plummeting fertility rates. As the ageing phenomenon is unprecedented, health systems in the world lack historical references to tackle the challenges that lie ahead and therefore can only adapt to needs as they arise. In this vein, Japan has been a platform for academics, practitioners and policy-makers alike to generate innovative measures for elderly care while providing valuable lessons for the world. Simultaneously, this also creates opportunities for the behavioural scientific community to shape the ways we deal with ageing. This article aims to describe the current measures Japan is undertaking to mitigate the challenges of ageing, and in the process offer suggestions on how behavioural science research can contribute to these initiatives.

Discourse on ageing in Japan cannot exclude the long-term care insurance (LTCI), which is the flagship intervention designed by the government to mitigate the needs of the Japanese elderly on a national level. Implemented in 2000, the LTCI represents a social insurance system funded equally by tax and employer contributions to allow the elderly to afford the care services they require. Japan's LTCI closely resembles that of Germany's, except for the absence of cash allowances for family caregivers. A paper by Campbell, Ikegami, and Gibson (2010) documented Japan to be providing public benefits to 13.5% of its population that are above 65 years of age, whilst figures for Germany and the United States stand at 10.5% and 4.5% respectively (also see article for a comprehensive comparison between Japan and Germany's LTCI systems). Although the LTCI is at its core a fiscal measure, the government has sought input in behavioural science for its improvement in recent years as it looks beyond economic aspects in its LTCI policy. For example, based on a review published in *The Lancet*, the emotional burden on caregivers is clearly flagged as a concern (Tamiya et al., 2011). Considering the abundance of literature underlining the experiences of burnout and depressive symptoms experienced by the caregivers of elderly persons (e.g., Etters, Goodall, & Harrison, 2008), this topic is certainly relevant to the health behavioural science community. The provision of care to frail and older adults has been associated with higher depression and stress, and lower self-efficacy and general subjective wellbeing, in comparison to non-caregivers (Pinquart & Sorensen, 2003). It was also suggested that family caregivers who provide care at home have unmet informational, social and emotional needs that can be mitigated by the formation of local peer support groups (Bee, Barnes, & Luker, 2008; Stoltz, Udén, & Willman, 2004). Furthermore, a series of evidence-based psychosocial interventions, classified into psycho-educational, psychotherapeutic, or multicomponent, have been identified to reduce distress and improve carers' wellbeing (Gallagher-Thompson & Coon, 2007; Pinquart, Sorensen, & Duberstein, 2002). Given the burgeoning amount of evidence, the next step is to apply such evidence in appropriate manners in LTCI to extend its purview to caregivers to alleviate their psycho-emotional burden.

It is, however, instrumental at this stage to highlight the need to consider cultural and societal norms when conducting behavioural science research in caregiver support, especially in the context of home care. Ethnic differences exist in caregiving – White caregivers are more likely to be spouses than Asians and Latinos for example (Janevic, & Connell, 2003). In contrast, in Japan and East Asian countries, daughters-in-law are the main caregivers of older adults due to the strong influence of Confucian teachings (Hashizume, 2000; Koh & Koh, 2008). Tamiya et al. (2011) estimated that 40% of the elderly population in Japan are living with their children, and highlighted how traditional Japanese family values prescribe that a 'self-respecting' daughter-in-law will not allow someone else to provide care on her behalf for her elderly in-laws. Furthermore, a six year retrospective study with 191 Japanese elderly females documented systemic differences in mortality rates according to the type of family caregiver (i.e., spouse, biological daughter or daughter-in-law) (Nishi et al., 2010). Having mentioned this, given the percolation of Western values in recent years, and recognition of the elderly care burden being imposed on family caregivers by the Japanese government, such traditional perspectives are evolving. In short, as elderly care can be considered an intimate family affair, and has implications on care arrangements, we recommend that any form of psychosocial interventions designed to enhance support for the caregiver should be culturally tailored for outcome optimisation.

Exciting work on the application of health psychology theories for elderly care is underway in Japan. In 2014, the Japanese parliament approved the Health Data Plan for a systematic identification of older adults that are at risk of developing chronic disease complications for targeted psychosocial interventions. Part of the National Revitalisation Strategy, a pilot programme will focus on disease self-management and prevention of diabetes in 180,000 elderly in a local community. Adapting from the Theory of Planned Behaviour, information from annual health screenings and health insurance claims are first analysed at the municipal level to identify a specific subset of the population that meets the following criteria – at risk of developing diabetes complications, requiring medication, and exhibiting poor medication adherence. Secondly, an algorithm is applied to further segregate this subset into two groups; one with high behavioural intentions of taking their medication, and the other with low intentions. Third, health messages tailored to each level of intentions are disseminated with the aim of increasing their medication adherence. Older adults at the pre-diabetes stage are also identified as part of the process; for this borderline at-risk group, lifestyle counseling will be conducted as part of disease prevention. It is encouraging that health authorities are taking theoretically-informed and systematic steps in the design of this intervention, as previous literature has established the use of theory, or explicitly described theoretical constructs, to enhance the effectiveness of public health interventions (Glanz & Bishop, 2010). In fact, the inception of the Health Data Plan was informed by a successful trial conducted to examine the effectiveness of tailored print reminders for the uptake of breast cancer screening in Japanese women (Ishikawa et al., 2012). Scheduled to be implemented from 2015, the scope of this new initiative will also be expanded to other diseases should preliminary evaluations yield successful outcomes. It is hoped that this blend of big data analysis, health psychology and health communication will result in a new and effective framework of examining chronic disease management and prevention for elderly care in Japan.

In an article by National Institutes of Health's Office of Behavioural and Social Sciences Research in the United States, an integration of the three disciplinary domains of 'the largely biomedical sciences, the largely individual behavioural sciences, and the largely group or population sciences of the ecologic world view' was being advocated (Mabry, Olster, Morgan, & Abrams, 2008). Mabry and colleagues called for the vertical integration of these

traditionally disparate domains to generate breakthroughs in the ways we tackle complex health issues, such as elderly care, chronic disease management, and social inequality in our society. Coincidentally, the same paper presented a conceptual model for diabetes by Jones et al. (2006) as a system comprising both elements of individual behaviours and ecological determinants of diabetes management, which is similar to the Health Data Plan mentioned above. It may thus be argued that the application of behavioral science in elderly care will require an inherent paradigm shift in the way we perceive and use our current knowledge. Forefront thinkers have asserted the need for behavioural scientists to be more creative, consider culture and context, and most importantly, inculcate interdisciplinary perspectives in the design and implementation of interventions to better meet our society's health needs at a system level (Glanz & Bishop, 2010; Mabry, Olster, Morgan, & Abrams, 2008).

This article had two aims – to introduce examples from Japan on current efforts in the mitigating of elderly care needs, and suggest ways in which behavioural science can contribute to these initiatives. We hope that by describing Japan's flagship elderly care intervention, the psycho-emotional burden of caregivers, and the use of behavioural theory for diabetes management and prevention in the elderly, we have provided some form of inspiration for readers to contemplate about the ways we can apply our knowledge and findings in health psychology for an upcoming and unprecedented challenge the world will face – ageing.

References

Bee, P. E., Barnes, P., & Luker, K. A. (2009). A systematic review of informal caregivers' needs in providing home-based end-of-life care to people with cancer. *Journal of Clinical Nursing, 18*(10), 1379–1393. doi:10.1111/j.1365-2702.2008.02405.x

Campbell, J. C., Ikegami, N., & Gibson, M. J. (2010). Lessons from public long-term care insurance in Germany and Japan. *Health Affairs, 29*(1), 87-95. doi:10.1377/hlthaff.2009.0548

Etters, L., Goodall, D., & Harrison, B. E. (2008). Caregiver burden among dementia patient caregivers: A review of the literature. *Journal of the American Academy of Nurse Practitioners, 20*(8), 423–428. doi:10.1111/j.1745-7599.2008.00342.x.

Gallagher-Thompson, D., & Coon, D. W. (2007). Evidence-based psychological treatments for distress in family caregivers of older adults. *Psychology and Aging, 22*(1), 37-51. doi: 10.1037/0882-7974.22.1.37

Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual review of Public Health, 31*, 399-418. doi:10.1146/annurev.publhealth.012809.103604

Hashizume, Y. (2000). Gender issues and Japanese family-centered caregiving for frail elderly parents or parents-in-law in modern Japan from the sociocultural and historical perspectives. *Public Health Nursing, 17*(1), 25-31. doi:10.1046/j.1525-1446.2000.00025.x

Ishikawa Y., Hirai, K., Saito, H., Fukuyoshi, J., Yonekura, A., Harada, K., … Nakamura, Y. (2012). Cost-effectiveness of a tailored intervention designed to increase breast cancer screening among a non-adherent population: A randomized controlled trial. *BMC Public Health, 12*, 760. doi:10.1186/1471-2458-12-760

Janevic, M. R., & Connell, C. M. (2001). Racial, ethnic, and cultural differences in the dementia caregiving experience: recent findings. *The Gerontologist, 41*(3), 334-347. doi:10.1093/geront/41.3.334

Jones, A. P., Homer, J. B., Murphy, D. L., Essien, J. D., Milstein, B., & Seville, D. A. (2006). Understanding diabetes population dynamics through simulation modeling and experimentation. *American Journal of Public Health, 96*(3), 488-494. doi:10.2105/AJPH.2005.063529

Koh, H., & Koh, C. K. (2008). Caring for older adults – the parables in Confucian texts. *Nursing Science Quarterly, 21*(4), 365-368. doi:10.1177/0894318408324320

Mabry, P. L., Olster, D. H., Morgan, G. D., & Abrams, D. B. (2008). Interdisciplinarity and systems science to improve population health: A view from the NIH Office of Behavioral and Social Sciences Research. *American Journal of Preventive Medicine, 35*(2S), S211-S224. doi:10.1016/j.amepre.2008.05.018

Nishi A., Tamiya, N., Kashiwagi, M., Takahashi, H., Sato, M., & Ichiro, K. (2010). Mothers and daughters-in-law: A prospective study of informal care-giving arrangements and survival in Japan. *BMC Geriatrics, 10*, 61. doi:10.1186/1471-2318-10-61

Organisation for Economic Co-operation and Development (2009). Ageing societies. In *OECD Factbook 2009: Economic, Environmental and Social Statistics*. OECD Publishing. doi:10.1787/factbook-2009-en

Pinquart, M., & Sorensen, S. (2003). Differences between caregivers and noncaregivers in psychological health and physical health: A meta-analysis. *Psychology and Aging, 18*(2), 250-267. doi:10.1037/0882-7974.18.2.250

Sorensen, S., Pinquart, M., & Duberstein, P. (2002). How effective are interventions with caregivers? An updated meta-analysis. *The Gerontologist, 42*(3), 356-372. doi:10.1093/geront/42.3.356

Stoltz, P., Udén, G., & Willman, A. (2004). Support for family carers who care for an elderly person at home – a systematic literature review. *Scandinavian Journal of Caring Sciences, 18*(2), 111–119. doi:10.1111/j.1471-6712.2004.00269.x

Tamiya, N., Noguchi, H., Nishi, A., Reich, M. R., Ikegami, N., Hashimoto, … Campbell, J. C. (2011). Population ageing and wellbeing: lessons from Japan's long-term care insurance policy. *The Lancet, 378*(9797), 1183-1192. doi:10.1016/S0140-6736(11)61176-8

Alden Lai
National Healthcare Group, Singapore
alden.lai.yuanhong@gmail.com

Yoshiki Ishikawa
Cancer Scan Inc., Tokyo, Japan
ishikawa@cancerscan.jp