Fall Prevention for Thai Older Adults: A Community-Based Policy Plan Leveraging Technology

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INTRODUCTION: THAILAND, AN AGING SOCIETY

The challenge of an aging society has emerged as a significant problem for numerous countries worldwide. According to the World Health Organisation (WHO), the global number of individuals aged 60 years and above is expected to rise substantially from 1 billion in 2020 to 1.4 billion in 2030. Furthermore, by 2050, the number of older individuals worldwide is projected to double to 2.1 billion[1]. While the aging society issue was initially prevalent in developed and high-income nations such as the United States, Germany, Italy, and Japan, it is now a concern faced by low- and middle-income countries as well. The WHO has forecasted that by 2050, 80 per cent of older adults will be living in low- and middle-income countries[2]. Thailand as well is facing this reality. In 2018 the Civil Service Commission in Thailand (OCSC) announced that Thailand had entered an aged society phase as the proportion of people aged 60 years and over had exceeded 10 per cent (following the definition of *aged society* by the OCSC). According to the OCSC, an aged society was considered to have been reached in the Thai ecosystem as[3] recent data showed that the proportion of Thai older people was about 19.21 per cent in 2022, equivalent to almost 13 million individuals[4]. Accounting for these numbers, Thailand is also expected to enter the super-aged society phase before 2040, which indicates that one in three people in the country will belong to the segment of the population considered older adults[5].

1. WHO. Ageing and Health.
2. WHO.
3. OCSC. Government sector and preparation for entering an aging society.
4. DOP. Statistics of older persons.
5. OCSC. Government sector and preparation for entering an aging society.

With these premises, one of the challenges in dealing with the rising ratio of older adults in society is associated with the consequences that this is bringing to the healthcare systems, and in this chapter, we will focus specifically on the risks associated with falling and its consequences, with specific attention on what can be done, particularly leveraging on technology, in terms of prevention. Specifically, one of the common issues associated with seniority is the increase in the risk of falling, with all the related consequences connected to it. Falls are defined by the WHO as "inadvertently coming to rest on the ground, floor, or other lower level, excluding intentional change in position to rest in furniture, wall, or other objectives"[6]. The level of injury from falling can range from moderate to severe, especially injuries affecting the skeletal and muscular systems[7]. The severe consequences can lead to mortality. According to the WHO, falls suffered by elderly people are usually related to four categories of risk factors, namely: (1) behavioural risk factors (medication usage, alcohol, lack of exercise, inappropriate footwear), (2) biological risk factors (age, chronic illnesses, physical and cognitive impairments), (3) socioeconomic risk factors (income, education level, access to health and social services, lack of community resources), and (4) environmental risk factors (building design, floors and stairs design, lighting, sidewalks and streets)[8]. Falls among older people are a significant problem in aged societies as well as in Thailand, a country that has experienced a growing number of such incidents over the past decade. The majority of older people (60 years and above) in the Kingdom belongs to the age group of 60-69 years, which represents 56.25 per cent of the total, followed by those aged 70-79 years (29.52 per cent) and those with an age of 80 years and above (14.23 per cent) (Figure 1).

More than three million Thai older people aged 60 and over experience falls each year, accounting for one in three of the older population[9], with over half of fall incidents in older people resulting in severe injuries requiring hospitalisation, leading to a loss of independence, post-anxiety syndrome, and physical and mental health problems[10]. This trend is not slowing down but rather increasing. Specifically,

6. World Health Organisation. WHO Global Report on Falls Prevention in Older Age.

7. Deeroop, Manopanjasiri, and Nethin. Falls prevention: Clinic Lerdsin Hospital.

8. World Health Organisation. WHO Global Report on Falls Prevention in Older Age.

9. DIP. Number and Rate of Out-Patient Department (OPD) Due to Fall (W00-W19) in Older People Aged 60 Years and Over.

10. DIP; Worapanwisit, Prabpai, and Rosenberg. Correlates of Falls among Community-Dwelling Elderly in Thailand; Rogerson and Emes. Fostering Resilience Within an Adult Day Support Program.

the rate of in-patient department admissions due to falls among older people has been increasing, from 442 per 100,100 people in 2015 to 555 per 100,000 people in 2020, as shown in Figure 2[11].

Figure 1. Percentage of Thai people aged 60 and over divided by age groups, 60-69, 70-79, and 80 and over (DOP 2022).

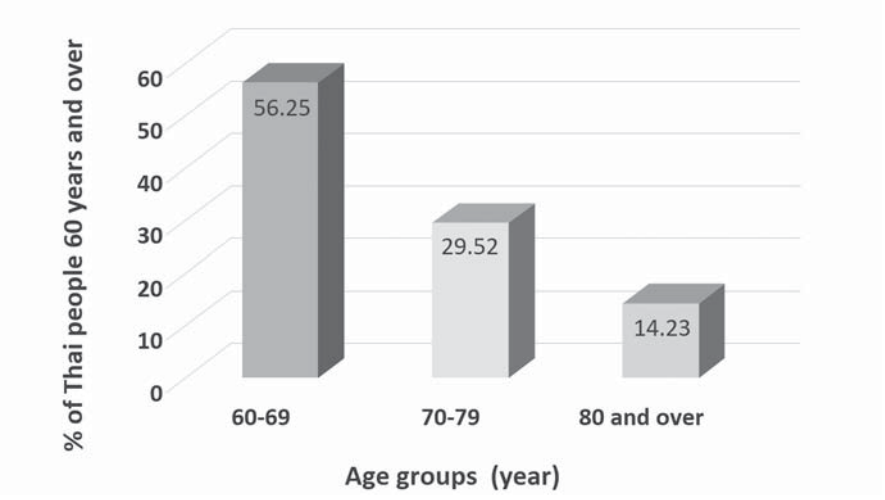
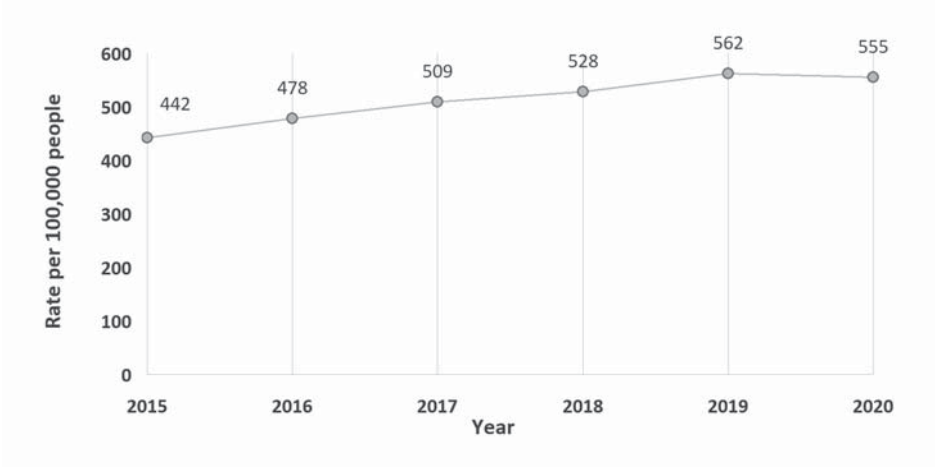


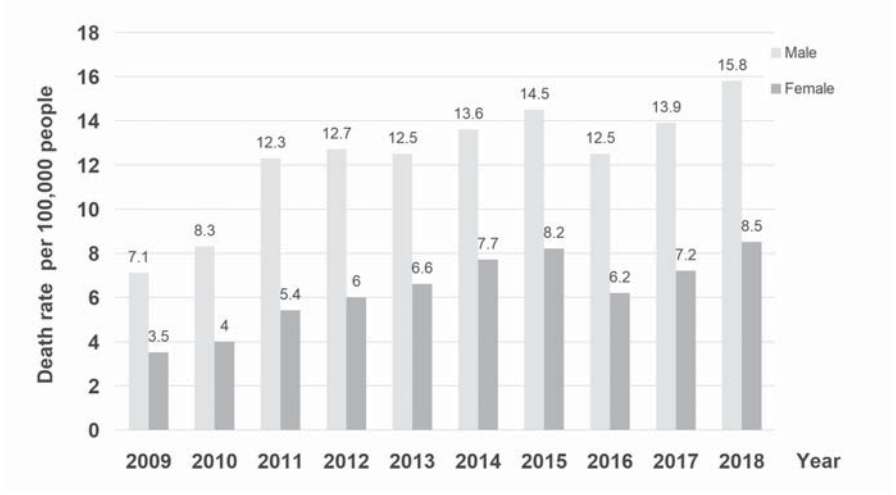
Figure 2. In-patient department (IPD) rate due to fall (W00-W19) in older people aged 60 and over per 100,000 people from the year 2015-2020 (DIP 2021).



11. DIP. Number and Rate of Out-Patient Department (OPD) Due to Fall (W00-W19) in Older People Aged 60 Years and Over.

Also, the number of outpatient department visits due to falls among older people has increased dramatically, from 54,145 in 2015 to 230,552 in 2021, representing more than four times the number of visits in 2015[12]. This increase may be related to the increasing number of elderly people in Thailand, with the slight reduction (between 2019 and 2020) most likely related to the limitations dictated by the pandemic in accessing healthcare facilities (and thus, not contributing to the growth in numbers of outpatients). The issue is also exacerbated by the connection between falls and death. Overall, in fact, "falls are the leading cause of unintentional-injury deaths and can result from multiple causes, either singly or in combination"[13]. Older people have a higher risk of mortality following falls than other age groups[14]. The majority of deaths due to falls among older people occur among males, with the death rate for males nearly twice that of females[15], as also visible in Figure 3. The increase in falls in the country is also increasing the financial burden on the healthcare sector, with the overall cost for fall injury intervention and treatment in older people in Thailand being estimated to be approximately 12,000 million Baht (roughly US$334,000) per year[16].

Figure 3. The death rate of falls in people aged 60 years and over per 100,000 people, divided by gender from 2009-2018 (DIP 2019).



12. DIP.

13. Worapanwisit, Prabpai, and Rosenberg. Correlates of Falls among Community-Dwelling Elderly in Thailand.

14. ThaiNCD. ข้อมูลจำนวนและอัตราการเสียชีวิตจากการพลัดตกหกล้มในผู้สูงอายุ ICD 10 (W00 - W19) ปี พ.ศ. 2561.

15. DIP, Fall in Elderly: Causes and Prevention.

16. DIP.

Accounting for these numbers, preventing falls represents an important focus area for Thailand, both in assuring the safety and well-being of its citizens, but also to avoid financial pressure on its healthcare system. It is worthwhile to highlight that in Thailand the total health expenditure in 2020 was reported to be equal to 4.4 per cent of the Gross Domestic Product (GDP) of the country, with 28.2 per cent of this representing the private expenditure as a share of total health expenditure[17]. The health expenditure as a share of Thai GDP experienced an increase from 3 per cent to 4.4 per cent between 2001 and 2020, an average annual rate of growth equivalent to 2.06 per cent[18]. The public coverage for citizens is represented by the Thailand Universal Health Coverage (UHC) scheme (also known among Thai people as the 30 Bath scheme).

THE IMPORTANCE OF FALL PREVENTION IN THAILAND

In the past, several fall prevention programmes for Thai older people in the community were actively implemented by different institutions. While not all communities in Thailand received these programmes, a spillover effect was a relative increase in awareness regarding fall prevention among older people. However, the effectiveness of such fall prevention programmes is not yet fully established, with some findings pointing out the ineffectiveness of some programmes in effectively reducing falls[19]. In general, it could be argued that these programmes did not reach the expected outcomes, as can be seen in Figures 2 and 3, where an increase in the rate of death and hospitalisation due to falls in the country in the recent past is visible. Arguably, these higher rates may be also one of the consequences of the lack of effectiveness or implementation of fall prevention programmes for Thai older people in the community.

Additionally, the Division of Injury Prevention (DIP), under the Department of Disease Control of the Thai Ministry of Public Health, has introduced a series of fall prevention plans and strategies[20]. However, upon analysing the plans and strategies provided by DIP, it appears that they are limited to older people who live in the community. Kespichayawattana, analysing fall prevention policies and

17. Knoema. Thailand - Total Health Expenditure as a Share of GDP.

18. Knoema.

19. Suttanon et al. Effectiveness of Falls Prevention Intervention Programme in Community-Dwelling Older People in Thailand.

20. DIP. Number and Rate of Out-Paitent Department (OPD) Due to Fall (W00-W19) in Older People Aged 60 Years and Over.

implementations in the country, suggested that fall prevention measures should be community-based but also proactive (Kespichayawattana 2021). Furthermore, it is important to highlight that falls have been commonly found in community-dwelling elderly people[21], and thus, the major focus should be specifically placed on this segment of the population. A study conducted in Thailand identified age, income, presence of congenital disease, and past fall history as the socioeconomic factors that affect fall risk levels[22]. In general, risk factors of falls can be classified into two main categories: intrinsic and extrinsic risk factors. Intrinsic risk factors "include a history of falls, walking and balance problems, less muscle strength, visual impairment, incontinence, receiving many medications, [and] cognitive problems", whereas extrinsic risk factors are referring to "environmental hazards such as a wet floor, slippery and uneven ground surface, inadequate lighting, and inappropriate clothing" (Maneeprom et al. 2019). Based on another study conducted in Thailand, the most common reason for falling was indoors hazardous environments[23]. Therefore, implementing fall prevention programmes and providing a safe environment in the community, both in the indoor environment, and outdoors, where actually the majority of cases happen[24], represent a crucial aspect to consider for Thai elderly people.

In Thailand, there have been only a limited number of studies of fall prevention interventions, with "little research evidence to guide fall prevention practices for Thai older people living in the community"[25]. It is thus essential to ensure that older people in the community receive the benefits of effective fall prevention programmes and thus live in a safe environment relatively free from the risk of falls in order to reduce the incidence rate of falls among Thai older people. In fact, as was pointed out in research work in the literature, if "it is utopian to believe fall-related injuries can be eradicated", at least "one can realistically hope to reduce fall incidence and prevalence, even as nations' populations age and, as they do, the

21. Ganz and Latham. Prevention of Falls in Community-Dwelling Older Adults.

22. Iamtrakul et al. The Association of Falls Risk in Older Adults and Their Living Environment.

23. Worapanwisit, Prabpai, and Rosenberg. Correlates of Falls among Community-Dwelling Elderly in Thailand.

24. Worapanwisit, Prabpai, and Rosenberg.

25. Suttanon et al. Effectiveness of Falls Prevention Intervention Programme in Community-Dwelling Older People in Thailand.

risk of falls increase"[26]. Fall prevention, in fact, is considered the best approach for reducing fall injuries[27].

Effective fall prevention exercise programmes, safe environments, and awareness among older people, family members, and caregivers in the community can all help reduce the risk of falls. In fact, there are two main components in a typical fall prevention programme: exercise training programmes and the creation of safe environments. The physical environment in which older people live and spend their time usually includes homes, roads, and vehicles, and thus, they all have to be considered in the discussion on how to improve their safety in regard to fall prevention. Such an improvement process cannot be achieved without cooperation between public institutions and local communities. But also, exercise is essential. Specifically, a study in Thailand found a beneficial improvement in physical strength and balance as a helpful factor in reducing fall risk within a short period of time[28]. Thus, fall prevention programmes should in fact be implemented at the community level with exercise programmes focusing on training an individual's gait, balance, and functional abilities.

To successfully achieve positive effects, close cooperation between government institutions and communities, involving all the related stakeholders holistically and with a multidisciplinary approach,[29] has emerged as a necessity, to ensure that older people in Thailand have the greatest opportunity to benefit from effective fall prevention programmes, thus enabling them to live in a safe environment free from risk of falls as much as possible while participating in exercise activities. Also, a strong focus should be placed on increasing the number of community-dwelling older adults who participate in fall prevention programmes, improving the quality and effectiveness of these programmes, including implementing measurable outcomes to gauge their effectiveness, increasing awareness and education around fall prevention, and finally, improving the safety of the environment where older adults live. As highlighted in the research in the literature, a fall prevention intervention

26. Worapanwisit, Prabpai, and Rosenberg. Correlates of Falls among Community-Dwelling Elderly in Thailand.

27. Suttanon et al. Effectiveness of Falls Prevention Intervention Programme in Community-Dwelling Older People in Thailand; Worapanwisit, Prabpai, and Rosenberg. Correlates of Falls among Community-Dwelling Elderly in Thailand.

28. Dejvajara et al. Effects of Home-Based Nine-Square Step Exercises for Fall Prevention in Thai Community-Dwelling Older Adults during a COVID-19 Lockdown.

29. Suttanon et al. Effectiveness of Falls Prevention Intervention Programme in Community-Dwelling Older People in Thailand.

for older adults should be designed as a multifactorial programme delivered by a multidisciplinary team of healthcare professionals[30].

For the successful implementation of fall prevention programmes for Thai older people in the community, many dimensions should also be considered, such as:

- Socioeconomic environments, including education and income statuses, which shape opportunities for and knowledge about safety.
- Gender, age, and cultural backgrounds, which influence choices that affect safety.
- Lifestyles and behaviours, which contribute to the risk of falls and are shaped by attitudes, knowledge, and environmental factors.
- Safety devices, such as safety shoes that have the right fit, tread, and weight, and possession of strong muscles that can reduce the severity of injury from falls.
- The availability of good retrieval, acute care, and rehabilitation services can increase the chances of survival, and speed and completeness of recovery in case of serious injury.

Finally, it is relevant to reiterate the important role that technology is increasingly playing in healthcare systems, including in the process of fall prevention[31]. In fact, several applications used in fall prevention deploy technology, "including predictive and prescriptive analytics using big data, video monitoring and alarm technology, wearable sensors, exergame and virtual reality, robotics in home environment assessment, and personal coaching"[32]. Accounting for the increasing opportunities offered by technology, and also considering the vision itself of the Royal Thai Government (RTG) to include more digital solutions in the healthcare system, it is essential to understand and discuss how technology can be leveraged for preventing falls among older adults in the country.

30. Suttanon et al.

31. Maneeprom et al. Effectiveness of Robotics Fall Prevention Program among Elderly in Senior Housings, Bangkok, Thailand; Morat et al. Evaluation of a Novel Technology-Supported Fall Prevention Intervention – Study Protocol of a Multi-Centre Randomised Controlled Trial in Older Adults at Increased Risk of Falls.

32. Oh-Park et al. Technology Utilization in Fall Prevention.

AN E-HEALTH APPROACH

In 2005, the WHO officially recognised the potential of e-Health contributions to strengthen health systems around the world through its ability to support the management and delivery of health systems[33]. The RTG has pushed many initiatives and measures to incorporate digital technology into the Thai healthcare system, in alignment with the Ministry of Public Health's eHealth Strategy 2017-2026, which also provides incentives for research in technology and innovation[34]. As Pattarawan (2022) wrote, "Given the increasing health care cost, all stakeholders across the health and wellness sectors, including health care providers, consumers, and the government, realise the benefit of keeping individuals healthy and shift more focus on preventive and self-management measures". Telehealth and remote care, digital health platforms, medical diagnosis, devices and monitoring systems, robots, digital transformations of hospitals to increase efficiency and improve operations, and also digitalisation of financial and insurance services all play important roles in promoting health and wellness, and fostering injury prevention in the Kingdom[35]. In addition, leveraging social media can be an important path to explore.

Specifically, social media and the internet in general can play an important role in health promotion. There is in the literature a large multidisciplinary examination "demonstrating that influencers are, indeed, influential", with influencer categories including "opinion leaders, celebrities, and micro-celebrities who have a large number of followers on social networking platforms"[36]. Celebrities "can have a tremendous influence on individuals' knowledge, attitudes, and decision-making behaviours, including those that affect health"[37]. Furthermore, as highlighted by Kostygina et al.[38], social media can also be integrated into interventions, including peer discussions, conversations between participants and health professionals, delivering information in texts, videos and infographics[39], and sharing achievements[40].

33. WHO. Fifty-Eighth World Health Assembly.

34. Pattarawan. Thailand's Digital Entrepreneurship and Digital Health and Wellness.

35. Pattarawan.

36. Kostygina et al. Boosting Health Campaign Reach and Engagement Through Use of Social Media Influencers and Memes.

37. Kostygina et al.

38. Kostygina et al.

39. Condran, Gahagan, and Isfeld-Kiely. A Scoping Review of Social Media as a Platform for Multi-Level Sexual Health Promotion Interventions.

40. Armin et al. Development of a Multi-Behavioral MHealth App for Women Smokers.

In addition, social media also enables users to "track and share their health statuses or activities and view those of others in the community" (Kostygina et al. 2020). As Schillinger et al.[41] wrote: "[T]o an unprecedented degree, the popularity and technical sophistication of social media platforms have translated into health discourse becoming more ubiquitous".

To understand if social media can also actually play an important role in Thailand, it is important to look at the actual statistics of the Thai ecosystem. In January 2023, according to a report from GSMA Intelligence, mobile connections in Thailand were equivalent to 141 per cent of the population, recording an increase of almost 6 per cent compared to the year before, with a total internet penetration of 85.3 per cent of the population, and with more than 52 million Thais using social media, a figure representing almost 73 per cent of the entire Thai population[42]. The median mobile internet connection speed was reported to be equivalent to 37.85 Mbps, with the fixed one standing at 205.63 Mbps, according to the data reported by Ookla[43], numbers representing an increase of 18.7 per cent and 20 per cent respectively, compared to the twelve months before[44]. Also, just accounting for Facebook, YouTube, and TikTok, the Ad-reach (the percentage of Thais reached by ads on these platforms) was equivalent to 78.6 per cent of the local internet user base (regardless of age) at the beginning of 2023 for Facebook (48.10 million users in Thailand at the beginning of 2023), 71.7 per cent of the total internet user base for YouTube (43.90 million users in Thailand at the beginning of 2023), and 65.8 per cent of the local internet user base (40.28 million users aged 18 and above in Thailand at the beginning of 2023) for TikTok[45].

41. Schillinger, Chittamuru, and Ramírez. From 'Infodemics' to Health Promotion.

42. Kemp. Digital 2023.

43. Ookla. Ookla® | Network Intelligence to Enable Modern Connectivity; Kemp. Digital 2023.

44. Kemp. Digital 2023.

45. Kemp.

Figure 4. Favourite Digital Platforms Among Thais (background picture retrieved from pixabay.com).

Furthermore, in accordance with Statista, in 2021, around 74.8 per cent of social media users in the country were in the segment of the population aged between 18 to 24 years, while only 0.9 per cent of users were 55 years and above[46]. Additionally, in terms of accounts that users follow, a survey by GWI showed that almost 50 per cent of accounts followed were belonging to people that the users know[47]. After this, TV shows and channels, actors and performers, brands, singers and musicians, foodies, and entertainment represented the typology of accounts followed by Thais[48]. In terms of platforms used, Facebook and Line are at the top of the rankings (over 90 per cent of internet users in the country), followed by Facebook Messenger (above 80 per cent), TikTok (almost 80 per cent), Instagram, and Twitter, all still above the 50 per cent mark.

From these numbers it can be seen that social media has become an integral part of the Thai market and the life of citizens, with platforms such as Facebook, YouTube, and also LINE playing an important role in offering information to Thais, while influencing their consumer decisions[49]. This has been seen also in terms of

46. Statista. Thailand.

47. OOSGA. Social Media in Thailand - 2023 Stats & Platform Trends.

48. OOSGA.

49. OOSGA.

health consciousness among Thai consumers, with an example being represented by a large increase in the popularity of vitamins and dietary supplements for maintaining a fit body[50]. Yet, one aspect to keep in consideration is that social media is mainly used by the younger generation, with the older generation instead being those more affected by the risk of falls. Yet, social media can still be used to raise awareness among caregivers and community dwellers to promote an environment free of risks, educate on exercise promotion and inform on signs of decline in mobility with a connected increase of risk of falling. Also, social media still plays an important role in social mobilisation[51]. In fact, since social media has the ability to reach varied stakeholders and a wide audience in Thai society, it also allows nongovernmental organisations to play an important role. Specifically, "nongovernmental health organisations can use social media to mobilise social resources" and examples can be seen already in the literature, with several studies pointing out how nongovernmental health organisations "leveraged social media to advocate for change in public policies related to health issues such as HIV/AIDS and mental health, raise funds for individual medical care and health-related research, and raise awareness and promote actions to address health problems"[52].

Finally, it is also important to consider technology adoption and integration into the existing Thai healthcare system. A recent study has pointed to the integration of different digital technologies into already existing healthcare systems as one of the major challenges[53]. When referring to the adoption of technologies by individuals, models such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM) are typically used as reference. These models offer frameworks for helping researchers and businesses to understand the reasons behind people's choice to use or not new technologies. These models aim to explain and predict the factors that influence technology adoption. But as highlighted by Scherer et al.[54], these models focus on tools that "can be voluntarily used by individual adopters", but in contrast, "most health care settings involve an organisational-level decision to roll out technologies that are made available to all staff". Besides, these models were not developed within a healthcare setting and

50. OOSGA.

51. Chen and Wang. Social Media Use for Health Purposes.

52. Chen and Wang.

53. Gold et al. Adoption of Social Determinants of Health EHR Tools by Community Health Centers.

54. Scherer, Siddiq, and Tondeur. The Technology Acceptance Model (TAM).

thus "overlook its organisational and regulatory complexity"[55]. The adoption of digital health technologies, in fact, is not simply a "technical process in healthcare systems, but a multi-dimensional process, where all stakeholders including clinicians, patients, and institutions need and requirements have to be considered for successful implementation"[56].

STAKEHOLDERS TO CONSIDER, AND CONSTRAINTS

In order to create policies and programmes that can be effective, but also properly implemented to obtain measurable results, it is essential to outline the stakeholders who should be involved in the process. In the first place, programmes should be designed for Thai older people aged 60 years and over and who live in the community, including older people who are still living independently in their own homes or with family members, as well as those who reside in senior living facilities or other forms of communal living arrangements. The focus should be on those who are at high risk of falling. They should be the direct beneficiaries of the fall prevention programmes and safe environments policies. Furthermore, local government agencies are also important stakeholders, as they can provide funding, resources, and regulatory support for fall prevention programmes and safe environments policies, and can also coordinate with other stakeholders to ensure that policies are implemented effectively. Examples of local government agencies are the Provincial Administrative Organisation (PAO), Tambon Administrative Organisation (TAO), and Subdistrict Municipality (SDM).

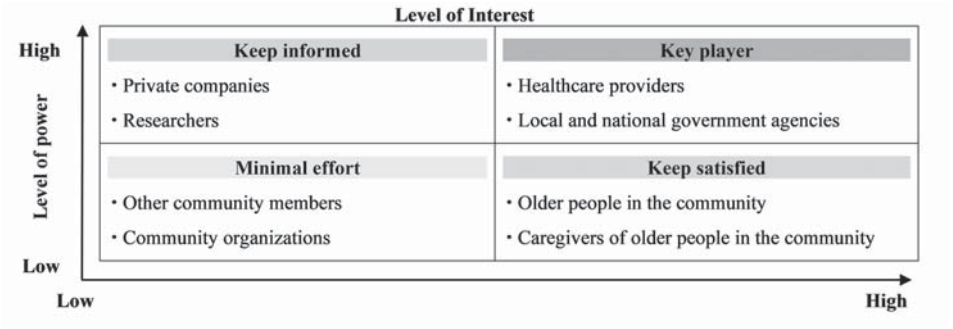
Another important stakeholder is represented by the national government agencies. They have a direct responsibility in implementing and funding fall prevention programmes for older people who live in the community in Thailand. Examples of national government agencies are the Thai Ministry of Public Health (MOPH), the Division of Injury Prevention (DIP), the National Health Security Office (NHSO), and the Ministry of Social Development and Human Security (MSDHS). These stakeholders have the ability and tools to establish wide social media campaigns capable of reaching Thai citizens. Besides the primary stakeholders, it is also important to consider those involved on a second level, including caregivers, community organisations, but also researchers, and the private sector. Specifically, caregivers

55. Scherer, Siddiq, and Tondeur.

56. Al-Rayes et al. Public Awareness and Use of Health Tools Provided by the Portal of the Ministry of Health of Saudi Arabia.

and family members of older people in the community can support older people and ensure their access to fall prevention programmes and a safe environment. As mentioned earlier, if it is true that in the Thai ecosystem (as in general), older people are those less involved in the usage of social media, caregivers and family members are not. They can be easily reached through social media campaigns, and overall positively influenced on supporting the creation of a risk-free environment in terms of falling. Also, their awareness about the importance of exercise for the older adults they are taking care of can be raised. Other community members can also provide valuable insights and perspectives on the needs and priorities of their community. Examples of other community members are local community leaders, volunteer groups, and community organisations. Specifically, the latter can help to raise awareness about fall prevention and provide support and resources while facilitating education and training on fall prevention strategies. Examples of community organisations are community health centres, senior centres, and non-profit organisations. But this is not all.

Figure 5. Classifies stakeholders by their level of power and interest using a power/interest matrix.



Researchers also play an important role in the design and implementation of effective programmes and policies. Researchers can provide evidence-based recommendations for designing and evaluating fall prevention programmes, safe environments policies, and social media campaigns. Finally, private sectors/companies can design, develop, and promote technologies and products/equipment, and supplies that support fall prevention and safe environments for older people. Examples of private companies that may play important roles include HomePro (Thailand) Co., Ltd. and Thai Safety Equipment Co., Ltd. Universities, schools, and companies with high visibility among the public can also play important roles. In Figure 5, a matrix with the level of interest for each stakeholder is reported.

A possible approach should consider an overall increase in funding for fall prevention programmes in communities with limited resources to ensure access for older people. More training and education for healthcare providers and community volunteers on evidence-based practices for fall prevention should be also offered. There is a need to leverage technology, such as mobile applications and telehealth, to increase access and education for older people, and, importantly, social media campaigns, mainly through the right influencers, in accordance to the targeted audiences, particularly the accounts most followed by them. But also, it would be essential to conduct research on the effectiveness of fall prevention programmes in different communities and populations and use these findings to tailor programmes to the specific needs of older people in Thailand. Finally, an essential aspect to focus on is collaboration. Specifically, seeking partnerships and collaboration with other government agencies, community organisations, and stakeholders to increase funding and resources for fall prevention programmes would be an essential aspect to consider, while involving communication agencies, well-known actors and singers, and highly followed social media account owners as key players in influencing and raising awareness on the importance of fall prevention, are key factors to take into account in order to implement effective fall prevention programmes properly in the communities.

Finally, it is also very important to consider the current limitations and constraints of such programmes. Specifically, one of the common limitations is posed by a shortfall in funding. Implementing an effective fall prevention programme for older people in the community may require significant financial resources. The government and relevant stakeholders may face constraints in securing sufficient funding to implement and sustain such a programme. Additionally, limited accessibility also represents a limitation to account for. Older people who live in rural areas may have limited access to fall prevention programmes and leveraging technology for awareness campaigns, monitoring, and data collection may even result in difficulties, mostly when dealing with that segment of the population that is less accustomed, prone, or even enabled by the currently available infrastructure in using technological tools. This, in turn, would limit awareness. In fact, despite previous efforts to raise awareness about fall prevention among older people in Thailand, some may still lack knowledge and understanding about the importance of fall prevention measures. This could hinder their participation in fall prevention programmes and lead to higher rates of falls in the community. Another aspect to consider is represented by the limited coordination among stakeholders. Coordination among various stakeholders, including government agencies, healthcare providers, and community organisations, may be necessary

to effectively implement a fall prevention programme. Lack of coordination and collaboration could result in duplication of efforts, inefficiencies, and gaps in coverage. Additionally, limited enforcement could directly affect policies and programmes on fall prevention. Without proper enforcement, policies and strategies may not be effective in reducing the incidence of falls among older people in the community. Finally, limited technology adoption represents the natural limitations of such an approach. The reliance on technology and the internet for some fall prevention programmes and awareness campaigns may limit the accessibility and utilisation of these programmes among older people who are not tech-savvy or who do not have access to the internet. This could lead to further disparities in fall prevention outcomes among different groups of older people.

CONCLUSIONS AND RECOMMENDATIONS

The importance of placing a major focus on fall prevention in Thailand has emerged as a rising priority in the Kingdom. Several prevention programmes have been carried out in the past but with limited or no effect in preventing or reducing falls and related injuries. In alignment with the increasing pervasiveness of technology in Thai society, social media may represent a viable tool to adopt to battle against falls in an aging Thai society. Awareness campaigns could play an important role in this battle, informing the elderly about important aspects of prevention and the public about easy-yet-effective guidelines that could prevent falls, with all the related consequences, by their loved ones. In this chapter we offered a discussion on the importance of fall prevention in Thailand, followed by a discussion on some ideas on how technology can be used to raise awareness, educate, and inform people in the country, in a direct manner, but also in a non-direct manner, focusing on reaching out, informing, and influencing those stakeholders who can promote a risk-free environment for Thai older people, while promoting exercise in communities. A list of stakeholders has been identified to better understand who policies should speak to and involve. Finally, a list of limitations and risks were laid out.

Accounting for these points, the following recommendations can be offered:

- **Increase community-based fall prevention programmes:** These programmes should be proactive, rather than reactive, and should focus on raising awareness, providing education, and promoting physical activity to reduce the risk of falls.
- **Improve accessibility and utilisation of fall prevention programmes:** Many older people in Thailand may not have access to technology or the internet, which limits their ability to participate in fall prevention programmes

that rely on these resources. Programmes should be designed to be accessible and user-friendly for all older people, including those with limited technology skills.

- **Collaborate with stakeholders:** Coordination and cooperation among stakeholders is pivotal in achieving effective programmes to reduce fall through prevention and education. Channels and events dedicated to support such communication and collaboration between stakeholders should be established, so as to help in ensuring the creation of well-designed, well-implemented, and sustainable-over-time programmes.
- **Pay more attention to data collection and analysis**: Strategies and policies that support fall prevention depend on data, which in turn requires a more comprehensive and regular data collection system for monitoring the effectiveness of fall prevention programmes and thus identifying areas for improvement. Regular data collection and analysis may also help to better identify emerging trends and risks related to falls among older people.
- **Increase public funding for fall prevention programmes**: Adequate funding is necessary to support the development, implementation, and evaluation of fall prevention programmes. More focus should be placed on the importance of fall prevention among the elderly, and prioritising such programmes through adequate budgets at the local and national levels should be considered. Increased funding could also support research on the most effective strategies for fall prevention among older people, while supporting a mechanism of feedback and improvement to achieve a reduction in the number of cases experienced in the past years.
- **Create social media campaigns**: In regards to reaching out to Thais, both older adults and the people involved with their care or who are close to them, leveraging social media would be a viable approach. Social media platforms are already extensively used by Thais, and thus leveraging them may be a great and effective path to follow to inform, increase awareness, and educate people on how to create risk-free environments both indoors and, more importantly, outdoors, with an eye to reducing and preventing the risk of falls in communities. Furthermore, the usage of specific influencers, actors and singers to disseminate information, while raising awareness, may be an effective approach to creating prevention programmes targeting both environment settings and exercise promotion.

These recommendations are specifically tailored to the Thai ecosystem, but may lead to the creation of effective policies and campaigns that could be used as an example for the neighbouring countries as well.

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