

Title of research project: Assessing and Improving Health Literacy and Wellbeing in Thai families at risk of NCDs: The Development of a Culturally Relevant Health Behavior Model and a Positive Psychology and Health Literacy Program

By Ungsinun Intarakamhang¹ and Ann Macaskill²

¹ Associate Professor of Health Psychology and Behavior Science

Address: Behavioral Science Research Institute, Srinakharinwirot University
114 Sukhumvit23 Rd., Wattana district, BANGKOK 10110 Thailand

Email: ungsinun@gmail.com

² Professor of Health Psychology, Head of Research Ethics,

Address: Faculty of Development and Society, Unit 8 Science Park, Howard Street,
Sheffield S1 2 WB Sheffield Hallam University

Email: a.macaskill@shu.ac.uk

Research Overview

The main results of this research:

The rapid growth and economic transformation experienced in Thailand has resulted in lifestyle changes and increases in non-communicable diseases (NCDs). In Thailand 75% of all deaths are due to NCDs (Thai Policy and Strategy Section, 2017). Obesity with the associated lack of exercise and poor diet is a major risk factor in developing NCDs (Banjare & Bhalerao, 2016). In Thai men obesity has increased from 7.7% in 1991 to 33% in 2014 and from 15.7% to 42% for women in the same period. Rates of hypertension have increased from 5.4% to 24.7% and diabetes from 2.3% to 8.9% (Aekplakorn, 2015; Cheong, 2014; Ministry of Public Health, 2017). WHO (2009) identified developing health literacy (HL) as core to improving health as poor HL is associated with rates of NCDs. Thailand conforms to this pattern with low levels of HL. The aims of this multiphase mixed methods study were to understand how family factors influence HL and health behavior. From a literature review and the analysis of the interview data to develop a new more culturally informed causal model of health behavior. This model then informed development of a new culturally relevant measure of HL. The final aim was to implement and evaluate a HL program incorporating positive psychology (PP) to improve the well-being of Thai families in urban and rural communities at risk of NCDs. This was undertaken in 3-phases.

Phase 1 family interview study: The content analysis of twelve in-depth interviews identified 8 main themes each with a range of subthemes. These were definitions of health, family health and its' promotion, coping strategies for illness, cognitive styles influencing health and wellbeing in the family, sources of health information, community support, influences on behavior change, and evaluating sources of health information. While many of the themes reflect Western models of health behavior such as the importance of diet, exercise and sleep, the influence of a collectivist culture was apparent in many of the themes. There was more emphasis on community perspectives on health, caring within the community and community initiatives to promote health. Herbal remedies and folk medicine use was reported as first responses to illness with Western medicine being reserved for more serious conditions as it has associated financial costs. The influence of Buddhist religious teachings, beliefs and religious practices such as meditation and mindfulness were apparent as well as the adoption of Buddhist influenced cognitive styles that are beneficial for mental health such as Karma, acceptance, being optimistic, living a hopeful life, self-efficacy and psychological strength were apparent and important for wellbeing. Village health Volunteers were an important source of health information and basic health care as

were Buddhist teachings. These factors were then compared with and incorporated into Western HL models.

Phase 2: The aim here was to develop a culturally appropriate measure of HL and health behavior, namely, the Thai Adult Health Questionnaire. The HL elements were based on the General Health Literacy Scale that was developed with an Australian population that has a very well-developed health care system so was not totally applicable to the Thai context. This scale was modified to assure cultural relevance in Thailand. The Thai specific factors identified as influencing HL, health and wellbeing identified in the family interviews in phase 1 were then integrated into existing models to create a more culturally sensitive model of health behavior. The efficacy of this process was judged by five health psychologists. The resulting measure was then used to survey 2000 husbands and wives at risk of NCDs to test the applicability of the causal model and also to measure HL, behavior and well-being in this sample.

The results indicated that the majority of Thai adults in these families were putting their health at risk by not exercising and by being overweight. Levels of HL were poor in 58.5% of the total sample, with HL and in rural communities compared with urban communities. Levels of social support, social and cultural norms, positive attitudes, psychology capital, and HL were all predictors of having positive attitudes towards health. For the total sample, 70% of health behaviors and 50% of family wellbeing was predicted by the model. Men and women with higher levels of HL, optimism, hope, self-efficacy, resilience, positive attitudes and social normative behavior reported better health and were much more likely to be participating in exercise and other health care activities as might be predicted but this was a minority of the sample. Social support was important and this should be easier to provide in collectivist cultures such as Thailand. The only gender difference found related to attitudes towards health with women having less positive attitudes than men although the difference was not very significant. In urban areas attitudes towards health and family levels of health were lower than in rural areas. Health services via community volunteers and regional clinics are well established in rural Thailand but as increasingly more areas are becoming urbanized, there is a lack of health care provision in these areas that requires to be addressed.

Phase 3: The aim was to develop, deliver and evaluate a HL Intervention Program. The researchers started by conducting a systematic review of research papers studying the effects of HL and positive psychology programs in diabetes and hypertension, conditions affecting increasing numbers of the Thai population. They used the results to develop, implement and evaluate the effects of a psychology and HL program with rural and urban communities at high risk of developing NCDs in a Health Area where people have the lowest HL levels in Thailand. The transformative learning model of Mezirow (2003) was used to guide the content. The program was divided into 7 phases with phases 1-6 delivered weekly with phase 7 being a follow up after 12 weeks. **Phase 1** *Create awareness and learning transformation through role playing.* **Phase 2** *Develop interactive HL* to enhance social skills and ability to interact with medical staff by encouraging the participants to communicate with other people about their self-care behavior, using role-play to practice communication skills with providers. **Phase 3** *Develop critical HL* by having participants plan and make decisions about their transformation to healthier lifestyles by using the knowledge and skills obtained in Phase 2 and 3. **Phase 4** *The participants trial the new roles* which they planned in Phase 3 in their daily living and record in a diary each day. **Phase 5** *The participants share experiences of trialing new roles* by exchanging their stories of successes and failures which should lead to better disease control behavior modification. **Phase 6** *The participants engage*

in behavior modification activities designed to achieve healthy lifestyles covering physical, psychological and social dimensions. Activities are provided to cover all aspects of health care including health self-evaluation, control of disease severity, food consumption, exercise, stress management and CSR activities, and **Phase 7** *This is a follow-up phase aimed at building the participants' confidence* by visiting their houses once a month, setting up the first meeting after 12 weeks of the program and evaluating their health outcomes such as BMI and blood pressure levels after the program.

An experimental design was used with 200 participants who were equally divided into two groups: an experimental group and a control group using a randomized block design. In relation to NCDs risk factors, 46% of the sample were obese and 38% suffered from hypertension. Most of the participants in both groups were female (52.0%) and were aged between 51-59 years (46.0%). Most of the participants graduated from elementary schools (57.5%), lived with their spouses (83.0%) and had no medical problems (43.0%). The intervention was delivered to small groups of locally in their communities. It proved to be effective in that HL, health behavior and family well-being improved significantly in the experimental group compared to the control group. In the experimental group, the mean BMI scores, blood sugar levels and systolic pressure in the decreased at each time point. Social support was found to be an important variable, positively influencing levels of HL. The conclusion is that such a program could improve HL, health behavior and well-being of Thai families at risk of NCDs in communities and reduce the risk of NCDs.

Major benefits of the collaboration: The most valuable consequence of having a long-term cooperation between SHU, UK and BSRI, SWU is the strength of the network among faculty members, graduate students and alumni. Both authors and PhD students of the BSRI have collaborated to produce international publications and a Thai research report. We ran a training workshop in Bangkok to update the staff and doctoral student knowledge of health psychology and had a useful session on the cultural relativity of models of health. Prof. Macaskill delivered training on research ethics and integrity for the University. Both authors presented on elements of the project at a conference that Dr. Ungsinun organized in Bangkok. Two younger psychologists from SHU attended the conference and contributed to the training in Bangkok and networked with staff, thus ensuring that enduring research links are made.

While Dr. Ungsinun was at SHU she explored attended and had discussions relating to the long established MSc Health Psychology degree taught there. Her Institute at Srinakharinwirot University has begun a master's degree in health psychology. Since then Dr. Ungsinun has lectured and contributed to the curriculum of this course. She has also delivered lectures on research to improve health literacy to Thai graduate students, health professionals, public health providers, faculty members and policy makers from the Ministry of Public Health, Thailand. Researching in communities can be challenging but any problems encountered during the research were managed and solved successfully. It could have been challenging having to translate research material but this was organized very efficiently and did not cause any problems. While the research has been accomplished, there are still 3 on-going manuscripts in the process of submission and/or review in quality international journals. We have also presented some of the research at international conferences.

Title of award:

AF170002_the Newton Advanced Fellowships Newton Adv Fellowships RD1 scheme via the British Academy.

Synopsis of research

Thailand has experienced rapid growth and economic transformation experienced in recent years that have resulted in lifestyle changes and increases in non-communicable diseases (NCDs). In Thailand 75% of all deaths are due to NCDs. Obesity with the associated lack of exercise and poor diet is a major risk factor in developing NCDs and obesity has increased from 7.7% in 1991 to 33% in 2014 for men and from 15.7% to 42% for women in the same period. Rates of hypertension have increased from 5.4% to 24.7% and diabetes from 2.3% to 8.9% (Aekplakorn, 2015; Cheong, 2014; Ministry of Public Health, 2017). The World Health Organisation (2009) identified developing health literacy (HL) as core to improving health as poor HL is associated with high rates of NCDs and this is true of Thailand. Most HL research uses Western models based on individualistic cultures. Thailand has a collectivist culture influenced by Buddhism so one aim of the program was to explore cultural influences on HL and health behaviour to develop a more culturally appropriate model of HL and health behavior.

We began by interviewing 12 parents in rural or urban areas where HL was low. The interview contents were designed to go beyond western models of HL and included material that Thai health psychologists judged to potentially be culturally based influences on health beliefs and behavior. While eight themes emerged, of particular interest, was the ways in which the Thai collectivist culture influenced several of them. Individuals perceived their health education responsibilities as extending beyond their immediate family to the wider community. Religion and religious practices particularly Buddhism influenced motivation, attitudes and behavior in beneficial ways with meditation, mindfulness and the concepts of Karma, loving kindness, and acceptance all being mentioned.

The next aim was to develop a culturally appropriate measure of HL and health behavior, namely, the Thai Adult Health Questionnaire. To do this we adopted the well-known General Health Literacy Scale, developed in Australia for a population with a well-developed health care system which makes it not totally applicable to the Thai context. So we modified the scale to include the Thai cultural factors identified as influencing HL, health and wellbeing in the family interviews. This allowed us to create a more culturally sensitive model of health behavior, the Thai Health Literacy Scale. The scale was then used to survey 2000 husbands and wives at risk of NCDs to measure their HL, behavior and well-being and to test the applicability of the model. The results indicated that the majority of Thai adults in these families were putting their health at risk by not exercising and by being overweight. Levels of HL were poor in 58.5% of the total sample. Men and women with higher levels of HL, optimism, hope, self-efficacy, resilience, and positive attitudes towards caring for their health were much more likely to be participating in exercise and other health care activities as might be predicted but this applied only to 26% of the sample.

Finally, we developed an intervention to improve HL and health behavior informed by existing research, which utilized transformative thinking, positive psychology and behavioral modification and also incorporated culturally relevant material. This was delivered as a randomized controlled trial in an area of Thailand with the lowest levels of HL. In total 200 people participated in the six week long program, equally divided into a group that received the intervention and a control group that received health provision as normal. There were slightly more female participants in both groups and the groups were aged between 51-59 years. The NCDs risk factors of, obesity were present in 46% of the sample and hypertension in 38.0%. The participants in the intervention improved their levels of HL,

health behavior and family well-being improved and blood sugar levels decreased compared with the control group, making for a successful intervention.

Research Impacts

Social Impacts

1. Community health context information had been reported. covering the causes and conditions both mentally and culturally affecting the family health of the community including the practice of community health networks as a guideline for developing a causal relationship model.
2. New knowledge related a causal relationship model in positive psychology was obtained and social norms for family well-being through health knowledge and health behaviors of spouses in urban and suburban communities along the border of Thailand.
3. Obtained a manual or guidelines for the development of positive psychology and health literacy towards family well-being under social norms in the community.
4. Recognized to benefit the people in the area and people with a positive attitude towards development and self-health care leading to a sustainable good quality of life.
5. There are agencies that benefit from this research such as the Division of Health Education, Department of Health Service Support, Department of Disease Control, Department of Health, Ministry of Public Health. provincial public health district public health, Health Promoting Hospital, College of Public Health nursing college Health majors in public and private universities, etc.
6. Acquired health behavior measurement tools that meet international standards for the benefit of further use for agencies at policy and practice levels to be used for assessment or screening of target groups for further development.
7. Local people and spouses are healthy, reducing the risk of NCD.

Academic

1. Received 3 research articles published in the international journal in SCOPUS published together with Prof. in the UK.
2. Get a book. Topic: Health Literacy: Development and Measurement and a Full Research Report.

Publications

Ungsinun Intarakamhang, and Ann Macaskill. (2018). Multi-group Causal Model of Health Literacy and Behaviors on Family Well-being among Thai Adults at Risk of Non-Communicable Diseases. *Journal of Research in Health Sciences*, 18(4), e00429.

SCOPUS, Pubmed, PMID:30728315

<https://www.ncbi.nlm.nih.gov/pubmed/30728315>

Ungsinun Intarakamhang, Ann Macaskill, and Pitchada Prasittichok. (2020). Mindfulness Interventions Reduce Blood Pressure in Patients with Non-Communicable Diseases: A Systematic Review and Meta-Analysis. *Heliyon*,6(4),e03834. **SCOPUS, ISI, Pubmed.**

Ungsinun Intarakamhang & Ann Macaskill. (2022). Effectiveness of a Health Literacy Intervention Based on Transformative Learning and Incorporating Positive Psychology on Health Behavior and Well-being of Thai Families at NCDs Risk. *Journal of public health Research*, 11:1935. <https://doi.org/10.4081/jphr.2021.1935> **SCOPUS, Pubmed.**

Future Plans

I intend to implement the developing health literacy program as part of the course syllabus for health psychology for graduate students of the BSRI, SWU in the next semester. I have just submitted a further research proposal citing and using the best practice developed on this research for designing innovations, in a proposal for a bilateral cooperation project under the 23rd session of the Sino-Thai Joint Committee on Scientific and Technical Cooperation between Thailand and China. The proposal topic is “Assessing and Improving Mental Health Literacy and Behaviors with Virtual Reality and Positive Psychology Interventions in Health Volunteers for Healing Thai-Chinese at Risks of Depression in Suburban Communities”. The aim is to create effective tools and programs for improving self-health care as well as reducing the dependency on others and on government interventions. Currently, I am supporting my PhD. students to conduct further research related to the health literacy of Thai people and NCD protection. I have been invited to lecture health literacy for NCDs many times for health providers in Thailand . Additionally, I was awarded an honor certificate for volunteers in operations supporting the Department of Health Service from the Minister of Public Health, Bangkok.

Dissemination for PHD students

Araya Chiangkhong, Ungsinun Intarakamhang Patcharee Duangchan, and Ann Macaskill. (2019). Effectiveness of Health Literacy through Transformative Learning on Glycemic control Behavior in Adult Diabetes Patients: A Mixed Methods Approach. *Journal of Behavioral Science*, 14(3), 49-61. **WoS- (ESCI), EBSCO, SCOPUS.**

Pariyawit Nurash, Kasekarn Kasevayuth and Ungsinun Intarakamhang. (2020). Learning programs and teaching techniques to enhance oral health literacy or patient-centred communication for healthcare providers: A systematic review and meta-analysis. *Eur J Dent Educ*, 24, 134-144. **SCOPUS, ISI, Pubmed.**

Ungsinun Intarakamhang Piya Boocha and Julaporn Khammungkul. (2022). General Health Literacy Scale for Thais and Comparison between Age Groups. *Heliyon*, revision d paper, **SCOPUS, ISI.**

Audiences

This research is very relevant to health care practitioners in Thailand and I have been asked to deliver this material to such groups. The findings of the research will also be of interest to the village health volunteers and can be disseminated to the wider population via these individuals.

Media Interest

The details of the background, objectives and activities in this research funded by the Newton Advanced Fellowships 2017 RD1 scheme via the British Academy by publishing on websites as follows:

1. <http://bsri.swu.ac.th/hl-wellbeing/>
2. <https://www.facebook.com/BSRIswu/videos/506892399897969/>