



The Research Cycle: Research to Advance Non-Communicable Disease Management in Low- and Middle-Income Countries

Binu Koirala, PhD, MGS, RN

Thitipong Tankumpuan, PhD, RN

Patricia Davidson, PhD, MEd, BA, RN, FAAN

School of Nursing, Johns Hopkins University, Baltimore, MD, USA

Faculty of Nursing, Mahidol University, Bangkok, Thailand

- The research study described in this presentation was supported by 2018 NLN Foundation for Nursing Education Scholarship Award, Southern Nursing Research Society 2018 Dissertation Award, Sigma Theta Tau-Nu Beta 2018 Nursing Research Award, Dr. Scholl Foundation, and JHUSON Deans Travel Fund.
- We have no actual or potential conflict of interest in relation to this presentation.

- Highlight the importance of research to advance non-communicable disease management in low- and middle- income country
- Provide an example and share the experience of researchers when conducting nursing research in a low-income country
- Discuss challenges and opportunities identified during the research cycle while conducting nursing research in a low-income country



Non-communicable disease research in low and middle-income countries

- Morbidity and mortality from non-communicable diseases is declining in high-income countries but this is much less evident in many low- and middle-income countries (LMICs)
- Data from LMICs are scarce
- Research infrastructure and outputs in LMICs are often insufficient
- Major challenge is developing, understanding and implementing effective interventions to help improve disease outcome in the country's context

(Engelgau et al., 2018)



Heart failure , a worldwide burden

Heart failure is the final common pathway of many cardiovascular disease

(Ziaecian & Fonarow, 2016)

**26
million**

Number of heart failure patients worldwide (Ponikowski et al., 2014)

17 – 45%

Admitted patients of heart failure die within 1 year of admission (Ponikowski et al., 2014)

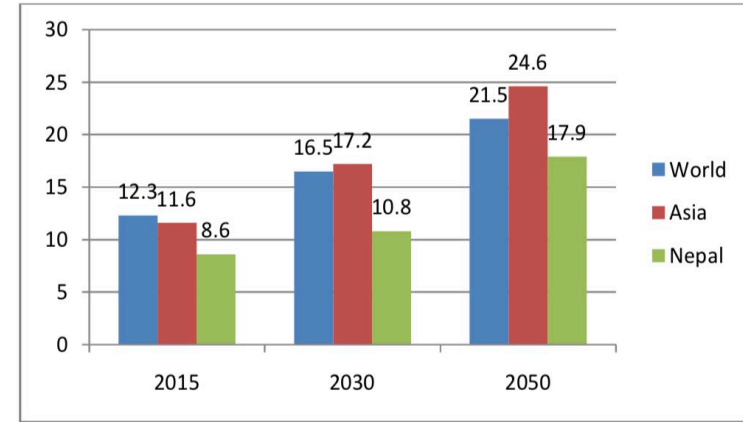
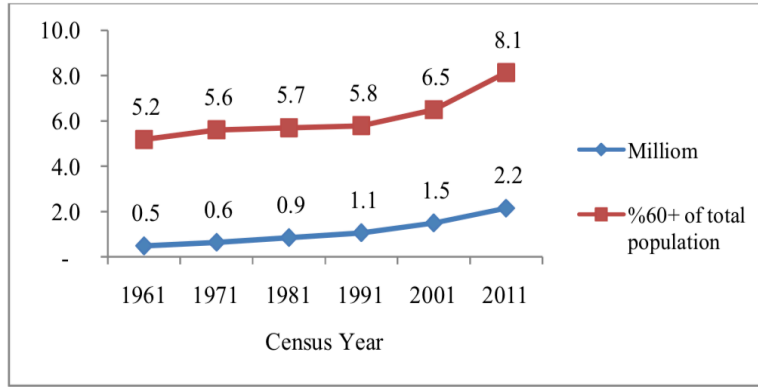
\$37 billion

Heath care cost annually in United States only (AHA, 2017)



Population aging

(Population education and health research center Nepal, 2016)



Top 4 causes of death in Nepal (WHO, 2014)

Disease	Deaths	%
Lung disease	17,186	10.84
Coronary heart disease	17,107	10.79
Stroke	15,333	9.67
Influenza & pneumonia	13,106	8.27

Heart failure prevalence

Asia: 1.3 to 6.7 %

India: 1.3 to 23 million

China: 4.2 million

(Rajadurai et al., 2017)

Conservative prevalence

Nepal: 1 million and 50 thousand



Overview of the research study

- ***Aim 1:*** translate and culturally validate the Self-Care of Heart Failure Index into the Nepali language (Nepali SCHFI),
- ***Aim 2:*** describe the context of heart failure self-care in Nepal and
- ***Aim 3:*** examine the factors influencing heart failure self-care, and the relationship with health-related quality of life.

Data collection from 3 leading hospitals with cardiovascular services in Kathmandu, Nepal:

- Shahid Gangalal National Heart Center,
- Manmohan Cardiothoracic Vascular and Transplant Center
- Norvic International Hospital.

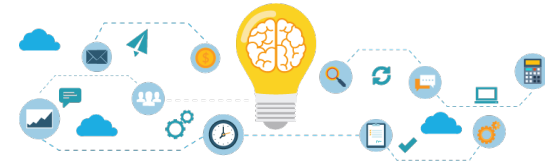


Research cycle/process

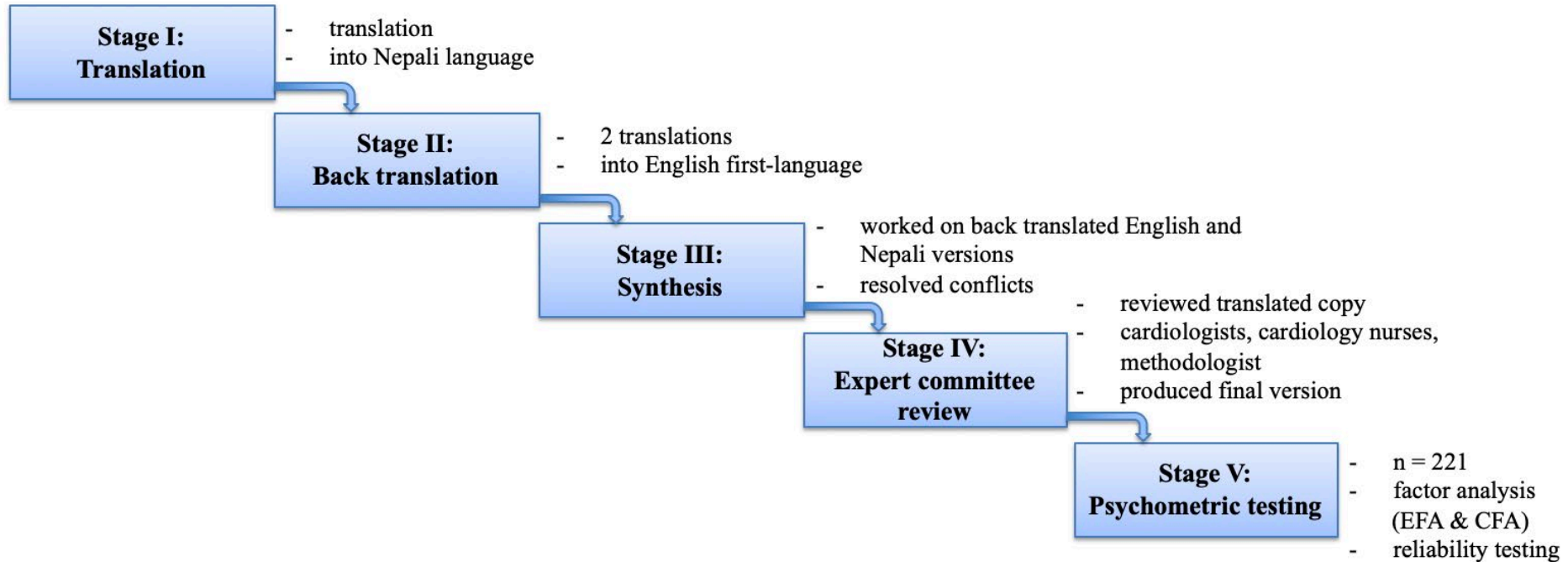
1. Literature review
2. Key stakeholder engagement
3. Translation of instruments
4. Data collection

- Etiology of heart failure in the emergency department of a tertiary cardiac center of Nepal (Shareef et al., 2017)
- Heart failure study: profile of heart failure admissions in medical intensive care unit (Regmi, Maskey & Dubey, 2017)
- Profiles of heart failure in the western region of Nepal: prognostic implications of the MELD-XI score (Shrestha et al., 2015)
- Clinical profile of patients hospitalized with heart failure in Bharatpur, Nepal (Dubey, Sharma & Chaurasia, 2012)

- Involve key contact and gatekeepers early in the study planning phase
- Key contact:
 - a professor, former dean, and senior/renowned cardiac doctor
 - helped researchers identify gatekeepers
- Gatekeepers:
 - key informants and facilitators
 - to access the hospitals, to facilitate ethical approval, to assist in questionnaire translation and validation and participant recruitment, to identify research assistants and to help navigate through the unfamiliar system, hierarchy, and culture
- Use of social media (i.e., facebook and viber) for communication



Cross-cultural validation of Nepali SCHFI



- Ethical approval
 - Nepal Health Research Council,
 - Shahid Gangalal National Heart Centre Institutional Review Board
 - Johns Hopkins Medicine Institutional Review Board
- Researcher and research assistants
 - Research assistants: nurses experienced working in cardiovascular unit and/or working with heart failure patients
 - Research assistants trained and evaluated by reviewing, and observing patients medical record and recording on the questionnaire
- Informed consent (in Nepali language)
- Medical record and patient report



Conclusion

- Global demographics of disease burden continue to shift and impact poorest and vulnerable populations
- The conduct of global nursing research in LMICs is challenging
- Despite the challenges, there are meaningful opportunities for education, research, policy and practice
- **Challenging but Rewarding**

- American Heart Association. (2017). Latest statistics show heart failure on the rise; cardiovascular diseases remain leading killer. Retrieved from: <http://newsroom.heart.org/news/latest-statistics-show-heart-failure-on-the-rise;-cardiovascular-diseases-remain-leading-killer>
- Dubey, L., Sharma, S. K., & Chaurasiya, A. K. (2012). Clinical profile of patients hospitalized with heart failure in Bharatpur, Nepal. *J Cardiovasc Thorac Res*, 4(4), 103-105.
- Engelgau, M. M., Rosenthal, J. P., Newsome, B. J., Price, L., Belis, D., & Mensah, G. A. (2018). Noncommunicable Diseases in Low- and Middle-Income Countries: A Strategic Approach to Develop a Global Implementation Research Workforce. *Glob Heart*, 13(2), 131-137. doi:10.1016/j.gheart.2018.05.001
- Ponikowski, P., Anker, S. D., Alhabib, K. F., Coyne, C. B., Force, T., Hu, S., ... Filippatos, G. (2014). Heart failure: preventing disease and death worldwide. *ESC Heart Failure*, 1, 4-25. doi: 10.1002/ehf2.12005.
- Population Education & health Research Center(P) Ltd. (2016). Nepal Population Report 2016 to Government of Nepal Ministry of Population & Environment. Retrieved from: http://www.mope.gov.np/downloadfile/Nepal%20Population%20Report%202016_1481259851.pdf
- Rajadurai, J., Tse, H. F., Wang, C. H., Yang, N. I., Zhou, J., Sim, D. (2017). Understanding the epidemiology of heart failure to improve management practices: An Asia-Pacific perspective. *Journal of Cardiac Failure*, 23(4), 327-339.
- Regmi S., Maskey A., & Dubey L. (2017). Heart failure study: profile of heart failure admissions in medical intensive care unit. *Nepalese Heart Journal*, 6(1), 25-26.
- Shareef, M., KC, M.B., Raut, R., et al. (2017) Etiology of heart failure in the emergency department of a tertiary cardiac centre of Nepal. *Nepalese Heart Journal*, 14(2):1-4.
- Shrestha, U. K., Alurkar, V. M., Baniya, R., Barakoti, B., Poudel, D., & Ghimire, S. (2015). Profiles of heart failure in the western region of Nepal: prognostic implications of the MELD-XI score. *Internal Medicine Inside*, 3:1. doi:7243/2052-6954-3-1
- World Health organization. (WHO; 2014). World Health Rankins. Retrieved from <http://www.worldlifeexpectancy.com/nepal-coronary-heart-disease>
- Ziaecian, B., Fonarow, G.C. (2016). Epidemiology and aetiology of heart failure. (6):368-378. *Nat Rev Cardiol*,13.



JOHNS HOPKINS

SCHOOL *of* NURSING

Leading the way in education, research and practice – locally and globally.