



Health-Promoting Behavior and Positive Mental Health of Filipino Nurses in Michigan

Daniella Diaz & Meriam Caboral-Stevens

Accepted for publication on

doi

Correspondence to:

Meriam Caboral-Stevens, PhD, RN
msteve37@emich.edu

Authors' Affiliation

Meriam Caboral-Stevens, PhD, RN
Associate Professor
Eastern Michigan University,
School of Nursing

Daniella Diaz
Nursing Student, Traditional BSN
Program
Eastern Michigan University,
School of Nursing

Funding

The authors did not receive a grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declare that there is no conflict of interest.

Abstract

Background: Filipino nurses represent the largest segment of the immigrant nursing workforce in the U.S. Studies showed that Filipinos have unhealthy eating habits, thus increasing their health risks, thus reducing life expectancy. However, to date, there is limited data available regarding health-promotion and self-care practices among nurses, and even fewer on mental health.

Objective: To examine health-promoting behavior among Filipino nurses and to assess the level of positive mental health of Filipino nurses working in Michigan guided by the midrange theory of health promotion.

Methods: This study used a descriptive, cross-sectional survey design. The Health-Promoting Lifestyle Profile II (HPLP-II) and the Positive Mental Health (PMH) survey were used to assess health-promoting behaviors and the level of positive mental health in a sample of Filipino nurses working in Michigan. Data was analyzed using SPSS Version 25.

Results: Forty-three participants started the survey; 27 had complete data; mean age of the participants was 49.11 ($SD = 15.8$) years old. The mean total HPLP II score was 144.30 ($SD = 22.9$) out of 208 maximum score, while the mean total PMH score was 4.99 ($SD = 0.75$) out of maximum score of 6. Spiritual growth was the highest score ($M = 27.22$, $SD = 5.1$); while physical activity was the lowest score ($M = 19.58$, $SD = 6.9$) in the HPLP II subscales; whereas emotional support was the highest score ($M = 5.19$, $SD = 0.86$) in the PMH subscale.

Conclusion: Findings are significant to consider when developing strategies to increase engagement in health promotion and positive mental health activities among Filipino nurses.

Keywords: health-promoting behavior; positive mental health, Filipino nurses, self-care

Background

For the past seventeen years, nursing has been voted as the number one trusted profession (Brenan, 2018). Nurses are known to provide compassionate care to their patients and their families, which includes providing patient education on how to improve their health. While nurses dedicate their lives to promoting the health and wellness of their patients, evidence showed that they seem to lack integrating this practice into their own selves (Ross et al., 2017). Even though being a nurse can be rewarding (Robinson, 2016), nursing is one of the most stressful jobs (Golshiri et al., 2012). Heavy workload, understaffing, and pressures nurses experience from patients, families, and supervisors are some of the major sources of stressors for nurses (Turner, 2013; Yen. et al., 2020). This constant exposure to stress that many nurses experience oftentimes takes a toll on their personal, physical, and mental health, which frequently leads to burnout, job dissatisfaction, increased turnover, obesity, and sleep disturbances (Ross et al., 2017). The lack of self-care and health-promoting behavior by nurses can lead to a decline in all domains of health. This health condition becomes worse among immigrant nurses because of the extra need to adapt to a new culture (Ea et al., 2008). This overall unhealthy working condition is true among Filipino nurses who have been filling in the nursing shortage gap around the world (Lorenzo et al., 2007).

Since the first wave of Filipino nurses who migrated to the United States (U.S.) in 1903, the latest data show that there were roughly 28% of Filipino nurses working in the U. S. in 2018 (Batalova, 2020). Hence, Filipinos represent one of the largest segments of the U.S. nursing workforce. A large proportion of Filipino nurses are concentrated in big states such as California, New York, and Chicago. In Michigan, an estimated 3% of nurses are Asians, including Filipinos, albeit much smaller in numbers compared to the bigger states, these nurses should not be ignored or overlooked (Michigan Center for Nursing, 2019). Filipino nurses are often described as hardworking, rarely complains, selfless, and have a strong sense of loyalty (Nadal, 2011). However, studies also showed that Filipinos, in general, have unhealthy habits, thus increasing their health risks and possibly reducing life expectancy (Bayog & Walters, 2018; Bhimia et al., 2017; Dela Cruz & Galang, 2008; Vargas & Jurado, 2015). To date, there are very limited studies regarding health-promoting behavior, self-care practices, and mental health among Filipino nurses, thus the need for this research study. Therefore, the purposes of this study were to 1) examine health-promoting behavior among Filipino nurses and 2) assess the level of positive mental health among Filipino nurses working in Michigan guided by the midrange theory of health promotion.

Theoretical Framework

The Health Promotion Model (HPM) by Pender (2005) was used to guide this study. According to Pender et al. (2005),

health promotion is defined as a behavior motivated by the person's desire to enhance well-being and actualize health potential. This actualization is possible through competent self-care, goal-directed behavior, and harmony with the environment, including interpersonal relationships (McElliott et al., 2009). The HPM was based on the Theory of Reasoned Action, Social Cognitive Theory, and Theory of Planned Behavior. Positive mental health is described as the presence of positive emotions and good functioning in both individual and social environments (Sanchez-Carrion, 2016). In the present study, it is conceptualized that having a positive mental health will motivate Filipino nurse to participate in health-promoting behaviors, thus enhancing their own well-being and health potentials.

Method

The aims of this quantitative, descriptive, and cross-sectional study were to examine the health-promoting behavior and to assess the level of positive mental health of Filipino nurses working in Michigan. The study used Research Electronic Data Capture (REDCap) for informed consent and data collection, and survey responses from December 2019 to April 2020 were included in the analysis.

Sample/Setting

Upon Institutional Review Board approval, a convenient sample of Filipino nurses working in Michigan was recruited to participate in this survey. Potential participants were recruited via flyers, through social media (Facebook), via email to the President of the Philippines Nurses Association in Michigan and through personal contacts. A survey link with access code were included in the recruitment flyers and social media and emails.

Data Collection

Data were collected and managed using REDCap tool (Harris et al., 2009). REDCap is a secured web-application developed by Vanderbilt University. The site is HIPAA compliant and secured. RedCap is available through the researchers' university.

Health-Promoting Behavior

The Health-Promoting Lifestyle Profile II (HPLP-II) developed by Walker et al. (1987) was used to measure the frequency of self-reported health-promoting behaviors of Filipino nurses. The tool is a 52-item on a 4-point Likert scale that assesses six domains. These domains include health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. This tool has established construct and criterion-related validity and reported internal consistency of alpha coefficient .940 for total scale and range of .793 to .872 for the subscales (Walker & Hill-Polerecky, 1996). The three-week test-retest stability coefficient of the total scale was .892 (Walker & Hill-Polerecky, 1996).

Level of Positive Mental Health

The Positive Mental Health (PMH) survey by Vaingankar et al. (2014) was used to measure the level of positive mental health among Filipino nurses. This tool is a 24-item questionnaire that measures and evaluates positive mental health specific to Asian communities. The tool has six subscales - general coping, emotional support, spirituality, interpersonal skills, general affect, and personal growth and autonomy. Scores range from 1 (lower PMH) to 6 (higher PMH). This instrument has established criterion validity. The internal consistency and test-re-test reliability of this instrument were high, Cronbach's α coefficient of .87 and intra-class correlation of .93 (Vaingankar et al., 2014).

Data Analysis

Data collected from RedCap were transported into the investigator's SPSS Version 25 software for analysis. Descriptive statistics, including mean, percent, and standard deviations were used. Pearson r or Spearman ρ correlations was used to determine correlations between HPLP and PMH, and the following variables - age, years living in the U.S., and work-shift in a clinical setting.

Results

Demographic Characteristics

Forty-three nurses started the survey, and 27 completed all the surveys (63% completion rate). Data from the 27 Filipino nurses who completed the surveys were included in the final analysis. The mean age of the participants was 49.11 ($SD = 15.8$) years old, 93% were females, 63% married; median number of children was two; 96% were practicing religion; 85% were born outside the U.S., and 63% have been living in the U.S. for more than 20 years. Sixty-seven percent has a bachelor's degree in nursing, 78% are currently working in a clinical setting, 67% are working full-time, 44% are working in the day shift (8 hour morning and 12-hour morning shifts), and the average years working as a nurses was 23.54 ($SD = 15.5$) years. See Table 1.

Health-Promoting Behavior

The mean total HPLP score was 144.30 ($SD = 22.9$) out of 208 maximum scores. Spiritual growth subscale had the highest mean score ($M = 27.22$, $SD = 5.1$). Physical activity had the lowest mean score ($M = 19.58$, $SD = 6.9$) followed by stress management ($M = 21.48$, $SD = 3.9$). See Table 2. There was no correlation noted between total HPLP score and the following variables - age, years living in the U.S.

Table 1

Demographic Characteristics

Characteristics	Frequencies
Age	$M = 49.11$ ($SD = 15.8$)
Gender	N (%)
Male	2 (7%)
Female	25 (93%)
Marital Status	N (%)
Single	6 (22%)
Married	17 (64%)
Divorced	2 (7%)
In a relationship	2 (7%)
Born in the U. S.	N (%)
Yes	23 (84%)
No	4 (15%)
Highest education attained	N (%)
Associated degree	6 (22%)
Bachelor's degree	18 (67%)
Master	1 (4%)
Doctorate	2 (7%)
Practicing Religion	N (%)
Yes	26 (96%)
No	1 (4%)
Years working as a nurse	N (%)
<1 year	1 (4%)
1-5 years	5 (18%)
6-10 years	0
11-20 years	3 (11%)
21-30 years	8 (30%)
>31 years	7 (26%)
Missing	3 (11%)
Years living in the U. S.	N (%)
<1 year	0
1-5 years	2 (7%)
6-10 years	0
11-20 years	3 (11%)
>20 years	17 (63%)
Not applicable	5 (19%)
Currently working in clinical setting	N (%)
Yes	21 (78%)
No	6 (22%)

Table 1*Demographic Characteristics*

Characteristics	Frequencies
Working status	N (%)
Working full time	18 (67%)
Part time	3 (11%)
Per Diem/Consultant	2 (7)
Missing	4 (15%)
Work-shift	N (%)
Morning	9 (33%)
Afternoon	2 (8%)
Night	4 (15%)
12-hour morning	3 (11%)
12-hour night	3 (11%)
Others	3 (11%)
Missing	3 (11%)
Work area	N (%)
Med-surg.	3(11%)
Dialysis	10 (37%)
ICU	1 (4%)
LTC	1 (4%)
OB	1(4%)
Rehab	1(4%)
Office	3 (11%)
University	2(7%)
Missing	5 (18%)
Job title	N (%)
LPN	1
Staff Nurse	19
Charge Nurse	1
APRN	1
Faculty	2
Retired	2
Missing	1

Table 2*Total and All Subscales Domains Score on HPLP*

HPLP Scoring	Score (SD)
Health-Promoting Lifestyle (items 1-52)	144.30 (22.92)
Health Responsibility (items 3,9,15,21,27,33,39,45,51)	24.27 (5.11)
Physical Activity (items 4,10, 16,22,28,34,40,46)	19.58 (6.93)
Nutrition (items 2,8,14,20,26,32,38,44,50)	23.62 (4.55)
Spiritual Growth (items 6, 12, 18, 24, 30, 36, 42, 48, 52)	27.22 (5.09)
Interpersonal Relations (items 1,7,13,19,25,31,37,43,49)	27.15 (4.23)
Stress Management (items 5,11,17,23,29,35,41,47)	21.48 (3.91)

and shift working in the clinical setting ($r = .271, p = .17$; $r = .010, p = .96$; and $r = .222, p = .30$, respectively).

Level of Positive Mental Health

The mean score on the overall PMH was 4.99 ($SD = .75$). The emotional support subscale had the highest mean score ($M = 5.19, SD = .86$); whereas general coping had the lowest mean score ($M = 3.93, SD = .70$). Table 3 presents all the PMH scores on the total and all subscales. There was no correlation noted between total PMH score and age ($r = .553, p = 0.62$), shift working in the clinical setting ($r = .308, p = 0.33$), and years living in the U.S. ($r = -.521, p = 0.83$).

Table 3

Total and Subscales Scores on PMH

Positive Mental Health (n)	<i>M</i>	<i>SD</i>
Total Positive Mental Health (12)	4.99	.75
Emotional Support (27)	5.19	.86
Interpersonal Skills (27)	5.09	.89
Spirituality (25)	4.86	1.21
Personal Growth Autonomy (27)	4.67	1.22
Global Affect (27)	4.67	1.03
General Coping (14)	3.93	.70

Discussion

The study showed that Filipino nurses working in Michigan rely on spiritual growth for health promotion and emotional support for maintaining a positive mental health. This finding is not surprising because about 8 in 10 Filipinos practice Catholicism; hence, religion and faith play significant parts in the Filipino culture (Lipka, 2015). Religion and spirituality provide meaning to the way many Filipinos interpret diseases and self-manage health conditions (Domingo et al., 2018; Lagman et al., 2014). Ramos and Mahmood's (2020) phenomenological study that identified faith as one of the factors that facilitated health-seeking behaviors of elderly Filipinos supported our findings. It is a common practice among Filipino to leave their health problems in God's hand and seek only medical attention as a last resort (Lagman et al., 2014; Ramos & Mahmood, 2020). Another finding in this study was that physical activity, stress management, and nutrition were at the bottom three in health-promoting behavior among Filipino nurses. This observation is worrisome given the high preponderance of cardiovascular disease (CVD) and diabetes among Filipinos not only in their homeland (Gloria, 2019) but also in the U. S. (Abesamis et al., 2016; Iyer, et al., 2019; Nguyen et al., 2015). Physical

inactivity, foods high in fat and sodium, and stress are some of the identified risk factors for developing CVD (Centers for Disease Control and Prevention, 2019). It is worth mentioning that even though all the respondents were nurses who have basic knowledge of CVD risks, this knowledge does not always translate into their own personal health practice. The finding also reflects data about Asian Americans being the least physically active compared to other racial/ethnic groups (Kao et al. 2016; Yi et al., 2015).

Results also showed that emotional support, interpersonal skills, and spirituality were the most heavily relied on when it comes to maintaining positive mental health. Family is very important to Filipinos (Scroope, 2017). Filipino family is classified as nuclear unit but functionally extended, meaning household includes other members of their immediate family besides parents and children (Scroope, 2017). Hence, they are more inclined to rely on family support with dealing with issues and concerns first rather than going to a formal health care provider (Grossman & Webb, 2016; Ramos & Mahmood, 2020). Similar to health-promoting behavior, Filipinos not only rely on spirituality for health-promoting behaviors but also for their mental health. Spirituality is the third highest score in the PMH subscale. Spirituality is also an important aspect to mental health (Verghese, 2008). There is promising evidence on the role of religion and spirituality on a person's mental health enhancing positive clinical outcomes.

There are several limitations acknowledged in this study. The study has a small sample size, the use of convenience sampling, not all questions were completely answered by the participants, and only Filipino nurses from MI were surveyed. Study is a descriptive design. Data collection began in late December of 2019 and continued up until April 2020, when the coronavirus (COVID) 19 pandemic was at its peak. We do not know whether the pandemic had any impact in recruiting Filipino nurses.

This study has implications to research and practice. More research is needed with a larger sample size and evaluating health-promoting strategies in this population. The present study may be used as a guide to develop self-care strategies specific to Filipino culture. There should be special considerations for programs that will incorporate religion or spirituality, and family support, while simultaneously targeting areas of physical activity, nutrition, and stress. Further examination of the relationships between the health-promoting behavior and positive mental health subscales, and other socio-demographic variables is needed, which may provide additional evidence to these topics and population. Additionally, information regarding generational differences in self-care practices as well as in relation to acculturation or

assimilation is needed. Recognizing and understanding cultural behaviors will enable health professionals to develop culturally tailored health promotion strategies for this population to improve health outcomes.

Conclusion

This study aimed at determining health-promoting behavior and positive mental health of Filipino nurses in Michigan. Results showed that Filipino nurses tend to rely on spirituality when it comes to health-promoting and seeking behaviors, and emotional support for maintaining positive mental health. This study adds to the limited knowledge about self-care practices of Filipino nurses in the U.S. Results however should be interpreted with caution because of its limitations.

References

- Abesamis, C. J., Fruh, S., Hall, H., Lemley, T., & Ziomke, K. R. (2016). Cardiovascular health of Filipinos in the U.S: A review of the literature. *Journal of Transcultural Nursing, 27*(5), 518-528. <https://doi.org/10.1177/1043659615597040>
- Batalova, J. (2020, May 14). *Immigrant health-care workers in the United States*. Michigan Policy Institute. <https://www.migrationpolicy.org/article/immigrant-health-care-workers-united-states>
- Bayog, M. L. G., & Walters, C. M. (2018). Nativity, health conditions, and health behaviors in Filipino Americans. *Journal of Transcultural Nursing, 29*(3), 249-257. <https://doi.org/10.1177/1043659617703164>
- Bhimia, A., Yap, L., Lee, M., Seals, B., Aczon, H., & Ma, G. X. (2017). Addressing the health needs of high-risk Filipino Americans in the Greater Philadelphia region. *Journal of Community Health, 42*(2), 269-277. <https://doi.org/10.1007/s10900-016-0252-0>
- Brenan, M. (2018, December 20). *Nurses again outpace other professions for honesty, ethics*. Gallup, Inc. <https://news.gallup.com/poll/245597/nurses-again-outpace-professions-honesty-ethics.aspx>
- Centers for Disease Control and Prevention (CDC). (2019, December 9). *Know your risk for heart disease*. CDC. https://www.cdc.gov/heartdisease/risk_factors.htm
- Dela Cruz, F. A., & Galang, C. B. (2008). The illness beliefs, perceptions, and practices of Filipino Americans with hypertension. *Journal of the American Academy of Nurse Practitioner, 20*(3)118-127. <https://doi.org/10.1111/j.1745-7599.2007.00301.x>
- Domingo, J-L. B., Gavero, G., & Braun, K. L. (2018). Strategies to increase Filipino American participation in cardiovascular health promotion: A systematic review. *Preventing Chronic Disease, 15*, E59. <http://dx.doi.org/10.5888/pcd15.170294>
- Ea, E. E., Griffin, M. Q., L'Eplattenier, N., & Fitzpatrick, J. J. (2008). Job satisfaction and acculturation among Filipino registered nurses. *Journal of Nursing Scholarship, 40*(1), 46-51. <https://doi-org.ezproxy.emich.edu/10.1111/j.1547-5069.2007.00205.x>
- Gloria, H. (2019). *Cardiovascular diseases among top killers in PH*. <https://pia.gov.ph/news/articles/1018472>
- Golshiri, P., Pourabdian, S., Najimi, A., Zadeh, M., & Hasheminia, J. (2012). Job stress and its relationship with the level of secretory IgA in saliva: A comparison between nurses working in the emergency room and hospital clerks. *Journal of Pakistani Medical Association, 63*(3Suppl), S26-S30.
- Grossman, B., & Webb, C. (2016). Family support in late life: A review of the literature on aging, disability, and family caregiving. *Journal of Family Social Work, 19*(4), 348-395. <https://doi.org/10.1080/10522158.2016.1233924>
- Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics, 42*(2), 377-381. <https://doi.org/10.1016/j.jbi.2008.08.010>
- Iyer, D. G., Shah, N. S., Hastings, K. G., Hu, J., Rodriguez, F., Boothroyd, D. B., Krishnan, A. V., Falasinnu, T., & Palaniappan, L. (2019). Years of potential life lost because of CVD in Asian-American subgroups, 2003-2012. *Journal of the American Heart Association, 8*, e010744. <https://doi.org/10.1161/JAHA.118.010744>
- Kao, D., Gulati, A. C., & Lee, R. E. (2016). Physical activity among Asian American adults in Houston, Texas: Data from Health and Houston Survey 2010. *Journal of Immigrant and Minority Health, 18*, 1470-1481. <https://doi.org/10.1007/s10903-015-0274-1>
- Lagman, R. A., Yoo, G. J., Levine, E. G., Donnell, K. A. (2014). "Leaving it to God": Religion spirituality and Filipina American breast cancer survivors. *Journal of Religion & Health, 53*(2), 449-460. <https://doi.org/10.1007/s10943-012-9648-z>
- Lee, P. T. (2009). *Occupational and environmental health*. In C. H. Chevrin, M. J. Rey, & Islam, N. S. (Eds.), *Asian American communities and health: Context, research, policy, and action* (pp. 403 – 434). Wiley.
- Lipka, M. (2015). 5 facts about Catholicism in the Philippines. <https://www.pewresearch.org/fact-tank/2015/01/09/5-facts-about-catholicism-in-the-philippines/>
- Lorenzo, F. M. E., Galvez-Tan, J., Icamina, K., & Javier, L. (2007). Nurse migration from a source country perspective: Philippine country case study. *Health Services Research, 42*(3), 1406-1418. <https://doi.org/10.1111/j.1475-6773.2007.00716.x>

- McElligott, D., Siemers, S., Thomas, L., & Kohn, Ni. (2009). Health promotion in nursing: Is there a healthy nurse in the house? *Applied Nursing Research*, 22, 211-215. <https://doi.org/10.1016/j.apnr.2007.07.005>
- Michigan Center for Nursing (2019). *Demographic characteristics of survey respondents June 2019*. <https://www.minurse.org/survey/data-2019.html>
- Nadal, K. L. (2011). *Filipino American psychology: A handbook of theory, research, and clinical practice* (1st ed.). John Wiley & Sons.
- Nguyen, T. H., Nguyen, T-N., Fischer, T., Ha, W., & Tran, T. V. (2015). Type 2 diabetes among Asian Americans: Prevalence and prevention. *World Journal of Diabetes* 6(4), 543-547. <https://doi.org/10.4239/wjd.v6.i4.543>
- Pender, N. J., Murdaugh, C. L., & Parsons, M. A. (2005). *Health promotion in nursing practice* (5th ed.). Prentice Hall
- Ramos, M. D., & Mahmood, R. (2020). Facilitators and barriers influencing health-seeking behavior among elderly Filipinx women in the U.S. *Journal of Nursing Practice Applications & Reviews of Research*, 10(1). <https://doi.org/10.13178/jnparr.2020.10.01.1003>
- Robinson, A. (2016, June 28). *Beyond the paycheck: why nursing is a rewarding career*. The Nightingale. <https://www.angelesinstitute.edu/thenightingale/why-nursing-is-a-rewarding-career>
- Ross, A., Bevans, M., Brooks, A. T., Gibbons, S., & Wallen, G. R. (2017). Nurses and health-promoting behaviors: Knowledge may not translate into self-care. *AORN Journal*, 105(3), 267-275. <https://doi.org/10.1016/j.aorn.2016.12.018>
- Sanchez-Carrion, L. (2016). *An expert's perspective on mental health*. <https://researchblog.duke.edu/2016/11/03/an-experts-perspective-on-mental-health/>
- Scroope, C. (2017, n.d.). *Filipino culture*. <https://culturalatlas.sbs.com.au/filipino-culture/filipino-culture-references#filipino-culture-references>
- Turner, J. (2013, April 13). *13 reasons nurses are stressed out*. *Minority Health*. <https://minoritynurse.com/11-reasons-nurses-are-stressed-out/>
- Vaingankar, J. A., Subramaniam, M., Abdin, E., Picco, L., Chua, B. Y., Eng, G. K. Sambasivam, R., Shafie, S., Zhang, Y., & Chong, S. A. (2014). Development, validity, and reliability of the short multidimensional positive mental health instrument. *Quality of Life Research*, 23(5), 1459-1477. <https://doi.org/10.1007/s11136-013-0589-0>
- Vargas, P., & Jurado, L-F. (2015). Dietary acculturation among Filipino Americans. *International Journal of Environmental Research and Public Health*, 13, 16.
- Vergheze, A. (2008). Spirituality and mental health. *Indian Journal of Psychiatry*, 50(4), 233-237. <https://doi.org/10.4103/0019-5545.44742>
- Walker, S. N. & Hill-Polerecky, D. M. (1996). *Psychometric evaluation of the Health-Promotion Lifestyle Profile II*. Unpublished manuscript. University of Nebraska Medical Center.
- Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The Health-Promoting Lifestyle Profile: Development and psychometric characteristics. *Nursing Research*, 36(2), 76-81.
- Yen, P-Y, Pearl, N., Jethro, C., Cooney, E., McNeil, B., Chen, L., Lopetique, M., Maddox, T. M. & Schallom, M. (2019). Nurses' stress associated with nursing activities and electronic health records: Data triangulation from continuous stress monitoring, perceived workload, and a time motion study. *AMIAM Annual Proceedings Archive*, 952-961.
- Yi, S. S., Roberts, C., Lightstone, A. S., Shih, M., & Trinh-Shevrin, C. (2015). Disparities in meeting physical activity guidelines for Asian Americans in two metropolitan areas in the U.S. *Annals of Epidemiology*, 25(9), 656-660e2. <https://doi.org/10.1016/j.annepidem.2015.05.002>