Table of Contents

Editor’s Perspective - Health Determinants and Health Outcomes 1
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President’s Corner - Health Disparity and Advocacy for Accessible, Equitable and Culturally Appropriate Healthcare 2
doi: 10.13178/jnparr.2016.0601.0702

An Investigation of the Relationship between Acculturation and Specific Health Practices in Asian Americans
Cynthia G. Ayres, Leo-Felix M. Jurado, Ganga Mahat & Susan Norris 4
doi: 10.13178/jnparr.2016.0601.0216

Critical Social Purpose: Social Epidemiology 10
Nelson Tuazon
doi: 10.13178/jnparr.2016.0601.0416

Factors Influencing the Health Promoting Physical Activity Behaviors of Diverse Urban Adolescents
Susan M. Norris & Cynthia G. Ayres 16
doi: 10.13178/jnparr.2016.0601.0316

Social Determinants of Youth Homelessness 24
Dula F. Paquiao & Deborah Michiko Fried
doi: 10.13178/jnparr.2016.0601.0516

Nurses’ Perceptions of Family Visitations in the Adult Post-Anesthesia Care Unit
Pamela Windle 32
doi: 10.13178/jnparr.2016.0601.5160

The Impact of the Bachelor of Science in Nursing (BSN) Degree on Patient Outcomes: A Systematic Review
Sharon Haskins & Katie Pierson 40
doi: 10.13178/jnparr.2016.0601.0705
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The health of individuals and populations is determined by several interrelated factors. Healthy People 2020 categorizes health determinants into five domains, including a) social factors, b) health services, c) individual behaviors, d) policy making, and e) biology and genetics.

Social determinants of health are social and physical conditions that influence all aspects of an individual’s life – where they are born, where they grow up, and where they work and play. Many of these factors have been featured on several of the articles published in this edition. Paquiao and Fried have explained that poverty and environmental instability are major contributing social determinants of youth homelessness. Norris and Ayres’ research findings have indicated that friends and parental social support are predictive of health promoting physical activity behaviors. Windle’s article described the increased satisfaction of patients and families with their healthcare experience when family visitation to patients is allowed in the Post Anesthesia Care Unit. Ayres, Jurado, Mahat, and Norris further indicated that significant relationship was found between acculturation and several health practices. Furthermore, Tuazon’s article has highlighted the relationship of socioeconomic status and health outcomes. Indeed, poorer health outcomes are accentuated by the interplay of less desirable social and physical environments.

Closely related to social determinants are health services determinants. The availability and quality of health services is intertwined with socio-economic factors. The health of individuals and communities is affected by the lack of or inadequate health insurance coverage resulting from poverty. Location of health care services and the insufficiency of transportation services exacerbate the lack of access to adequate, timely and much needed health care services.

Individual behavior is another health determinant. Individual behavior determinants include diet, physical activity, use of drugs and alcohol, and other habits. Individual behaviors are influenced by social and health services determinants. The paucity of healthcare interventions to promote healthy behaviors, the scarcity of healthier foods, and the predominance of crime in impoverished communities magnify unhealthy behaviors and practices.

Policy making is also a health determinant. The development of policies and regulations greatly improves the health of individuals and populations when these policies are properly implemented and monitored. Examples of policies affecting health are banning smoking in public places, stricter control on car emissions, regulating the use of high sugar drinks in elementary schools, regulating the use of table salt for seasoning in restaurants, and many more. Examples of policies affecting health are banning smoking in public places, stricter control on car emissions, regulating the use of high sugar drinks in elementary schools, regulating the use of table salt for seasoning in restaurants, and many more.

Biologic and genetic health determinants are harder to control because they affect specific groups more than others. Some of these factors are inherited such as cancer and cardiovascular disorders. Some individuals are more prone to developing certain diseases such as those possessing BRCA one and two, which predispose them to breast and ovarian cancer. Social and health services determinants are braided with the biologic and genetic determinants. Those who lack access to adequate health care services because of poverty are not able to avail of health screening services and therefore, may already suffer the consequences of complications, and disease states may already be in advanced state when diagnosis occurs.

What’s the significance of knowing the health determinants when providing nursing care? Nurses provide patient care to individuals and communities. Nurses need to understand both social and physical factors affecting their patients’ health, e.g., where do their patients live; what environmental factors are affecting their health; what are their employment and working conditions. It is equally important for nurses to know their patients’ individual behaviors so that they can assist them in modifying any unhealthy habits through patient-centered teaching, counseling, and referral. Nurses must include the types of health care services that their patients regularly access in their assessment. Additionally, nurses should conduct in-depth assessment on their patients’ family history of illness so that health screening and early detection and treatment could be implemented. And lastly, nurses must fulfill their advocacy roles by leading and engaging in developing policies that promote health and prevent illness. Evidently, the complexity of nurses’ roles today is increasing. It is imperative that nurses educational entry level into practice should be at least at the Bachelor of Science in Nursing (BSN) level as discussed by Haskins and Pierson in their systematic review article regarding the impact of BSN degree on patient outcomes.

Source: Healthy People 2020 @ www.healthypeople.gov

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Health Disparity and Advocacy for Accessible, Equitable and Culturally Appropriate Healthcare

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In 2013 CDC released its report examining some of the key factors that affect health and lead to health disparities in the United States. Four findings were revealed in the report:

- Cardiovascular disease is the leading cause of death in the United States. Non-Hispanic black adults are at least 50% more likely to die of heart disease or stroke prematurely (before age 75) than their non-Hispanic white counterparts.

- The prevalence of adult diabetes is higher among Hispanics, non-Hispanic blacks, and those of other or mixed races than among Asians and non-Hispanic whites. Prevalence is also higher among adults without college degrees and those with lower household incomes.

- The infant mortality rate for non-Hispanic blacks is more than double the rate for non-Hispanic whites. Rates vary geographically, with higher rates in the South and Midwest than in other parts of the country.

- Men are far more likely to commit suicide than women, regardless of age or race/ethnicity, with overall rates nearly four times those of women. For both men and women, suicide rates are highest among American Indians/Alaska Natives and non-Hispanic whites. (CDC, 2013)

National Center for Health Statistics (2016) defines racial or ethnic health disparity as “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group.”

Limited health-care coverage and lack of access are part of the reason why health disparities exist. However, social, economic, and environmental factors contribute significantly to healthcare disparity among and between cultures, gender, race, age and among the diverse population throughout the United States. Adding to this complexity is the growing number of immigrants in the United States. According to the U.S. Census Bureau (n.d.), the U.S. immigrant population grew from 19.8 million in 1990 to a record 40.7 million in 2012. In 2010, the U.S. Census Bureau documented that the largest population of foreign-born people in the country came from Mexico, followed by Asia (U. S. Census Bureau, 2010).

The number of racial and ethnic minorities in the U.S. increased as well during the past decades. In 1985, 22.3% of the population were considered racial or ethnic minorities. In 2014, estimates identified 37.9% of the U.S. population as racial or ethnic minorities. In 2014, Hispanic persons, who may be of any race, comprised 17.4% of the U.S. population. Non-Hispanic multiple race persons were 2.0% of the population. For the single race groups, non-Hispanic American Indian or Alaska Native persons were 0.7%, non-Hispanic Asian persons were 5.3%, non-Hispanic black persons were 12.4%, non-Hispanic Native Hawaiian or Other Pacific Islander persons were 0.2%, and non-Hispanic white persons were 62.1% of the U.S. population in 2014 (U.S. Department of Health and Human Services, 2016). The demographic and socioeconomic composition of U.S. racial and ethnic groups is important to consider because these characteristics are associated with health risk factors, disease prevalence, and access to care.

Whether defined by race, ethnicity, immigrant status, disability, sex, gender, or geography, it is well documented that certain groups experience higher rates of certain diseases and deaths compared with the general population. While the diversity of the American population is one of the nation’s greatest assets, one of its greatest challenges is reducing the profound disparity in health status of its racial and ethnic minority, rural, low-income, and other underserved populations (National Institute of Health, 2015).

Based on the numbers of minority population and immigrants coming into the health care system, there are opportunities and numerous challenges facing the nursing profession to provide culturally appropriate care to a highly diverse population. Providing culturally competent care and reducing disparities require national leadership and coordination among government entities, accreditation bodies, professional and social organizations and special interest groups. Towards this end, the Philippine Nurses Association of America (PNAA) joins the National Coalition of Ethnic Minority Nurse Associa-
NCEMNA consists of five nursing organizations including:

- Asian American/Pacific Islander Nurses Association, Inc. (AAPINA)
- National Alaska Native American Indian Nurses Association, Inc. (NANAINA)
- National Association of Hispanic Nurses, Inc. (NAHN)
- National Black Nurses Association, Inc. (NBNA)
- Philippine Nurses Association of America (PNAA)

NCEMNA’s goals, include: “to support, raise awareness, and advocate for culturally competent, accessible and affordable health care; promote professional and educational advancement of ethnic nurses; educate consumers, health care professionals and policy makers on health issues of ethnic minority populations; develop ethnic minority nurse leaders in areas of health policy, practice, education and research; endorse best practice models of nursing practice, education, and research for minority populations” (National Council of Ethnic Minority Nurse Associations, n.d.).

In an effort to raise public awareness and promote health and wellness, the Philippine Nurses Association of America’s health awareness programs are carried out through its 45 chapters throughout the United States. Some of these programs include the “Filipino Cancer Network of America”, the “Healthy Heart Healthy Family” program, and community health screenings for cholesterol, hypertension, diabetes, and obesity.

Reducing health disparity in the U.S. must be a concerted and collaborative effort among organizations and stakeholders, nationally and locally. PNAA will continue to carry out its programs and initiatives related to the IOM Recommendations on Diversity, collaborate with State Action Coalitions, government entities, and other organizations, including but not limited to, the National League of Nursing, American Cancer Society, Healthy People 2020, NIH, and other interest groups whose goals address health disparity and advocacy for accessible, equitable and culturally appropriate healthcare.

References


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Abstract

Introduction. Acculturation among the Asian American population is an important area to study, as there exists a large body of literature supporting the relationship between acculturation and health behavior.

Objective. The purpose of the study was to examine the relationship between acculturation and specific health practices in this population.

Methods. A non-probability, convenience sample consisted of 163 Asian Americans between the ages of 18 to 24 years in an urban setting. Participants completed a demographic sheet, the Suinn-Lew Asian Self Identity Acculturation Scale, and the Personal Lifestyle Questionnaire. Using a correlational research design, theoretical relationship was postulated between acculturation and specific positive health practices (PHP) were tested using SPSS 19.0.

Results. A statistically significant relationship was found between acculturation and overall PHP ($r = .229$, $p < .01$). However, when specific health practices were examined, inconsistencies were found. Significant positive relationship was found between acculturation and each of the following health practices: seeing health provider yearly ($r = .382$, $p < .01$), having dental check-ups ($r = .405$; $p < .01$), getting together with friends ($r = .169$, $p < .05$), eating at regular times during the day ($r = .241$, $p < .01$), wearing seatbelts ($r = .355$, $p < .01$), communicating concerns with another person ($r = .168$, $p < .05$), walking at least one mile a day ($r = .223$; $p < .01$), performing a monthly breast self-exam (girls only) ($r = .495$, $p < .01$) and a monthly testicular self-exam ($r = .307$, $p < .01$). However, there was no significant relationship found between acculturation and the health practices of maintaining weight within desirable limits, having a planned exercise program, getting adequate sleep, smoking, drinking alcohol, and wearing sunscreen.

Conclusions. Understanding the role acculturation plays can help nurses to better understand the mechanism through which specific positive health practices are influenced in this population. By assessing acculturation and specific health practices in which they engage, effective strategies to reduce the likelihood of Asian Americans engaging in unhealthy behaviors and promote healthy habits can be implemented.

Keywords. Acculturation, Asian American, health behavior
Background and Significance

The Asian American population is one of the fastest-growing minority groups in the United States, increasing approximately 28% from 2000 to 2008. Projecting sustained growth in years to come, the U.S. Census Bureau estimates 40.6 million residents will identify as Asian or Asian in combination with one or more other races by 2050 (Asian Health Initiative, 2016).

Asian Americans may experience a number of acculturation conflicts as they become more exposed to the traditions, values, and norms of majority society. These individuals are faced with the challenge of resolving primary issues related to the existence of two differing worldviews—those of their own and those of the dominant culture—which may impact individuals to varying degrees (Chae, 2002). Acculturation is defined as the process that can occur when two or more cultures interact together (Suinn, Ahuna, & Khoo, 1992). There are several possible outcomes of acculturation including assimilation, whereby a host culture absorbs the immigrant culture, or multiculturalism, whereby both cultures exist side-by-side (Suinn, Ahuna, & Khoo, 1992). Exposure to another culture can lead individuals to (a) resist change in their values and behavioral competencies, (b) adopt the host culture’s values and behavioral skills and styles as a replacement for their parent culture’s values/behaviors, or (c) acquire host culture values/behaviors while retaining parent culture values/behaviors with situational reliance determining which values/behaviors are in effect at different times (Suinn, Ahuna, & Khoo, 1992). Therefore, acculturation among the Asian American population is an important area to study, as there exists a large body of literature supporting the relationship between acculturation and health behaviors (Afable-Munsuz & Brindis, 2006; Ayres, Atkins & Mahat, 2010; Ayres & Mahat, 2012; Bond et al., 2002; Coe et al., 1994; Lee, 2007; Sohn & Harada, 2005).

Literature Review

Depending upon acculturation levels, significant differences in select health promoting behaviors have been found (Bond et al., 2002). For example, Afable-Munsuz and Brindis (2006) have concluded that acculturation is associated with increased condom use and beliefs and norms related to healthy outcomes. Some acculturation variables have significantly predicted preventive practices (Sohn & Harada, 2005). For example, researchers have found a correlation between acculturation and the performance of breast self-examinations (Coe et al., 1994).

Ayres, Atkins, and Mahat (2010) and Ayres and Mahat (2012) have reported positive significant relationship between general positive health practices and acculturation ($r = .229; p < .01$ and $r = .169; p < .05$, respectively) among Asian Americans. In these studies, positive health practices were defined as behaviors performed by individuals regardless of health status to protect, promote, or maintain health (Harris & Guten, 1979). Positive health practice was operationalized through the use of a the Personal Lifestyle Questionnaire (PLQ), a summed rating scale with a total range of possible scores from 22 to 88. Higher scores reflect the practice of more positive health behaviors. Ayres, Atkins, and Mahat (2010) and Ayres and Mahat (2012) have examined the dependent variable of positive health practices as a composite of multiple health behaviors in the Asian American population. The results presented as a summation of health behaviors using an instrument with summed scales to measure this construct may be interpreted as all positive health practices being significantly related to acculturation in the same predicted direction (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012). This present study examined the relationship between acculturation and specific health practices in the Asian American population.

Data on acculturation and ethnic-minority health indicate that acculturation has (a) opposite effects on the same health behavior among different ethnic groups, (b) opposite effects on different health behaviors within an ethnic group, (c) opposite effects on the same health behavior for the women versus the men of most ethnic groups, and (d) no effect whatsoever on some health behaviors for some ethnic groups (Landrine & Klonoff, 2004). For example, Landrine and Klonoff (2004) have indicated that increasing acculturation is associated with the decreased consumption of high-fat and fried foods among African-Americans but with increased consumption of those foods among Latino-Asian-Americans (Kim & Chan, 2004; Lee & Huang, 2001; Neuhouser et al., 2004; Satia-Abouta et al., 2002). Likewise, Landrine and Klonoff (2004) have indicated that increasing acculturation has opposite effects on different health behaviors within a minority group. Increasing acculturation is associated with decreases in smoking but with increases in alcohol use among African-Americans (Herd & Grube, 1996; Klonoff & Landrine, 1996, 1999; Landrine & Klonoff, 2004), and with decreased consumption of fruit and beans but with increases in leisure time physical activity among Latinos (Crespo et al., 2001; Landrine & Klonoff, 2004; Otero-Sabogal et al., 1995).

Given the significant inconsistencies found in the existing literature around select health promoting behaviors and limitations on data collection such as obtaining a total score for general positive health practices, this study examined the relationship between acculturation and specific health practices performed by Asian Americans. More specifically, the purpose of the study was to examine the relationship between acculturation and specific health practices among Asian Americans as an extension of an earlier study. The purpose of the earlier study was to test optimism and acculturation as possible mediators in the relationship between...
social support and positive health practices in Asian Americans (Ayers & Mahat, 2012). Interestingly, the findings from the earlier study indicated that acculturation did not mediate the relationship between social support and positive health practices (Ayers & Mahat, 2012). Unlike the earlier study that looked at the concept of acculturation to help explain the basic relationship between social support and overall positive health practices, this present study investigated bivariate relationships between acculturation and specific health practices. The study reported here specifically examined the relationship between acculturation and specific health practices in the Asian American population.

In this present study, acculturation is defined as the process that can occur when two or more cultures interact together (Suinn, Ahuna, & Khoo, 1992). Acculturation was operationalized using the Suinn-Lew Asian Self Identity Acculturation Instrument (SL-ASIA) (Suinn, Ahuna, & Khoo, 1992). Positive health practices were defined using the classic work of Harris and Guten (1979), as behaviors performed by individuals regardless of health status to protect, promote, or maintain health. Personal health practices were operationalized using the Personal Lifestyle Questionnaire (PLQ) (Brown, Muhlenkamp, Fox, & Osborn, 1983). Given the purpose of the study to examine specific health behaviors, individual PLQ items that measured specific health behaviors were used to examine relationships between the dependent variables (specific health behaviors) and the independent variable (acculturation).

Arnett (2000) has described that individuals between the ages of 18-24 years old, experience a “distinct period of life characterized by change and exploration of possible life directions” (p. 469). Focusing between these ages, Arnett (2000) stated, “This period is neither adolescence nor adulthood. Emerging adulthood is distinguished by relative independence from social roles and from normative expectations” (p. 469). The mere fact that emerging adulthood is distinguished by independence from social roles and normative expectations through exploration may have impact on an individual’s health behaviors and well-being (Arnett, 2000). Therefore, this present study examined the relationships between acculturation and specific health practices in the Asian American population within this age range.

Methodology
This study used a correlational research design to examine the relationship between acculturation and specific health practices in Asian Americans in emerging adulthood. A non-probability convenience sample consisted of 163 Asian Americans between the ages of 18-24 years old.

In determining the appropriate sample size, a small to medium effect was chosen based on the previously reported empirical literature with respect to the relationships of acculturation and health behaviors investigated in the present study. Using an alpha of .05 and power of .80 (beta = .20), a small to medium effect size of $r = .25$ was anticipated. Using power calculation recommended by Cohen (1988), a sample of at least 123 subjects was necessary to keep risks of statistical errors to standard levels for calculating Pearson product-moment correlation coefficients (Pearson’s r) (Polit, 2010).

Following approval of the university’s institutional review board, individuals who met the delimitations of the study were approached by the principal investigator to discuss the purpose of the study and potential participation. Delimitations of the study included individuals (a) who self-identify as an Asian, (b) individuals between the ages of 18-24, (c) with the ability to speak and write English, and (d) attendance at the Asian student meeting on the day of data collection. Completed survey questionnaires provided to the researchers on the day of data collection indicated subjects’ consent and voluntary participation in the study. The final sample was composed of 163 Asian Americans between the ages of 18-24.

Study participants were asked to complete the 21-item Suinn-Lew Asian Self Identity Acculturation (SL-ASIA) to measure the variable of acculturation. A final acculturation score was calculated by summing across the answers for all 21 items and then dividing the total value by 21. Possible scores for each item can range from 1.00 to 5.00. Higher scores indicated higher levels of acculturation. Several studies have been performed using this instrument within the past decade in Asian populations, demonstrating appropriate validity and coefficient alphas as a measure of reliability (Ayers & Mahat, 2012; Suinn, Ahuna, & Khoo, 1992; Suinn, Khoo, & Ahuna, 1995). In the present sample, the coefficient alpha was .86.

Study participants were also asked to complete the Personal Lifestyle Questionnaire (PLQ), which is a 24-item self-administered instrument used to measure the positive health practices of individuals (Brown, Muhlenkamp, Fox, & Osborn, 1983). The PLQ is a 4-point, summated rating scale. Higher scores reflect the practice of more positive health behaviors. Validity has been established for the PLQ (Brown et al., 1983). Studies have been performed using this instrument within the past decade in Asian populations, demonstrating appropriate validity and coefficient alphas as a measure of reliability (Ayers, 2010; Ayres & Mahat, 2012). In the present sample, the coefficient alpha was .72. Statistical analysis using SPSS 19.0, included both descriptive statistics and Pearson r correlation coefficients to examine the theoretical relationships postulated between acculturation and PHP.
Results
A convenience sample of 163 Asian Americans completed the survey questionnaire on the day of data collection. Study participants consisted of 71 males and 92 females. Approximately 52% were Chinese, 15% were Korean, 12% were Filipino, nine percent (9%) were Vietnamese, seven percent (7%) were Japanese, and five percent (5%) were Taiwanese. The majority of participants (60.7%) reported they were born in the US, while about 39.3% reported they were born in another country. However, 85% of participants grew up in the US; 14.5% did not.

A statistically significant relationship was found between acculturation and overall positive health practices (r = .229, p < .01). When specific health practices were examined, inconsistencies were found across the specific health practices. Significant positive relationships were found between acculturation and each of the following: seeing health provider yearly (r = .382, p < .01), having dental check-ups (r = .405, p < .01), getting together with friends (r = .169, p < .05), eating at regular times during the day (r = .241, p < .01), wearing seatbelts (r = .355, p < .01), communicating concerns with another person (r = .168, p < .05), walking at least one mile a day (r = .223, p < .01), and performing a monthly breast self-exam (girls only) (r = .495, p < .01) and a monthly testicular self-exam (r = .307, p < .01). However, there was no significant relationship found between acculturation and overall positive health practices (r = .229, p < .01). When specific health practices were examined, inconsistencies were found across the specific health practices. Significant positive relationships were found between acculturation and each of the following: seeing health provider yearly (r = .382, p < .01), having dental check-ups (r = .405, p < .01), getting together with friends (r = .169, p < .05), eating at regular times during the day (r = .241, p < .01), wearing seatbelts (r = .355, p < .01), communicating concerns with another person (r = .168, p < .05), walking at least one mile a day (r = .223, p < .01), and performing a monthly breast self-exam (girls only) (r = .495, p < .01) and a monthly testicular self-exam (r = .307, p < .01). However, there was no significant relationship found between acculturation and the health practices of (a) maintaining weight within desirable limits, (b) having a planned exercise program, (c) getting adequate sleep, (d) smoking, (e) drinking alcohol, and (f) wearing sunscreen.

Conversely, there was no significant relationship found between acculturation and the following health practices: (a) maintaining weight within desirable limits, (b) having a planned exercise program, (c) getting adequate sleep, (d) smoking, (e) drinking alcohol, and (f) wearing sunscreen. The findings in this study elucidated the specific relationship between acculturation and specific health practices in the Asian American population. As mentioned earlier, previous studies have examined the dependent variable of positive health practices as a composite of multiple health behaviors in the Asian American population (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012). The results presented as a summation of health behaviors using an instrument with summated scales to measure this construct may be interpreted as all positive health practices being significantly related to acculturation in the same predicted direction (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012). Unlike previous studies (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012), this present study examined the relationships between acculturation and specific health practices in the Asian American population.

Significant positive correlations were found among acculturation and each of the following: (a) seeing health provider yearly, (b) having dental check-ups, (c) getting together with friends, (d) eating at regular times during the day, (e) wearing seatbelts, (f) communicating concerns with another person, (g) walking at least one mile a day, (h) performing a monthly breast self-exam (girls only), and (i) performing a monthly testicular self-exam. These positive correlations are consistent with the large body of literature that has examined a relationship between acculturation and health behavior. For example, increased time spent in the U.S. has consistently been associated with increased health promoting behavior, such as physical activity presumably because of changes in cultural norms, as well as some preventive health practices (Abraido-Lanza et al., 2005; Allen et al., 2014; Lara et al., 2005; Perez-Escamilla & Putnik, 2007; Sohn & Harada, 2005).

Discussion
The findings in this study elucidated the specific relationship between acculturation and specific health practices in the Asian American population. As mentioned earlier, previous studies have examined the dependent variable of positive health practices as a composite of multiple health behaviors in the Asian American population (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012). The results presented as a summation of health behaviors using an instrument with summated scales to measure this construct may be interpreted as all positive health practices being significantly related to acculturation in the same predicted direction (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012). Unlike previous studies (Ayres, Atkins, & Mahat, 2010; Ayres & Mahat, 2012), this present study examined the relationships between acculturation and specific health practices in the Asian American population.

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In addition, given the inherent nature of self-report for the measurement of both dependent and independent variables, there may be concerns about the validity of conclusions based on participants’ possible lack of candor. In an effort to present themselves in the best possible light, study participants may have distorted their behaviors or their self-disclosures of their behaviors. Although study participants’ responses were anonymous, the physical act of hand-
ing completed surveys to another person may have biased their responses to present themselves in a better light, consciously or subconsciously (Ayres, Atkins, & Mahat, 2010). Therefore, the generalizability of the study findings is further limited and interpretation of the study findings should be done with caution.

**Conclusions and Nursing Implications**
The findings of this study contribute to the body of knowledge regarding the influence of acculturation on positive health practices among Asian Americans. Many behaviors associated with adult morbidity and mortality begin during the adolescent and young-adult years. Therefore, it is important for these individuals in the emerging adulthood stage to have knowledge of, and engage in, positive health practices. These health practices need to be incorporated into their lifestyles. Nurses need to assess the health practices of Asian Americans, particularly those behaviors that are associated with high morbidity and mortality in their adult years, such as smoking, poor diet, and lack of exercise. These behaviors, when initiated during adolescence and young adulthood, are more difficult to change in middle and later adulthood.

Furthermore, understanding the role acculturation plays can help nurses to better understand the mechanism through which specific health practices are influenced in the Asian American population. Nurses need to assess the level of acculturation through the use of standardized instruments, such as the SL-ASIA, when planning culturally sensitive interventions designed to encourage and promote positive health practices in Asian Americans during the period of emerging adulthood. Nurses should focus on behaviors that have shown a significant relationship with acculturation, such as wearing seatbelts, going for regular health and dental check-ups, and performing regular self-breast and testicular exams. By assessing acculturation and specific health behaviors in which they engage, effective strategies to reduce the likelihood of Asian Americans engaging in unhealthy behaviors and promote healthy habits can be implemented.

**References**


Critical Social Purpose: Social Epidemiology
Nelson Tuazon
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Abstract
Social epidemiology has become a critical concept in healthcare. Although the evolution and popularity of social epidemiology began at a slow pace, its wide application in the social sciences has gained momentum over the last two decades. This paper chronicles the history, development, and application of social epidemiology. Different socioeconomic factors in social epidemiology, the evolvement of social epidemiology, and the different theories and concepts of social epidemiology are explored and described. The critical purpose of social epidemiology is analyzed within the context of social determinants of health.

Keywords: Social epidemiology, social determinants of health
Introduction

In her book titled, *Frontiers of Knowledge*, White (1956) wrote about the allure of the new logical work in the natural sciences. Physics, chemistry, astronomy, and biology generated scientific concepts that sprung like mushroom. Philosophers of the sciences were never afraid of ideas (White, 1956, p. 165). While the natural sciences were striding along in an unprecedented pace, the development of social sciences was lagging behind. Furthermore, social thinking seemed to be stuck in a quagmire and the aims of social thinking became problematic (White, 1956, p. 166). This was the social and cultural environment when social epidemiologists began their exploration on the new knowledge of social conditions as determinants of health. As the leader of the free world, the United States advanced science and medicine with the prospect of improving the well-being of the people. Along with the post-war economic growth, prosperity paved the way for Americans to worry on health issues. The focus shifted from infectious diseases to chronic diseases. The Depression and the war led the scientists and the public to become more concerned of certain diseases such as cancer and heart ailments and the conditions that only the wealthy could afford. Members of the community with liberal thoughts extended medical authority into the regulation of social life (Starr, 1982).

Social Epidemiology: The Evolvement of a New Science

Epidemiology is the basic science of public health that focuses on the distribution of diseases in the population and the factors that explain the distribution (Kelsey et al., 1996; Kleinbaum, Kupper, & Morgenstern, 1982; MacMahon & Trichopolous, 1996; Marmot & Bell, 2016; von dem Knesebeck, 2015). Social epidemiology is a subfield of epidemiology that concentrates on social factors as explanatory variables for the distribution of diseases (Berkman & Kawachi, 2000; Drozdzak, 2015; Honjo, 2004; Kaplan, 2004; Kawachi, 2002; Link et al., 1998, Venkatapuram & Marmot, 2009). Social epidemiology makes the assumption that the distribution of advantages and disadvantages in a society reflects the distribution of health and diseases. The central and initial question for social epidemiologist’s inquiry revolves around the effects of social factors on individual and population health (Drozdzak, 2015; Honjo, 2004).

The prevalence of a multitude of diseases including coronary heart disease, cancer, mental illness, stroke and diabetes has created the impetus to the consideration of social-structural factors in preventing diseases. The role of epidemiology in public health has been increasingly recognized. However, epidemiology is not the basic science of public health. As a mission of the society, public health can be guided by epidemiology (Savitz, Poole, & Miller, 1999). The major premise of social epidemiology is based on the assumption that each society forms its own health and disease distribution. The patterns of disease distribution is affected and influenced by the socio-structural factors within the individual’s environment. Moreover, these socio-cultural factors also affect the health of the population (Drozdzak, 2015; Honjo, 2004). Social epidemiologists have explored various socio-structural factors affecting the distribution of health and diseases. Table 1 summarizes the examples of sociocultural factors examined in social epidemiology.

### Table 1.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Authors</th>
<th>Cited Works in the Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Class</td>
<td>Link et al., 1998</td>
<td>Cancer screens by socio-economic status</td>
</tr>
<tr>
<td></td>
<td>Wilkinson, 1996</td>
<td>Stress and socio-economic status</td>
</tr>
<tr>
<td>Gender</td>
<td>Schulman et al., 1995</td>
<td>Cardiac catheterization referrals based on sex and race</td>
</tr>
<tr>
<td></td>
<td>Weisse et al., 2001</td>
<td>Pain management based on gender or patients and provider</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Rathore et al., 2000</td>
<td>Quality of life based on race</td>
</tr>
<tr>
<td></td>
<td>Schulman et al., 1995</td>
<td>Cardiac catheterization referrals based on sex and race</td>
</tr>
<tr>
<td>Discrimination</td>
<td>Krieger et al., 2005</td>
<td>Racial/Ethnic inequalities</td>
</tr>
<tr>
<td>Social Network</td>
<td>Rogers et al., 2000</td>
<td>Adult mortality</td>
</tr>
<tr>
<td>Social Capital</td>
<td>MacDorman &amp; Matthews, 2008</td>
<td>Infant mortality</td>
</tr>
<tr>
<td>Internal Distribution</td>
<td>Link &amp; Phelan, 1996</td>
<td>Fundamental social causes of diseases</td>
</tr>
<tr>
<td>Social Polity</td>
<td>Link &amp; Phelan, 1996</td>
<td>Fundamental social causes of diseases</td>
</tr>
</tbody>
</table>

The history of social epidemiology has been well documented and chronicled (Berkman & Kawachi, 2000; Drozdzak, 2015; Honjo, 2004; Link et al., 1998). The pioneers of epidemiology presented ideas that resonate to the current social epidemiologists as the integration of the nature of human health, lifestyle and positions within the social order in the society. The term social epidemiology officially appeared in the scientific literature in 1950 (Krieger, 2001). Yankauer (1950) conducted the first study on social epidemiology involving fetal and infant mortality as it related to residential segregation. From the 1950s onward, the shift in focus in the mainstream epidemiology resulted from the changing profile of industrialized nations. Social and economic conditions continued to receive attention.

It took another half a century when a textbook had social epidemiology in its title (Krieger, 2001). Berkman and Kawachi (2001) edited the first textbook titled, *Social Epidemiology*. The seemingly slow progress made in the field of social epidemiology was attributed to several factors. Four reasons have been identified that contributed to the delayed and somewhat tenuous development. These include the well-established knowledge base in other existing disciplines; the lack of disciplinary infrastructure in social epidemiology; the weak theoretical structure for
social epidemiology; and the fundamental theme and line of inquiry of social epidemiology on social inequities and the distribution of diseases (Almgren, 2007). The role of epidemiology in public health has been recognized in spite of the perceived limitations (Drozdzak, 2015). Criticisms surrounding the failure of epidemiology to offer solutions to major public health problems such as tobacco use and the suggestions that epidemiology overreaches are unwarranted (Savitz, Poole, & Miller, 1999). Table 2 summarizes the reasons for the insipid evolvement of social epidemiology.

Table 2. Reasons for the Slow Evolvement of Social Epidemiology as a Science (Almgren, 2007)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research-Base in Existing Disciplines</td>
<td>Well-established disciplines have bodies of research linking social structure and population health outcomes, i.e. medical sociology, social demography, anthropology</td>
</tr>
<tr>
<td>Disciplinary Infrastructure</td>
<td>Dearth in doctoral training programs, dedicated journals and well-funded research centers for social epidemiology</td>
</tr>
<tr>
<td>Theoretical Structure</td>
<td>Weak and underdeveloped theoretical structure in social epidemiology</td>
</tr>
<tr>
<td>Radical Nature</td>
<td>Central theme and line of inquiry of social epidemiology focuses on social inequalities vis-à-vis the distribution of diseases</td>
</tr>
</tbody>
</table>

Theories and Methods of Social Epidemiology

Undoubtedly, social epidemiology has come a long way. Increasingly, the term social epidemiology has been used to describe the exploration of the role of social factors in health and disease distribution (Marmot & Bell, 2016; Schrecker, 2013). There is no question that there has been enormous interest and development in studying social and economic factors on health and on the development of diseases (Kaplan, 2004; Venkatapuram & Marmot, 2009). As a science, social epidemiology is premised on three major frameworks including psychosocial theories, political economy/social production of disease theories and theories from the ecological perspective (Krieger, 2001). Table 3 summarizes the theories and methods of social epidemiology and their constructs.

The psychosocial theoretical framework works with the host-pathogen-environment paradigm. The focus is on selective susceptibilities to disease within the psychosocial context. The fundamental constructs examined under this model include dominance hierarchies, material deprivation, victimization, and social isolation (Almgren, 2007).

The political economy/social production of disease theoretical framework is based from the classic political economy. The central assumption of this model is that the root causes of health inequalities are entrenched within the economic and political structures and processes. As a result, economic and social privilege is promoted and perpetuated (Krieger, 2001). The major foci of the political economy/social production model pertain to structural determinants of health associated with disparities in social and economic power. These include poverty, detrimental working conditions, and spatial isolation from health care (Almgren, 2007).

The ecosocial theoretical framework applies to a class of theories where the focus from a general metaphor is shifted to a broad spectrum of testable propositions. The ecosocial model puts emphasis on the interrelatedness of humans as a specie within the context of cohabiting, evolving on or altering the planet. The central concepts of this model include embodiment, pathways of embodiment, cumulative interplay between exposure, susceptibility, and resistance; and accountability and agency (Krieger, 2001). In essence, social epidemiologists use these four constructs as heuristic lenses through which they can discover the patterns of health and diseases. This discovery leads to deeper understanding of the complex interrelationships between the biological and social aspects of causality (Almgren, 2007).

The fundamental social causes, originally advanced by Link and Phelan (1995), addresses two paradoxes of population health: (a) the growth of disparities in mortality and longevity by such factors as race, gender and social class following a significant advancements in knowledge base, methods and technologies of healthcare; and (b) the persistence of intergroup disparities in mortality as much as the chances in specific disease mechanisms over time. The fundamental social causes theory is premised upon the persistence of
health disparities due to the pernicious social inequalities rather than the intervening disease mechanisms (Marmot & Bell, 2016).

In a study of cancer screens by socioeconomic status, Link et al. (1998) observed that the persistence of the association between socioeconomic status and mortality in spite of the dramatic changes that have occurred in social and health conditions over the past decades is remarkable. Dramatic changes in life expectancy, changes in the diseases and improvement in healthcare systems have taken place, but there is still work to be done in exploring and explaining the persistent association of socio-economic status and mortality. The reason for the association of socioeconomic status to disease is due to its representation of resources such as knowledge, money, power, and prestige. These resources can be used according to changing situations to avoid risks for disease and death (Link & Phelan, 1995). Individuals with higher socio-economic status are better able to use their advantages to avoid risks by adopting strategies that enhance their health and their well-being. The association between the socio-economic status and risk factors is dynamic – they change as new conditions arise and knowledge is enhanced (Link et al., 1998).

Honjo (2004) has offered a number of significant concepts vis-à-vis social epidemiology. In contrast with the biological paradigm, which is used in modern epidemiology, the biopsychosocial paradigm frames the view of social epidemiology with regards to the relationship of social factors and diseases. The biopsychosocial paradigm assumes that every population has its own history and culture, which influences the manner of exposure to specific individual risk factors.

Another significant perspective in social epidemiology is the population perspective. Building from the concept of Rose (1992), the individual’s risk of disease cannot be removed from the risk of disease of the population. Social epidemiologists examine socio-structural factors that affect the distributions of diseases and the associated risk factors (Honjo, 2004).

The third significant concept if social epidemiology is the utilization of new statistical approaches such as the multilevel approach to determine the effects of socio-cultural factors on health (Honjo, 2004). In social epidemiology, compositional and contextual explanations on the effects of the socio-structural factors are clearly distinguished. Compositional explanations provide the distinction of the individual observations of the members of the group and the observed differences between groups (Marmot & Bell, 2016). Contextual explanations assert that social level factors influence health either in addition to, or in interaction with the individual characteristics (Macintyre & Ellaway, 2000).

Lastly, an important concept in social epidemiology is the use of a theory to build hypotheses and interpret results (Berkman & Kawachi, 2000). The selection of variables in statistical models is based upon an identified conceptual framework that describes the hierarchical relationships among the factors (Honjo, 2004). Pearce (1996) has warned that epidemiology has become a set of generic methods for measuring exposure and its associations with disease in individuals, rather than promoting a multidisciplinary approach to espousing an understanding of the causation of disease in a population.

The Critical Social Purpose of Social Epidemiology

The critical social purpose of social epidemiology can be gleaned from one of its classic principles. Societies in part create the disease they experience and, further, they materially shape the way in which diseases are experienced (Susser, Watson, & Hopper, 1985, p. 17). The words create and shape provide critical insights for understanding the persistent association between socio-economic status and mortality. These two words elucidate the dynamic relationship between social conditions and disease. They also validate that social forces actively create and shape patterns of diseases (Link et al., 1998, p. 376).

The findings of Smith (1998) are instructive vis-à-vis socioeconomic status and health. In a study of 7,702 households, representing 12,652 individuals born between 1931 and 1941, using the Health and Retirement Survey, it was concluded that the direct influence of socioeconomic status on health is strongest during childhood and early adulthood when the levels and trajectories of health stocks become established. The levels of lifetime earnings, which are determined in the twenties and thirties result in economic shocks dominating health shocks. Finally, the dominant causal relationship between socioeconomic status and health may reverse for those in their fifties and older because health largely affects socioeconomic status at these stages in life (Smith, 1998, p. 196).

The robust correlation between socioeconomic inequality and health outcomes has been clearly established (Marmot & Bell, 2016). The connection between socioeconomic status and health is not novel. However, what the social epidemiologists have demonstrated is that health follows a relative socioeconomic gradient (Daniels, Kennedy, & Kawachi, 2000). This means that those with higher socioeconomic status are not only healthier than the poor, but the more affluent are healthier that the slightly less affluent, and so on. The implications in that health is not simply a function of socioeconomic status, but is precisely correlated with socioeconomic disparities. This means that the greater the population disparities, the poorer the health outcomes
Conclusion
In spite of the increasing acknowledgement of social epidemiology as a developing new science, there is still evidence on the skepticism on its value and credibility Drozdzak, (2015). A number of authors have painted social epidemiology as misguided, unscientific, ideological or too over-reaching (Gori, 1998; Rothman, Adami, & Trichopoulos, 1998; Zielhuis & Kiemeney, 2001).

Rose (1992, p. 129) has proposed that the primary determinants of health are economic and social in nature, and therefore they should be addressed through economic and social solutions. However, there are still opportunities to continue to build the case for social epidemiology. The hope is that the social in epidemiology will become truly integral part of epidemiology that the term could be dropped altogether. The assertion that epidemiology is social does not imply that the distribution of diseases over time and space can only be explained and understood from a social perspective (Schrecker, 2013). Equally, an understanding of social factors affecting diseases may augment the understanding of diseases from pathobiologic processes (Kaplan, 2004, p. 124).

In pointing out the future of epidemiology, Lawson and Floyd (1996) observed that epidemiologists are currently unable or unwilling to address the questions of meaning. Humanists can help develop mechanisms to achieve this issue; however, epidemiologists will need to move toward a paradigm shift. Furthermore, although there have been significant developments in epidemiologic methods during the past century, the rise of modern epidemiology is a mixed blessing. The changes in the new paradigm have fallen short of expectations, in both public health and scientific method. The key issue is the shift in the analysis from the population to the individual. Advanced technology has been used extensively in understanding more trivial issues while the major causes of diseases are ignored. To continue to be relevant, epidemiology needs to reintegrate itself to public health and rediscover the population perspective (Pearce, 1996).

References
Macintyre, S., & Ellaway, A. (2000). Ecological approach-


Weisse, C., Sorum, P., Sanders, K., & Syat, B. (2001). Do gender and race affect decisions about pain management?


Factors influencing the health promoting physical activity behaviors of diverse urban adolescents
Susan M. Norris & Cynthia G. Ayres

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Abstract

Introduction: Adolescence is a critical time for developing life long healthy behaviors. Health promoting behaviors developed during this phase are determined by a multitude of social, economic, environmental, and personal factors. Significant disparities exist among youth from diverse backgrounds. Psychosocial determinants of health promoting behaviors, including physical activity, among diverse urban adolescents have not been well studied.

Objective: The purpose of this study was to test theoretical relationships between psychosocial factors and health promoting behaviors as postulated in the Health Promotion Model. Specifically, theoretical relationships between perceived benefits, perceived barriers, self-efficacy, parent social support, friend social support, and health promoting physical activity behaviors were tested.

Method: A correlational design utilizing a convenience sample of 108 adolescents attending an urban school completed self-administered questionnaires. Pearson correlations and multiple regression analyses were used to test research hypotheses.

Results: Perceived benefits, perceived barriers, self-efficacy, parent support, and friend support were identified as psychosocial factors predictive of health promoting physical activity behaviors. Friend support and self-efficacy emerged as the strongest predictors, while parent support was the least predictive.

Conclusion: This study provided evidence for tailoring health promoting physical activity interventions that incorporate psychosocial and personal factors. Nursing interventions should enhance social support and self-efficacy while reducing psychological barriers and promoting perceived benefits. Nurses can play a role in the assessment of psychosocial factors, the development of health promoting programs, and serve as advocates for promoting physical activity in the community.

Keywords: Adolescent health, health promotion, health disparities, health beliefs, health behaviors
Introduction
Adolescent health behaviors are determined by a multitude of personal, psychosocial, interpersonal, situational, and environmental factors. As a developmental phase, adolescence is a critical time for developing behaviors that will affect an individual throughout his or her lifespan (Ayres, 2008; Ayres, Atkins, & Mahat, 2010). Health promoting behaviors, or activities undertaken to improve one’s health, are particularly important for reducing risk and contributing to adult health and longevity (Srof & Velsor-Friedrich, 2006). Although adolescence is a critical time for developing lifelong healthy habits, recent studies suggest significant disparities in the health practices among youth from low income and minority backgrounds (Frenn et al., 2005; Gortmaker et al., 2012; Lewis-Moss, Paschal, Redmond, Green, & Carmack, 2008; Wright, 2011). Health disparities, defined as a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage (United States Department of Health and Human Services, Healthy People 2011, 2020), disproportionately affect urban populations and minorities (Lewis-Moss et al., 2008). Adolescents living in poverty are at a higher risk for injury, suffer from a greater disease burden, and may have limited access to health care (Atkins, Bluebond-Langner, Read, Pittsley & Hart, 2010).

Background
To better understand the health behaviors of diverse urban adolescents, researchers must consider the influence of social, economic, and environmental factors (Ayres, Mahat, Atkins, & Norris, 2013; Norris & Ayres, 2014). In particular, the psychosocial determinants of health promoting physical activity behaviors among lower income youths from diverse, multi-cultural backgrounds require further study (Basch, 2011; Hanson & Chen, 2007). Physical activity is one of the most important health behaviors for reducing disease risk into adulthood (Warburton, Nicol, & Bredin, 2006). While the majority of youths do not meet current physical activity guidelines, rates of physical inactivity (defined as not having engaged in at least 60 minutes of any kind of physical activity during the previous seven days), are significantly higher among African American and Hispanic adolescents, females, and those with lower socioeconomic status (Basch, 2011; Frederick, Snellman, & Putnam, 2014; Lewis-Moss et al., 2008; Martin & McCaughtry, 2008).

Derived from social cognitive theory, Pender developed the Health Promotion Model as a guide for exploring the personal, psychosocial, and situational processes that encourage healthy behaviors. The Health Promotion Model is especially useful for studying adolescents who generally do not perceive threats or illness severity that are components of other models, such as the Health Belief Model (Pender, Murdaugh, & Parsons, 2002). Emphasizing a positive approach while considering the individual, psychosocial, and interpersonal factors, the model postulates that health behaviors are determined largely through factors related to individual characteristics and behavior-specific cognitions and affect, including perceived benefits and barriers, self-efficacy, interpersonal, and situational influences (He et al., 2004; Pender, 2006; Pender, Murdaugh & Parsons, 2002; Srof & Velsor-Friedrich, 2006). Research supports the model’s hypothesized relationships for health promoting behaviors, including physical activity (Garcia et al., 1995; Kenyon, Kubik, Davey, Sirard, & Fulkerson, 2012; Peterson, Lawman, Wilson, Fairchild, & Van Horn, 2013; Robbins, Sikorskii, Hamel, Wu, & Wilbur, 2009; Robbins, Stommel, & Hamel, 2008; Wu & Pender, 2002). According to the model, unmodifiable individual characteristics (personal factors and past behaviors), and modifiable factors (perceived benefits, perceived barriers, self-efficacy, social support, etc.) affect health promoting behaviors such as physical activity.

Previous studies have identified positive relationship between perceived benefits, self-efficacy, parent social support, friend social support, and physical activity (Garcia et al., 1995; Kenyon et al., 2012; Peterson et al., 2013; Robbins et al., 2008; Robbins et al., 2009; Wu & Pender, 2002), and negative relationship between perceived barriers and physical activity (Kenyon et al., 2012). Self-efficacy, defined as an individual’s assessment of their ability to perform a behavior, is a strong predictor of physical activity. Adolescents who feel more capable of engaging in physical activity are more likely to do so (Maglione & Hayman, 2009). Social support has been strongly correlated with health promoting behaviors in adolescents. Studies that differentiate between parent (instrumental and motivational), and friend social support (encouragement by peers) for physical activity have demonstrated the particular importance of friend support as a significant predictor (Beets, Cardinal, & Alderman, 2010; Duncan, Duncan, & Strycker, 2005; Martin & McCaughtry, 2008; Okun et al., 2003; Springer, Kelder, & Hoelscher, 2006). Perceived benefits (an adolescent’s expected positive outcomes of engaging in health behaviors) and perceived barriers (an adolescent’s perceived obstacles to performing health behaviors) have been well documented as significant correlates of health promoting behaviors, including physical activity in particular (Robbins et al., 2009; Robbins, Stommel, & Hamel, 2008; Wu & Pender, 2002).

Theoretical propositions of the Health Promotion Model were tested to better understand the psychosocial factors influencing health promoting physical activity behaviors among diverse, urban adolescents. The following hypotheses were tested in this study:

1. Perceived benefits (BE), self-efficacy (SE), parent social support (PS), and friend social support (FS), are...
Factors influencing the health promoting physical activity behaviors of diverse urban adolescents

2. Perceived barriers (BA) are negatively related to health promoting physical activity behaviors (HPB) in urban adolescents.

Methods

Design and Sample
The study implemented a correlational research design to test postulated relationships between individual, psychosocial, and interpersonal factors identified in the Health Promotion Model. A power analysis following Cohen (1988) was employed to determine an appropriate sample size. Anticipating a medium effect size, with an alpha of .05 and power of .80, a sample of at least 91 participants was required. A convenience sampling strategy was used to recruit 126 potential subjects for the study, of which 108 were enrolled after returning signed parental consent and providing verbal assent (85.7% response rate). The research was carried out during the fall of 2013 at a public high school located in an urban center in the Northeast. The school was selected for its diverse student population.

Procedures
The Institutional Review Board of Rutgers University approved the research protocol. After receiving administrative permission for the study, adolescents attending a public high school and meeting the inclusion criteria (English fluency and enrolled in grades 10-12) were recruited to participate. Potential participants were informed about the study aims and eligibility criteria, and reassured that participation was voluntary and all survey responses would be anonymous. After the researchers explained the study, information sheets and consent forms were distributed for potential participants to share with their parents. Students who obtained written parental permission were given the opportunity to verbally assent and then participate during a scheduled research session. Students completed questionnaires that included demographic questions (gender, age, grade, ethnicity, parental level of education), and the study instruments.

Instruments

Adolescent Lifestyle Profile-R2
The revised Adolescent Lifestyle Profile (ALP-R2) is a 44-item instrument modified from the Health Promoting Lifestyle Profile II that measures the frequency of health promoting behaviors across seven (Whitt-Glover et al., 2009) domains (Hendricks, Murdaugh, & Pender, 2006). The physical activity subscale consists of six items scored on a five-point Likert scale. Reliability and validity were established among adolescents from ages 11-22 (Hendricks et al., 2006). The coefficient alpha was .80.

Perceived benefits of physical activity (BE) were measured using the ten-item Adolescent Physical Activity Perceived Benefits Scale (Robbins et al., 2008). Total possible scores range from 10-40. Psychometric assessment demonstrated reliability and validity of this scale among adolescents, with an internal consistency of .80. In the present sample, the coefficient alpha was .91.

Perceived Barriers to physical activity (BA) were measured using the nine-item Adolescent Physical Activity Perceived Barriers Scale. The scale was modified from earlier work (Garcia et al., 1995) to minimize response burden. Psychometric analysis demonstrated reliability and validity among adolescents with an internal consistency of .78 (Robbins et al., 2008). In the present sample, the coefficient alpha was .87.

Self-efficacy for physical activity (SE), an individual’s assessment of their ability to perform PA, was measured using the Children’s Self-Efficacy Survey, an eight-item self-administered instrument using a five-point Likert scale (Garcia et al., 1995). The scale was tested in a diverse sample with a coefficient alpha of .77. Internal consistency for the present sample was .90.

Social Support-Parent (PS), the instrumental (direct) and motivational (praise) support provided by parents, was measured using the Parent Support Scale, a five-item instrument developed for the Amherst Heart and Activity Study. The scale was piloted among 63 parent-child dyads. Reliability and validity were established in a sample of 781 children (Sallis, Taylor, Dowda, Pate, & Freedson, 2002) with an internal consistency of .78. The alpha for this study was .85.

Social Support-Friends (FS), an adolescent’s perception of encouragement and praise from peers, was measured on a five-point Likert scale using the four-item Peer Support Scale developed for the Amherst Heart and Activity Study (Sallis et al., 2002). The original scale (α=.74) was revised in a later study to improve internal consistency, resulting in a coefficient alpha of .81. For the present study, the alpha was .896.

Analysis
Data were analyzed using SPSS v22 (2013). Descriptive statistics were calculated for all demographic and health variables (BE, BA, SE, PS, FS, HPB). Pearson correlations were used to test associations between the study variables. Multiple regression analysis was used to identify predictors of health promoting physical activity behaviors. Gender differences were explored using t-tests. All statistical tests were set to the significance level of (p=.05).
Results

Sample Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
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</tr>
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<td><strong>Gender</strong></td>
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</tr>
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<tr>
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<tr>
<td><strong>Highest Level of Parent Education</strong></td>
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<td></td>
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<td>62.5</td>
</tr>
<tr>
<td>College educated</td>
<td>39</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Table 1. Socio-demographic characteristics

Descriptive statistics of the sample were calculated (Table 1). One hundred and eight participants completed the study; 45.4% were male, 54.6% were female; the average age was 16.9 (SD=0.9) years. The sample was racially and ethnically diverse (n=107, one subject did not provide ethnicity), with 41.1% of students self-identifying as African American, 1.9% as Asian American, 37.4% as Caucasian, and 19.6 % as Hispanic. School level socio-economic data indicate that 63.5% of the students were eligible for free or reduced lunch in 2013, suggesting that, as an aggregate, nearly two-thirds live in lower socioeconomic status (SES) homes (Pennsylvania Department of Education, 2013). Individual level SES (using proxy measure of highest education level attained by either parent), indicated a disparity among ethnic groups; 62.5% of African Americans, 0% of Asian Americans, 45% of Caucasians, and 90.5 % of Hispanics (n=104, four subjects did not provide data) were identified as low SES using this measure.

Correlations

Table 2 shows the relationship between the independent variables (BE, SE, PS, FS, BA), and health promoting physical activity behaviors (HPB) in the predicted directions. Positive relationships were found between BE (r = .580, p = .000), SE (r = .599, p = .000), PS (r = .519, p = .000), FS (r = .670, p = .000), and HPB, whereas a negative relationship was found with BA and HPB (r = -.474, p = .000). In exploring relationships among the psychosocial variables, positive relationships were identified between BE and PS (r = .323, p = .001), BE and SE (r = .667, p = .000), BE and FS (r = .518, p = .000), PS and SE (r = .280, p = .004), and PS and FS (r = .637, p = .000). Negative correlations were identified between BA and BE (r = -.234, p = .010), BA and PS (r = -.234, p = .015), BA and FS (r = -.408, p = .000), and BA and SE (r = -.367, p = .000).

Table 2. Pearson’s r correlations between study variables (p ≤ .01)

Results of the linear regression model are presented in Table 3. The overall model was statistically significant $F (5, 105) = 29.959, p = .000$. Approximately 58% of the variance in health promoting physical activity behaviors was accounted for by the variables in the model. BE, SE, PS, and FS were all positively significant. Perceived barriers were found to be negatively significant as a predictor.

Table 3. Multiple regression analysis for variables predicting health promoting physical activity

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
<th>p</th>
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<tr>
<td>Perceived benefits</td>
<td>.019</td>
<td>.009</td>
<td>.193</td>
<td>.031</td>
</tr>
<tr>
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<td>.005</td>
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<td>.009</td>
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<td>.032</td>
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<tr>
<td>Parent social support</td>
<td>.22</td>
<td>.011</td>
<td>.165</td>
<td>.052</td>
</tr>
<tr>
<td>Friend social support</td>
<td>.041</td>
<td>.015</td>
<td>.270</td>
<td>.009</td>
</tr>
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</table>

Adjusted $R^2 = .58$
Additional Findings

<table>
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<tr>
<th>Variables</th>
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<th>Mean (SD)</th>
<th>Boys (SD)</th>
<th>Girls (SD)</th>
</tr>
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<tbody>
<tr>
<td>Perceived benefits</td>
<td>30.5</td>
<td>(7.2)</td>
<td>31.7 (6.5)</td>
<td>29.4 (7.6)</td>
</tr>
<tr>
<td>Perceived barriers</td>
<td>20.8</td>
<td>(6.5)</td>
<td>18.9 (6.6)</td>
<td>22.4 (6.0)</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>28.1</td>
<td>(7.4)</td>
<td>31.2 (6.7)</td>
<td>25.6 (6.9)</td>
</tr>
<tr>
<td>Parent Social Support</td>
<td>11.6</td>
<td>(5.3)</td>
<td>12.1 (5.2)</td>
<td>11.3 (5.5)</td>
</tr>
<tr>
<td>Friend Social Support</td>
<td>10.3</td>
<td>(4.7)</td>
<td>11.6 (4.7)</td>
<td>9.3 (4.5)</td>
</tr>
<tr>
<td>Health promoting physical activity behaviors</td>
<td>14.5</td>
<td>(4.3)</td>
<td>15.7 (4.4)</td>
<td>13.5 (4.0)</td>
</tr>
</tbody>
</table>

Table 4. Study variable means by gender

Significant differences by gender were found for several variables (Table 4). Male mean scores were higher across all variables except for perceived barriers (BA). The differences were significant for SE ($t=4.2$, $df=105$, $p=.000$), FS ($t=2.65$, $df=105$, $p=.009$), BA ($t=2.90$, $df=106$, $p=.004$), and HPB ($t=2.78$, $df=106$, $p=.006$).

Discussion and Implications

This study tested theoretical propositions of the Health Promotion Model among diverse urban adolescents. The results supported the hypothesized relationships between the independent variables and the dependent variable in the predicted directions. As postulated, the perceived benefits of exercise, self-efficacy, parent social support, and friend social support were all positively correlated with health promoting physical activity behaviors, indicating that the greater the perceived benefits, self-efficacy, parent and friend support, the greater number of health promoting behaviors performed. Friend social support demonstrated the strongest relationship to health promoting physical activity (.670), followed by self-efficacy (.599). These results are consistent with previous research (Maglione & Hayman, 2009). The social support of friends, self-efficacy, and perceived benefits have been shown to have a stronger association with health promoting behaviors than parent support (Duncan et al., 2005; Prochaska, Rodgers, & Sallis, 2002; Sallis et al., 2002; Springer et al., 2006). The high level of correlation between friend social support and health promoting physical activity behavior is consistent with previous research and with the developmental expectations of adolescents (Springer, Kelder & Hoeslischer, 2006). Several relationships between the independent psychosocial variables were also identified; friend support was strongly correlated with self-efficacy, perceived benefits, and parent support; self-efficacy was strongly correlated with perceived benefits. Adolescents reporting more perceived barriers also reported lower self-efficacy, lower social support (both parent and friend), and fewer health promoting behaviors. The correlational findings in this study extend the theory regarding the relationship between psychosocial factors and behaviors in diverse, urban adolescents.

Regression analysis demonstrated that all five psychosocial factors drawn from Pender’s Health Promotion Model were significant predictors of health promoting physical activity. The overall model accounted for 58% of the variance in behavior. Social support provided by friends was the most important predictor of health promoting physical activity in the model – in contrast to parent support – which had the lowest predictive value of the variables in this study. This finding is consistent with previous studies that identified support from friends as a significant predictor of health promoting physical activity, and more important than parent support (Beets et al., 2010; Duncan et al., 2005; Martin & McCaughtry, 2008; Okun et al., 2003; Springer et al., 2006). Self-efficacy also emerged as a significant predictor, consistent with previous research (Maglione & Hayman, 2009; Wu & Pender, 2002).

Systematic reviews indicate that interventions to increase health promoting physical activity behaviors are frequently ineffective (Metcalfe, Henley, & Wilkin, 2012), of low methodological quality (Camacho-Minano, LaVoi, & Barr-Anderson, 2011; Dobbins, Husson, DeCorby, & LaRocca, 2013), or are based on small, unrepresentative samples and self-reported outcomes (Whitt-Glover et al., 2009). Effective interventions are typically based in the school (Dobbins et al., 2013) and are delivered at multiple levels (Whitt-Glover et al., 2009). A recent review of PA interventions that included follow up concluded that post-intervention PA levels were not maintained at the six-month follow up (Sims, Scarborough, & Foster, 2015).

The knowledge gained in this study can be used to tailor health promotion interventions for adolescents. Programs that enhance the peer support of adolescents as well as their belief in their ability to exercise, while emphasizing the benefits, may increase their physical activity levels. An intervention based on the Health Promotion Model and targeted at high school girls was found to be highly effective. Developed by Taymoori et al. (2008), the intervention addressed perceived benefits, barriers, and social support. Project FAB II (Fitness and Bone) took place among three cohorts of high school girls, and focused on health benefits and strategies to increase PA (Schneider et al., 2007). An intervention based on the socio-ecological model included social support and health promotion among high school girls (Pate et al., 2005). Salvy et al. (2009) found that the presence of peers and friends increased adolescents’ motivation for physical activity as measured by bicycling distance, while Rittenhouse and Barkley (2009) utilized peer presence to increase activity and enjoyment among overweight boys.

The advantage of further tailoring health promotion interventions is supported by the differences in gender related findings identified in this study. Females practiced fewer health promoting physical activity behaviors, perceived more barriers, had lower self-efficacy, and reported less social support than their male peers, consistent with find-
ings from previous studies (Garcia et al., 1995; Peterson et al., 2013; Robbins et al., 2008; Robbins et al., 2009). The results presented here suggest that female adolescents especially may benefit from interventions emphasizing self-efficacy, social support, and perceived barriers.

The lower levels of physical activity behaviors among low SES adolescents have been well documented (Frederick et al., 2014; Hanson & Chen, 2007; Sallis, Prochaska, Taylor, Hill, & Geraci, 1999), but few studies have compared psychosocial factors affecting health promoting physical activity among adolescents from different socioeconomic backgrounds (Hanson & Chen, 2007; Sallis, Zakarian, Hovell, & Hofstetter, 1996).

The findings from this study support the importance of considering socio-demographic diversity on health promoting behaviors, as these individual and non-modifiable characteristics may influence the psychosocial factors related to health promoting behaviors. Nurses should be aware of the need for health promoting interventions that address psychosocial factors among diverse adolescents. They can include assessments of adolescent’s perceptions and practices at well child visits and provide counseling targeted to the individual child. At the school level, nurses can work with urban populations to promote social support and address benefits and barriers. At the community level, nurses can advocate to prioritize funding and programs that focus on adolescent physical activity.

Future research should explore differences in the psychosocial factors affecting health promoting physical activity behaviors among a larger sample of racially and ethnically diverse urban adolescents.

Limitations

This study’s findings had several limitations. The convenience sample was relatively small, drawn from one high school, which limited the generalizability of the findings. A reliance on self-report raises concerns about participant candor. For example, adolescents may alter their responses to present themselves as more socially desirable. Although every effort was made to reassure participants that their answers were anonymous, it is possible that being in a school setting affected their willingness to fully self-disclose their beliefs and behaviors. SES was obtained using a single proxy measure based on concerns by the school that their lower SES students might feel uncomfortable answering questions about parental income and occupation. Due to this limitation, SES was utilized solely as a descriptive characteristic in this study. While a limited number of adolescents participated in this study, the patterns identified are similar to the findings of larger studies (Cheng, Mendonca, & Farias Junior, 2014; Gortmaker et al., 2012; Peterson et al., 2013).

References


This study tested the theoretical relationships between psychosocial variables postulated in the Health Promotion Model. Results demonstrated that the selected variables of perceived benefits, self-efficacy, friend social support, parent social support, and perceived barriers predicted health promoting behaviors. Greater perceived benefits, higher self-efficacy, increased levels of friend and parent social support, and fewer perceived barriers were associated with higher levels of health promoting physical activity behaviors in a diverse group of urban adolescents. Friend social support and self-efficacy emerged as the strongest predictors, while parent support was the least predictive of the independent variables. Differences in psychosocial factors and health behaviors were identified among different socio-demographic groups, indicating that future research should explore the relative importance of these variables among diverse populations. Finally, this research supports the need for culturally specific interventions that address the factors affecting the health promoting behaviors of diverse adolescents from multicultural urban communities.
Factors influencing the health promoting physical activity behaviors of diverse urban adolescents


Abstract

Homeless youth represent a highly vulnerable population. This article presents a comprehensive review of the literature to explain the social pathways towards homelessness and health disparities among the homeless youth. Life Course and Allostatic Load theories provide the guiding framework for presenting the evidence supporting the link between social determinants and poor mental and physical health in homeless youth. Life course principles undergird the lasting and cumulative consequences of early exposure to life adversities on health throughout adulthood and later years. Allostatic load research establishes the biosocial pathway to health vulnerability among those who experienced prolonged, unmitigated stress particularly in early childhood during critical periods of development. Suggested implications for health promotion targeting homeless youth and their families are presented.

Keywords: Homeless youth, runaways, foster care, social determinants, health disparity
Social Determinants of Youth Homelessness

Homeless youth comprise individuals below the age of 25 years who are living unaccompanied by an adult for a week or more without permanent housing and in poverty (Ededin, Ganim, Hunter, & Karnik, 2012; Kulik, Gaetz, Crowe, & Ford-Jones, 2011). Youth as used in this article refers to this age group. On March 06, 2012, the National Incidence Studies of Missing, Abducted, Runaway, and Thrownaway Children estimated that the number of homeless youth below the age of 18 was 380,000; 150,000 among those 18 to 24 years old (National Alliance to End Homelessness, 2012). These numbers reflect those who returned home after a period of homelessness, omitting those who could not be counted because they were not accessing assistive services. Understanding the magnitude of youth homelessness is critical to gauging the scope and urgency of the problem and solutions. Homeless youth are transient and distrustful of the system, which in addition to system flaws in research methodology, poses barriers to an accurate count, (Kidd & Scrimenti, 2004). Studies show that at-risk and homeless youth distrust authority because of perceived or actual judgmental attitudes, organizational rules and restrictions, lack of control, and confidentiality concerns which create barriers to their seeking assistance and avoiding homelessness (Dawson & Jackson, 2013).

The youth constitute a unique and highly vulnerable population due to their dependence on others for sustenance, security, and guidance necessary to foster optimal health and development. Children are developmentally and experientially impacted by the behaviors, attitudes, and decisions of their parents or caregivers, and society at large. Optimal health requires a stable foundation of support beyond a child’s control including consistent access to resources, environmental safety, social support and interaction, and educational and developmental opportunities (Center for Disease Control and Prevention, 2013). Lack of stability in their homes characterized by cycles of deprivation and destructive behavior increases the likelihood of homelessness among youth with long-term consequences on their physical, developmental, and psychological health. They may suffer in silence necessitating proactive surveillance, intervention, and prevention. This article explains the social pathways toward homelessness among the youth and the health disparities that affect them.

Social Determinants

Social determinants are the conditions present in the physical and social environment where people live, grow, learn, work, and socialize (Marmot & Bell, 2009). According to the World Health Organization (2013), these conditions are shaped by the distribution of money, power and resources at global, national and local levels which are mostly responsible for health inequities. The results are health inequities, which are associated with accumulation of social disadvantages that stem from unfair distribution of resources, and eventually manifest in health disparities. Health disparities are differences in health outcomes between identify distinct populations created when social determinants produce health inequities that increase the risk and vulnerability of certain populations to morbidities and early mortality (Office of Disease Prevention and Health Promotion, 2015).

Poverty

Poverty is a key contributing factor to youth homelessness and negative life trajectories. Approximately 16 million children are among the nation’s poorest families (Bassuk, Decandia, Beach, & Berman, 2014). While children account for 24% of the U. S. population, they represent 34% of all people living in poverty (Jiang, Ekono, & Skinner, 2014). For example, in the state of Hawaii, residents are confronted by a high cost of living, high unemployment and lack of livable wage. In 2012, 17% of children were living in poverty, 29% lived with parents who lacked secure employment, and 46% were living in homes with a high housing cost burden that put their families at risk for homelessness (Annie E. Casey Foundation, 2014).

Impoverished environments are more likely to expose families to social disorders such as crime, violence, and environmental hazards, as well as a deficit of essential resources such as food, adequate shelter, and medical care. Such disadvantages set in motion a complex web of events that can lead to youth homelessness and poor health outcomes (Moore, Gerdz, & Manias, 2007).

Poverty rates are highest for families headed by single women associated with their immaturity and lack of education, employment, income and other resources. Single mothers in extreme poverty have been shown to be victims of trauma in both childhood and adulthood resulting in homelessness, difficulty in caring for their children, and inability to break the cycle of poverty and trauma (Bassuk et al., 2014). Cross-sectional studies on father absence have consistently found its negative impact on children’s high school graduation, socio-emotional adjustment, and adult mental health (McLanahan, Tech & Schneider, 2013).

Women who postpone childbearing are more likely to complete high school and receive college education or training, which improves their opportunities for employment with a livable wage. They also are more mature, thus more likely to make better decisions and are better prepared for parenthood (Annie E. Casey Foundation, 2014). Economic stability of adult caregivers is needed for children to thrive. Financial uncertainty impedes the provision of basic necessities, which increases stress and compromises responsible and effective parenting. Without intervention this instability can destine youth to a lifetime of struggle that grows in complexity and intensity as they age.
Environmental Instability

Adult caregiver and environmental instability contribute to homelessness among the youth. Those who experience dysfunctional family dynamics and toxic environments are at highest risk for running away, removal from their families for placement in foster care, or forced to leave home by adult caregivers (National Alliance to End Homelessness, 2012; Toro, Dworsky, & Fowler, 2007). Exposure to adult caregiver substance abuse, incarceration, domestic violence and sexual abuse between adult partners, and mental health disorders is highly correlated with youth neglect and abuse that can be physical, emotional, and/or sexual (Altshuler, 2005; Child Welfare Information Gateway, 2014; Edidin et al., 2012).

Running away from instability is an act of desperation and a survival mechanism, which can also result in homelessness (Elliott, 2013; Thompson & Pollio, 2006). Young individuals typically run away without sustainable resources, adequate survival skills, or a plan for self-sufficiency. They may seek shelter with friends or extended family initially in an attempt to achieve respite and stability, but this is often a temporary solution that can create conflict (Dworsky, Napolitano, & Courtney, 2013).

Unstable home environments and dysfunctional adult caregiver behaviors are associated with poor decision-making and behaviors among the youth that can unintentionally result in homelessness. Such behaviors may include engagement in unprotected sex with multiple partners, drug and alcohol use, delinquent behaviors such as stealing and fighting, and school-related issues including low performance, truancy, suspensions, expulsions, and dropping out of school (Edidin et al., 2012). Experiencing maltreatment is an established risk factor for delinquency. Potential intervening risk factors, including substance abuse, mental health problems, school difficulties, negative peer networks, and running away from home predispose the youth to delinquency (Bender, 2010).  

Children of poverty are at greatest risk for experiencing high rates of trauma (Edidin et al., 2012). Trauma may include witnessing violent acts such as domestic abuse or experiencing illness or injury personally or of someone close, antagonistic separation of family members or death of someone close, and other threats to security. Most traumatizing actions are generally committed by someone familiar to the child (Prevent Child Abuse America, 2014). Neglect is difficult to identify or quantify, but it is a traumatizing, pervasive and insidious form of maltreatment that can be fatal. Abuse may be verbal, emotional, physical, or sexual. In the US in 2008, 122,350 children were victims of physical abuse, 55,196 were victims of emotional abuse, and 69,184 were victims of sexual abuse (Prevent Child Abuse America, 2014). Volatile and traumatic existence results in fear, insecurity, illness, injury, fatigue, and malnourishment in the youth. Without the opportunity for normal physical, emotional, and academic development, the affected youth battle stigmatization, discrimination, and a sense of helplessness.

Unintended Effects of Government and Individual Initiatives

Efforts by government services or the individual youth to avert, escape, or resolve problems can lead to homelessness. The individual may run away from home or foster care due to unsatisfactory placement, trauma, and personal choice, which reflects the complex challenges of the child welfare system in protecting children in need (Dworsky et al., 2013; Stott, 2012). Poor decision-making and risky behavior on the part of the youth can lead to being forced out of the home by adult caregivers (Edidin et al., 2012).

According to Zlotnick, Tam, and Soman (2012), foster care is a sentinel event representing multiple factors affecting the youth prior to and during placement. Instability at home creates threats to safety that initiate child welfare services intervention; yet, foster care placement itself is associated with a high risk for poor physical and mental health outcomes. Availability of foster parents capable of managing the youth’s mental, physical, and behavioral challenges is critical (Child Welfare Information Gateway, 2014). Foster care ironically has a great potential for instability because of the unfamiliarity of a new environment and the potential for frequent placement changes. Moving a child from a dangerous family situation into child welfare services may result in the child aging out of foster care at 18 years of age, which is associated with homelessness when the mandatory transition occurs without sufficient planning for the youth’s financial and social support (Dworsky et al., 2013; Stott, 2012).

Health Disparities among Homeless Youth

Research on youth homelessness reveals a predicted trajectory of adverse outcomes. Although homeless youth comprise diverse groups, they are vulnerable to a common list of acute physical and mental health conditions, and are at high risk for long-term sequelae (Elliott, 2013; Kulik et al. 2011). Homeless youth engage in a pattern of co-habitation and consequently suffer from sexually transmitted diseases and communicable diseases including HIV, hepatitis-C, syphilis, meningococcal disease, and TB. Periodontal disease, and fungal and bacterial infections are common due to poor hygiene and lack of access to medical services. Teen pregnancy and a cycle of poverty are associated with youth homelessness because the affected individuals may
be forced out of home or run away from home to hide pregnancy (Meadows-Oliver, 2006). Homeless youth may be forced into sexual acts for money or drugs (Elliott, 2013).

There is a positive correlation between homelessness and development of chronic conditions such as diabetes, cardiovascular, and respiratory diseases. As a consequence of these diseases, individuals are likely to be unemployed because of the related disability and experience decreased quality of life, loss of independence, and persistent poverty. Edidin et al. (2012) have noted the long-term effects of traumatic childhood experiences on brain development leading to poor executive functioning, which in turn contributes to poor decision-making and high-risk behaviors such as substance abuse and incarceration. Homeless youth have a high incidence of mental health conditions such as major depression, post-traumatic stress disorder (PTSD), and suicidal behavior (Hodgson, Shelton, van den Bree, & Los, 2013).

**Conceptual Framework**

The concepts of life course theory and allostatic load can shed light on the social determinants of health disparities among the homeless youth. Life course theory stipulates that early life adversities create an accumulation of disadvantages that persist in adulthood and later life. Significant life course events and transitions across the lifespan are found to create a cumulative impact on individuals and ultimately on their health and well-being (Alwin, 2012). Exposure to clusters of multiple life course factors at critical life transition periods, particularly during a child’s development, have lasting consequences on an individual’s physical and mental health (Seabrook & Avison, 2012). The timing and length of exposure to disadvantages creates differential impact on health. These differential exposure effects persist even when risk factors and diseases change over time (Phelan, Link, & Tehranifar, 2010).

**Life Course Principles**

Life course theory consists of four principles that can elucidate the relationship between youth homelessness and poor health.

**Long-term Temporal Patterns.** People’s lives cannot be understood without examining how their past affects their present life. Health outcomes are influenced by circumstances in early life. For example, socioeconomic status (SES) shapes an individual’s exposure and experience of psychosocial and physical health risks. People from low SES experience poorer health than those with higher SES (Godley & McLaren, 2010). Higher SES is associated with access to resources such as knowledge, money, power, prestige and beneficial social connections that enable people to avoid risks and adopt protective strategies to decrease illness and death (Willson, 2010). Growing up in poverty is associated with an elevated risk for experiencing violence and low academic achievement (Macmillan & Hagan, 2004). The poor experience more and greater types of exposure to chronic stress related to poor living conditions, low job security and financial difficulties (Horwitz, Widom, McLaughlin & White, 2001). People of low SES are more likely to smoke and be overweight and physically inactive (Lynch, Kaplan, & Shema, 1997).

**Intersection of Biography and History.** The historical period and context in which individuals live, matter. Significant historical events impact health and well-being. George (2007) found a link between combat experience during World War II and post-traumatic stress disorder, substance abuse, anxiety disorders and other mental health problems 60 years later. Higher divorce rates in the 20th and 21st centuries have resulted in poverty and adverse mental health in divorced women as well as lower life expectancy among divorced individuals compared to their married counterparts (Wade & Pevalin, 2004). Parental divorce is found to be more detrimental on children’s health than parental death (Sbarra, Law & Portley, 2011).

Contextual factors include features of the neighborhood environment such as housing, health services, schools, recreation, and job opportunities. Another aspect of the context is the collective characteristic of neighborhood residents including SES, shared values and norms, and mutual commitment (MacIntyre, Ellaway & Cummins, 2002). Quality of life in the neighborhood is conditioned by the economic, social, and cultural capital of its residents.

**Linked Lives.** Health is affected by one’s social networks. There is more prevalence of divorced, single motherhood among those with lower SES; mothers with higher education and income are more likely to maintain stable marriages (McLanahan, 2004). Parental divorce during childhood is associated with general distress, anxiety, and mental health disorders that can persist in middle and later adulthood (Ross & Mirowsky, 2011). Children of depressed parents tend to exhibit more internalizing and externalizing problem behaviors and have more problems with defiance and cognitive ability, similar to children of parents with schizophrenia. Mentally ill parents tend to be emotionally unavailable to their children, often overemotional, and more likely to use authoritarian parenting practices.

There is a clear relationship between accumulated lifetime trauma and psychiatric disorder and psychological distress (Horwitz, Widom, McLaughlin, & White, 2001). Childhood abuse is associated with early menarche, partner violence during adolescence, early parenthood, and decreased likelihood of completing high school (Brooks-Gunn & Donohue, 2008).
Human Agency. There are long-term consequences of human agency. While individuals may have choices and control of their actions, there are broad sociocultural factors such as low SES that limit human agency (George, 2007). Health outcomes may vary from a combination of individual choices and contextual opportunities and constraints. In general, people with high SES have more capacity to be effective self-agents and have better mental health. People with higher self-esteem, mastery and efficacy are better equipped to weather the impact of stressful experiences, and have lower levels of depression and anxiety during stressful events (Thoits, 2006).

Allostatic Load Theory
The theory of Allostatic load offers another explanation for the relationship between homelessness and poor health. Allostatic load is the ‘wear and tear’ on the body which grows over time when the individual is exposed to repeated or chronic stress (McEwen, 2000). It is the cost of adaptation to cumulative stress. Allostatic load can originate from repeated stress but may also result from lack of adaptation or prolonged inadequate stress response. It is likely to develop when acute stress response becomes chronic.

Acute vs. Chronic Stress Effects. Allostasis or adaptation to acute stress involves nervous, endocrine and immune systems. The immediate response to different stressors is conditioned by the brain’s evaluation of the threat carried out by the amygdala, hippocampus and prefrontal cortex (McEwen & Gianaros, 2011), activating the sympathetic-adrenal-medullary (SAM) axis, which releases catecholamines such as epinephrine. The brain’s evaluation activates the sympathetic nervous system and the fight or flight response. It also triggers inflammation, an immune response to prevent tissue damage.

By contrast, a more long-term response to stress is mediated by the hypothalamic-pituitary-adrenal (HPA) axis which releases glucocorticoids. Glucocorticoids result in increased metabolic activity to provide energy, and manage the parasympathetic nervous system and the level of physiological arousal. Stress can alter health-related behaviors such as smoking, alcohol use, sleep, diet and exercise, which in turn increase the risk of high allostatic load. If the stress response remains high for a long time, subclinical dysfunction can develop into disease due to the malfunction of multiple systems. Cardiovascular disease may result from stress-related amygdala hyperactivity. Elevated inflammation and cortisol levels may decrease cell sensitivity to insulin leading to the development of metabolic disorders such as diabetes. Elevated inflammation and cortisol levels may promote neurodegeneration leading to cognitive decline and dementia. Inflammation and metabolic abnormalities cause shortening of a region of repetitive DNA at the end of chromosomes causing cellular aging (Danese & McEwen, 2012).

Childhood Experiences with Allostatic Load. Events in early life produce long term effects on the activity of systems producing hormonal stress mediators. Low birth-weight and various types of early life trauma may influence stress hormone responsiveness over a lifetime. History of sexual and physical abuse in childhood is a risk factor not only for PTSD but also for hippocampal atrophy and cognitive impairment in adulthood. Adolescents with PTSD and a history of childhood physical and sexual abuse were found to have elevated urinary catecholamines compared to non-traumatized children with over-anxious disorders and healthy groups. Maltreated children with PTSD revealed the presence of smaller intracranial and cerebral volumes compared to a matched control group (DeBellis, Wooley & Hooper, 2013). Abnormalities are found in EEG records of children with a history of psychological, physical and sexual abuse. Abuse and neglect in childhood are risk factors for increased mortality and morbidity from a variety of disorders during adult life, for example, depression, suicide related to substance abuse, CVD, and extreme obesity (Larkin, Felitti & Anda, 2014). There is consistent elevation of stress hormone activity in abused children. Neglect and trauma in childhood are associated with low serotonin levels and risk for hostility, aggression, substance abuse and suicide (McEwen, 2000).

Conclusion
Life course theory provides evidence to explain the social pathways to physical and mental health vulnerabilities among homeless youth. It emphasizes the lasting impact of early exposure to adversities that produce cumulative health inequities in adulthood and later life. Without effective intervention, the cycle of adversity and poor health tend to be reproduced in the next generation. Allostatic load theory presents evidence about the cascade of multi-system effects of prolonged, unmitigated stress that manifest in physical and mental abnormalities. In other words, allostatic load is the link between exposure to social adversities and poor health. While there is evidence of individual variability on the effects of cumulative adversity and chronic stress individuals, there is a preponderance of evidence supporting the association between exposure to adverse life circumstances and poor health particularly when the exposure is prolonged and occurs early in life during critical periods of development.

While this article aims to explain the biosocial pathway to health disparities among homeless youth, the implications are clear for the nature of health promotion for this population. Health outcomes can be ensured more effectively if their social, economic and health issues are addressed. It requires a comprehensive, multi-system effort of various agencies and multidisciplinary professionals. Prevention of homelessness is critical to stop the cycle of vulnerability in
youth and families (Kennedy et al., 2010). Prevention prevents the cost of morbidity and mortality and promotes the development of resilience and the mastery and capacity of future generations. Prevention should target features of the community and society that support security, independence and growth of individuals and families.

Nurses are key in preventing homelessness by identifying risks early in individuals and families. The interplay between socioeconomic conditions and allostatic load emphasize the need to explore potential risks, early referral and follow-up. Nurses need to develop and use a wide network of services and professionals in order to address the complex needs of individuals and families. Interprofessional collaboration and multisectoral partnerships are required to mitigate the effects of social determinants on health. Nursing engagement in the community and its stakeholders can help generate a safety net for vulnerable individuals and families.

References


Nurses’ Perceptions of Family Visitations in the Adult Post-Anesthesia Care Unit
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Abstract
Introduction. Post-Anesthesia Care Units (PACUs) typically are restricted departments due to their close proximity to operating rooms, fast pace (constant admission and transfer of patients, which provides the potential for disruption in patient care or routines), lack of space, and difficulty controlling visitors’ behavior or reactions. Confidentiality issues for patients and physicians also restrict family visitation; however, it may be the nurses’ unfavorable perceptions of and reluctance to allow family members to visit a postoperative patient that inhibit this practice.

Purpose. The purpose of this study was to explore the perceptions of staff nurses working in the adult PACU on family visitation.

Method. To learn about nurses’ perceptions of a change in visitation policy, one facet of a pilot research study of family visitation in the adult PACU involved interviews with PACU nurses who had experienced the piloted visitation. Individual interviews with six experienced PACU nurses helped shed light on the practice change proposed in this fast-paced and stressful environment.

Results. The following themes emerged from the findings: (1) the role of the PACU nurse, (2) maintaining control, (3) patient and family visitor responses, (4) maintaining privacy, and (5) the need for visitor preparation. These themes informed the development of the new PACU visitation policy. The results of this study also advanced our knowledge on how nurses perceive family visitation in a fast-pace work environment while providing patient-centered care.

Keywords. Family visitation, post-anesthesia care unit, PACU, nursing perceptions, family presence, visitors

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Introduction
With the advent of better anesthetics and pain management techniques, patients have fewer incidents of post-operative complications (Deleskey, 2009). Waking up from anesthesia is smoother and faster and more often, patients ask to see their family members at some point while in the post-anesthesia care unit (PACU). Historically, most PACUs have been restricted units due to their close proximity to operating rooms, where sterility is strictly enforced and only approved personnel are allowed. Typically, all PACUs are physically adjacent to the operating rooms to be closer to the anesthesia department and the surgeons in the event of any surgical complications. Waiting areas are provided for family/visitors, but are distinct from the PACU itself.

In standard practice, only approved personnel including surgeons, anesthesiologists, certified registered nurse anesthetists (CRNA), operating room (OR) staff, and PACU personnel are allowed in these units. Family visitation is not allowed routinely in the PACU due to the complexity of the surgical recovery phase. Waiting areas are provided for family/visitors, but are distinct from the PACU itself and represent a demarcation line that separates the family members from the patient during procedures and early recovery. Patients who are recovering from anesthesia frequently experience nausea or vomiting, may awaken in excruciating pain, and may experience surgical complications. In these circumstances, family visitation is contraindicated due to the fast-paced environment that involves constant admission and transfer of patients, possible disruptions in patient care or routines, lack of space, and difficulty controlling visitors’ behavior or reactions, as well as issues of patient privacy and confidentiality. Changes in standard practices are very stressful for nurses who have developed their standard operating procedures over years of practice but realize that they must adjust to changes based on new evidence and/or policies. To incorporate a change in family visitation policy, this study assessed the nurses’ perceptions to changes in practice. Individual interviews with six experienced PACU nurses were conducted. The findings from the interviews evolved themes on the family visitation policy in a fast-paced and stressful work environment. The results added to the body of knowledge on the nurses’ perceptions on family visitation in a fast-pace work environment while providing total patient-centered care.

Literature Review
Over the past decade, several studies have been conducted on family presence during cardiac resuscitation in intensive care units (ICUs) or emergency departments. However, limited qualitative studies have been published regarding family visitation in adult PACUs (Halm, 2005). There are no qualitative studies of nursing perceptions regarding family visitation in PACUs for adult postoperative patients. On the other hand, parental visitation for the pediatric population, which is not a new concept in hospitals, is generally accepted by most PACU nurses and medical staff (Cormier, Pickett, & Gallagher, 1999; Deleskey, 2009; Dewitt & Albert, 2010; Noonan, Anderson, & Newton, 1991; Poole, 1992, 1993; Ninger, 2003; Smykowski & Rodriguez, 2003; Tuller et al., 1997; Vogelsang, 1986, 1987; Weslien, Nilstun, Lundqvist, & Frидlund, 2005).

Vogelsang (1986) wrote the original article on nurses’ assumptions about adult patients’ perceived needs and the effects of family visitation in the PACU. She investigated the relationship between nursing interventions and patients’ anxiety levels and found that family visitation in the adult PACU decreased patient anxiety scores when compared to no visitation (DeLeskey, 2009; DeWitt & Albert, 2010; Vogelsang, 1987). The researcher of this current study shared these findings with nursing colleagues, but evidence was not readily accepted. Several concerns including confidentiality, disruptions in patient care, privacy, and space issues were expressed. Noonan et al. (1991) conducted another study that evaluated family visitation from the family members’ perspective, and found that patients preferred family visitation (89%); 96% of the families also believed visitation was beneficial. Cormier et al. (1992) study assessed the perceived family members’ needs. They reported that family members and nurses’ perceptions of family members’ needs differed. Family members ranked family visitation as second in importance among other factors reported, such as communication with care providers, visitors’ comfort, and safety, while the PACU nurses ranked family visitation as seventh in importance. Poole (1992, 1993) replicated Vogelsang’s (1986) study and administered the Visual Analog Scale and the State Anxiety Inventory Form Y-1 before and after surgery to assess anxiety associated with a surgical procedure. Her findings indicated that the presence of family members and significant others in the PACU decreased patient anxiety.

For the pediatric population, parental visitation is much more established than is family visitation for the adult surgical population. Tuller et al. (1997) piloted an open visitation policy in a 400-bed hospital and evaluated the responses from patients, nurses, and visitors to the practice simultaneously. A total of 181 families were included in the study. The length of visitation ranged from less than 15 to 60 minutes. Results showed that 64% of the patients remembered their family members visiting; most (76%) claimed that the visit was very helpful, and 85% thought it was helpful to their visitors. The visitors’ perceptions of visitation also were positive (94%), although 15% claimed that some aspect of the visit was disturbing to them. The nurses indicated positive benefits (71%), a better mental state for the patient (35%), and beneficial effects to the family members and/or visitors (35%). Based on the positive findings from the study, the institution adopted an open visitation policy.
Another study conducted by Ninger (2003) concluded that hospitals that have developed an established policy and procedural rules for visitation that ensured patient privacy, educated staff and families, and performed/maintained quality control, had improved PACU visitation programs. After identifying the usual concerns of privacy, space constraints, and high patient acuity and turnover, Smykowski and Rodriguez (2003) focused their study on a family-centered approach with an individualized visitation plan for the PACU. Previously, they reported that their system was disorganized, visitors were unescorted, and there was resistance among the nursing and medical staff. A committee was formed to improve the visitation process. The committee conducted a literature review, educated staff on the benefits of visitation, empowered the nurses to make family visitation part of their patient care, and provided family education. The result was a change in practice, such that nurses contacted families within 90 minutes of the patient’s arrival in the PACU and, together, they developed an individualized visitation plan. Positive outcomes evolved. Staff morale was high and the nursing staff took pride in meeting the needs of patients and families.

According to Sullivan (2001), nurses initially are uncomfortable with family visitation because this requires a change in practice, and the logistics involved in implementing a program successfully are difficult. Expectations of patients, family members, and significant others, medical staff, and staff nurses should be defined well and stated clearly before family visitation is permitted in the PACU. Sullivan (2001) and Fields (1989) proposed that nurses are able to develop a successful program when they truly believe that the change in practice will be beneficial to patients and their families. Studies have shown that when the patient and family desire open visitation, an increase in comfort and morale is observed in both the patient and the family, and the patient experiences more positive outcomes (Agard & Lomberg, 2011; Karlsson, Tisell, Engstrom, & Andershed, 2011).

Systematic reviews on family visitation by Bonifacio and Boschma (2008) and DeLeskey (2009) revealed the same research findings as above. Based on the previous studies, policies for family visitation in PACU, especially for adult patients, vary from institution to institution. These variations have caused frustration and confusion on the part of family members, staff, and other healthcare workers. On the other hand, family visitation for pediatric patients has been studied and the findings indicated that visitation has a positive effect on the pediatric patient and family members (Kammerling, Lawler, Lynch, & Schwartz, 2008). Although not many published data are available regarding staff perceptions, family visitation has been shown to increase patient and family satisfaction regarding the patient’s surgical experience (Bonifacio & Boschma, 2008; Cormier et al., 1992; Deleskey, 2009; Noonan et al., 1991; Vogelsang, 1987). Healthcare consumers are now highly knowledgeable and expect more from their healthcare providers. Based on the data available, the American Society of PeriAnesthesia Nurses (ASPAN) has issued a position statement on patient visitation in the Phase I level of care, encouraging perianesthesia nurses to implement the practice worldwide (Halm, 2005).

Family visitation has been shown to bring comfort to the patient. The ability to remain present with a relative in the hospital has also been shown to enhance a family member’s ability to cope. At the bedside, the family member can gain frequent updates from the medical team and witness the care that is being given (Gray et al., 2011; Wu, Robson, & Hollis, 2013).

In summary, the literature supports the positive effects of family visitation in various clinical specialties. The literature also highlights some institution-specific challenges especially among healthcare professionals to bring about a change in policy and culture. The results of this study will further inform and provide support to the key role of nurses in family visitation and facilitate the change in policy and workflow.

**Methods**

**Setting**

This study was conducted in a teaching health institution located in the southern United States (US), which is a nonprofit, 949-licensed bed facility with a 24-bed PACU that supports 24 general surgery-operating suites. This PACU is a busy, fast-paced department, in which all types of patients recover: general surgical; 23-hour observation; same-day admission (including ICU patients); patients undergoing radiology intervention procedures, endoscopy, and pain management, and other post-procedure cases performed in other areas that require closely monitored recovery per the request of the anesthesiologist and/or attending physician. The nurse manager hires only experienced staff nurses with at least 2-3 years of ICU and PACU experience; the unit has low turnover (only 2 nurses left due to relocation in the past 5 years), high retention (longevity of staff ranges from 3-40 years in the department), and a waiting list to join the team.

In this teaching institution, staff nurses in the PACU noted frequent and repetitive telephone calls from family members in the waiting area. Certain situations have caused some family members to be upset and angry including: (a) surgeons had failed to talk to the family members or significant others, (b) there was a long wait for a ready room, or (c) inability of family members to see the patient. Family visitation in the PACU has been restricted per policy because of resistance from the physicians, confidentiality
issues, and/or because the staff understood little about the positive effects of visitation on patient recovery and satisfaction of both patients and family members. Traditionally, the majority of the surgeons discouraged visitors in this complex PACU strongly, with some exceptions: (a) postoperative children under 12 years of age, in which one parent was allowed to be at the child’s bedside, (b) patients with debilitating conditions requiring prolonged recoveries in the PACU, (c) ICU patients for whom beds were unavailable in the ICU, and (d) patients with language barriers, cognitive impairment, or other exceptional circumstances that necessitated modification of the policy, in which case one family member was allowed to visit the patient.

Study Design
This qualitative study was designed to explore the perceptions of nurses to a proposed change for family visitation in the PACU. Amidst resistance from the nursing and medical staff, changes in a fast-paced and high-stress setting such as the PACU represented an additional possible stressor in itself. The hospital and nursing institutional review boards (IRB) approved this qualitative study to be conducted in PACU interview area. Information regarding the study was provided to the institution’s Operating Room (OR) Committee and to all the surgical service line committees, such as general surgery, orthopedics, urology, obstetrics-gynecology, plastics, vascular, and head and neck services.

The nurses who volunteered to participate in the interview signed the Willingness to Participate form. The question addressed in this qualitative inquiry was how PACU nurses felt about their experience with family visitation during the pilot study. An experienced qualitative academic researcher was hired to interview the volunteer PACU nurses. An outside researcher was hired to conduct the interview in order to limit the possibility of undue influence in the nurses’ responses, allow the nurses to open and discuss freely, and to elicit the most candid response from the nurses. All interviews were audiotaped and transcribed verbatim to ensure accuracy and then were analyzed for themes by the hired experienced qualitative nurse researcher/interviewer.

Sample
Six volunteer registered PACU nurse staff members were interviewed at the conclusion of a weeklong pilot to obtain their perceptions of caring for PACU patients during family visitations. The visitations took place within 30 minutes to an hour of admission into the unit where family visitation had previously not been the policy. The nurse informants’ experience ranged from <2 years to >10 years in this specialty area of nursing and 10 years to >20 years as registered nurses. All participants were BSN prepared, and ranged in age from the 30s to the 50s. Purposive sampling was used and targeted only nurses who had experienced the protocol change to gather their perceptions of caring for their patients while also experiencing family visitation.

Data Collection
An experienced nurse researcher not affiliated with the institution conducted the interviews. The interviewees gave informed consent and the interviewer answered any questions regarding participation in the study before the interviews began. The interviews lasted approximately 45 minutes each. Participants received no compensation, although participation in the study can be included in their professional career ladder.

Questions addressed in the interviews included the following:

1. How was your experience during the family visitation here in PACU?
2. What are your concerns regarding family visitation in PACU?
3. What suggestions do you have to improve the current family visitation program?
4. Can you tell me about your experience (positive and/or negative) while taking care of a postoperative patient who had family visitation in PACU?

According to Shenton (2003), four criteria including credibility, transferability, dependability and confirmability must be addressed in a qualitative research study. The researchers took steps to address these. An experienced nurse researcher who is contracted from outside the institution conducted the interviews, which were recorded, took notes to serve as a memory aide, and performed subsequent verbatim transcription to promote the accuracy of data and facilitate qualitative analysis of each interview. The one-to-one interviews and discussions were performed in a private room, which addressed the credibility and trustworthiness of the informants toward the interviewer. To address dependability, repeated questions asked in the same context, with the same methods to the same participants, similar results were obtained. The same interviewer asked similar questions about the same content. Transcripts were read and reread for emerging themes. Themes from the interviews were discussed among the PACU nurses in a staff meeting.

Results
Content analysis of the interview data revealed five theme categories: (1) the role of the PACU nurse, (2) maintaining control, (3) patient and family visitor responses, (4) striving for privacy, and (5) the need for visitor preparation. The following sections describe the themes identified.

The Role of the PACU Nurse
Roles filled by nurses in PACU included advocate, protector, and educator, in addition to expert clinician with specific specialty area skills. Nurses described adding family visitation as a natural extension of their efforts to support the
patient, as well as their role as patient/family advocate, noting, “Family is part of the care.” When discussing the need to support families during the recovery period when they are separated from their usual support systems, the nurses described their role as including “relieving their anxiety and facilitating that connection.” Sometimes families were not able to make bedside visits, and nurses described the creative ways in which they supported the connection, saying, “I’ve stretched the phone over to the patient, let them talk to their family if they can’t come in.”

Nurses also described their role as protector of both the patients and their families, describing their efforts to make their patient visually presentable and comfortable before the visitation occurred. “Otherwise, if they are not comfortable, I don’t feel comfortable letting the family in and seeing them, you know, like squirming from pain.” Some nurses described delaying the bedside visit: “I feel like they need not to be bothered for a few minutes, while they are recovering. Some patients ask if they have to ‘stay awake for them’ (the visitors) indicating their need for rest.” Nurses also described efforts to keep their patients covered and curtains pulled to protect their patients from view when other patients nearby had visitors.

Educating the family members, answering their questions, and reassuring them that the situation was under control also emerged as important aspects of the nurses’ PACU role. Nurses described family members being “in the dark” about what was happening to their loved one immediately after surgery, commenting, “Visitation is good for the family and for the patient.” When visitors were at the bedside, nurses took time to explain the setting and what they were seeing, “You know, rather than presume what’s going on to the family, I rather they talk and ask…Let them know that someone is caring and watching over this person.” Nurses felt it was important for family members to see what was occurring, “Instead of them hearing it, they actually see what’s going on. So I tell them, “Okay, do you have any questions, don’t hesitate to ask.”

Maintaining Control
PACU practice is fast-paced and highly intense; nurses perceive they are successful in this setting when they are in control of their patients, and they mentioned repeatedly their desire to maintain such control during visits. The piloted family visitation policy may have represented a threat to this need for control, as it introduced a change in practice in their environment that required them to make adjustments. The timing of the visit seemed very important in maintaining the sense of control. Describing stressful situations when the visitor came within 15 to 30 minutes, nurses reported, “I haven’t finished my work yet,” or “I am not ready yet,” or “I want my stuff finished before they come in.” When asked about their previous thoughts about visitation, some nurses expressed concerns with the experience prior to the pilot, fearing “It will interfere, you know, and basically that’s the number one concern.” Although all nurses seemed supportive of the policy change, comments reflected their perceptions about the change: “It really adds work for the nurse, because you’re dealing with the family and at the same time dealing with the patient, to make them comfortable…and there you go, you need to explain everything that’s going on with the patient to the family.” Some nurses also feared the family visitor might be “asking too many questions.”

Addressing the perceived need to maintain control, the nurses were asked to make suggestions that would make the change more comfortable for them. In several cases, the nurse informants made suggestions without prompting, offering ideas for controlling who can visit (not someone likely to faint or anyone who has not been prepared), how many (just one per patient—even though sometimes they ask for both their spouse, and then their mother), when they may receive the visitor (45 minutes seemed their idea of the soonest time), under what circumstances (some surgeries may require longer to prepare for the visit), and also the patient’s previous condition. Nurses described patients who were victims of chronic pain before surgery and took longer to become comfortable after surgery. For these patients, the nurses seemed to need delayed visitation. Again, these comments reflected the nurse’s perceived need to control the patient’s situation and environment, and reflected some concerns on their part if the change were implemented.

Patient and Family Visitor Responses
Nurses described being sensitive to both the patients’ and family members’ reactions to this pilot experience; one nurse reported, “I feel the patient just wants to be left alone, you know, to sleep” after anesthesia and felt visitation was contraindicated in some situations. However, most nurses reported that many patients were more relaxed once they talked with their family and heard the outcomes reported by the surgeon. They described some cases in which the patients were more concerned about their families than about themselves and could only rest once they had met with the family visitor and were reassured that they were okay.

The nurses reported that patients were satisfied overwhelmingly with visitation and that most family members were satisfied with their visits and seemed pleased as well. Nurses did report the need to prepare family visitors prior to coming into the busy unit. Nurses felt they needed to know what they would see, and have some idea of the pain management process—that the patient might still be in pain, but that this process took a little time. They expressed concerns that family visitors might think the nurse was not doing anything if the patient complained of pain. This seemed to worry them, and some preparation would perhaps help address this issue.
Striving for Privacy
Another theme that emerged from the analysis of the interviews was that of striving for privacy, an effort each nurse described. They recognized this as an important issue for the unit if visitors are present. Although this issue fell under the protective role nurses described as they shared their stories, nurses were sensitive to this possible breach. Strategies nurses described using to maintain patient privacy included, “I am maintaining my voice in a low tone,” and “Well, since we have those curtains, I just cover them, because I do not want them looking at my patients” when other visitors were present.” Privacy was noted to be, “…number one when you are letting family come in.” Nurses reported needing to ask physicians who were present and taking patient histories to lower their voices and to make them aware of the presence of visitors.

Nurses also reported that family members in the waiting room often share patient information; they found that, as visitors came in, they often asked about another patient, stating that they had been talking with another patient’s family and wondered about his progress. They cited this as another opportunity for family education, as visitors under stress share inappropriately with fellow “waiters.” Although nurses cited the privacy issue from interview question number one, they also spoke of strategies they employed to maintain patient privacy. They suggested an area of the unit might need to be closed if a special procedure was ongoing or a dire situation occurred. Again, although they were positive about the policy change, nurses seemed to think privacy could be maintained better when allowing family visitors.

Need for Visitor Preparation
A final theme indicated the need for visitor preparation prior to the bedside visit. The nurses emphasized the importance of the liaison nurse in statements coded into this category of information. Nurses described the liaison nurse as being good at preparing the visitors and perhaps weeding out those who might be problematic with a few quick questions (this referred to visitors who might faint). During the pilot, nurses were aware that the lead researcher had interviewed the families and obtained their consent to participate in the pilot. Nurses felt these families were well prepared and that this was influential in making the experience a success; they reported that the visitors were “good.” Considering the previous theme of maintaining control, it may be helpful to allow the nurses to have input in the preparation for family visitation.

Discussion
The limited literature on changes on family visitation in the PACU has revealed the resistance of the nursing staff to the practice (Smykowski & Rodriguez, 2003; Sullivan, 2001). Most common visitation occurs in the Intensive Care Units, and not in the recovery area. This qualitative study which determined the perception of nurses on a change in visitation policy in the PACU uncovered five themes related to the experience: (1) the role of the PACU nurse, (2) maintaining control, (3) patient and family visitor responses, (4) striving for privacy, and (5) the need for visitor preparation. The staff nurses were very involved from the beginning of the pilot of the family visitation project and were supportive, although hesitant, about the process. They stated that they wished to practice evidence-based nursing and were very interested in the possible benefits for the patients of implementing the change in family visitation. Interviews with the nurses who actually experienced the pilot were positive in nature with focused areas of concern, as described by the themes presented above. It is difficult to maintain control in fast-paced environments with additional people present, and the nurses made suggestions for even more strategies that would facilitate a smooth experience for both the patient and the family visitor. Inspite of the changes in the standard practices which the nurses felt are stressful, the staff has agreed that they will learn to cope with family interactions while continue their care for the surgical postoperative patients. The PACU nurses agreed that they must adjust their thinking and practice to changes based on new evidence and/or policies.

Overcoming Staff Resistance and Change in Practice
The challenge from the Nurse Manager and the unit-based Research Committee was how to educate the nurses to change their mindset and incorporate the new philosophy to allow family visitation in the PACU. The nurse manager proposed this change to the committee, asking them to volunteer to be among the first liaison nurses. The nurse manager also presented this proposal at several staff meetings, allowing the staff to raise any questions or issues they had concerning visitation, and facilitate discussion among the group. The first strategy was to request volunteers to serve as liaison nurses. The liaison nurses were chosen based on their ability to deliver information, communicate effectively with family members in a positive and caring manner, and negotiate with the staff with respect to when family visitation could occur. The researcher recognizes that visitation is viewed as highly individualized and is influenced by the patient’s condition, how busy the primary care nurse is, the unit’s situation, and the overall status of the department.

Ongoing staff education, soliciting and asking for staff input, involvement in creating visitation guidelines, and positive feedback from family members provided the impetus for the nurses to be more cognizant of the visitation practice change. The nurses felt empowered to determine when visitors could see the patients. Currently, the PACU nurses continue to allow family visitation, although the liaison nurse or the nurse manager has had to reinforce the importance
of family visitation if the primary care nurse forgets. Fortunately, this institution has a minimal turnover rate so there is continuity of primary care nurses who have worked in PACU for an average of 12.5 years. It still is necessary to update and provide support to the nurses working in the busy and fast-paced PACU so that visitation can be made available whenever possible. This support will prevent disorganization as previously reported by Smykowski and Rodríguez (2003), and will assure successful implementation of the policy change and buy-in of nurses.

Conclusions

Based from the results of the interviews and discussions from the PACU staff, a decision for a pilot family visitation was proposed and approved by the unit staff nurse council with the management team. The nurse manager, staff nurse council representative, and liaison nurses team have reviewed all of the concerns and suggestions from other PACU staff, waiting room volunteers, physicians, and the management team before deciding how the family visitation protocol and policy was implemented. Patient and family centered care is the current standard for medical practice. It is the overall goal of this PACU to incorporate the PACU nurses’ perceptions and perspectives in promoting a family visitation protocol that would benefit the patients, families, and nursing staff.

Limitations

The specificity to the institution’s PACU and its culture, as well as the small number of informants limits the generalizability of the results of this study. An increased number of informants would have allowed us to reach further data saturation, providing assurance of the quality of data reported. Nevertheless, information reported would provide much needed information for other PACUs or hospital units who maybe planning to change their family visitation policy. The published topics on family visitation in the PACU are limited. Although the topic of family presence and visitation has gained popularity within healthcare, more research must be done. Very little experimental research on family visitation is currently available.

Recommendations/Implications

From daily postoperative visits and postoperative phone calls, family visitation has been shown to have a positive influence on the staff and the institution (DeWitt & Albert, 2010). A team of nurses created family visitation protocol/guidelines based on nursing feedback and made necessary recommendations or changes to the specific guidelines (Appendix A). This guideline was evaluated by the representatives of the various unit councils, as well as the liaison team, and can be changed as needed in the future. Ongoing feedback from staff meetings was very important in improving nursing practice, and any recommendations for best practices from staff, volunteers, family members, and physicians were all welcome in making the unit policy on family visitation a success.

The goal is that the new change in family visitation policy will improve the patients’ and their family’s experiences in PACU, which will affect their satisfaction of their healthcare experiences. Overall, family visitation in the PACU has been demonstrated to be of utmost importance, and should be considered for all types of patients, regardless of age, sex, or procedure received. Waiting to see a loved one is an intensely anxiety-provoking experience (Bonifacio & Boschma, 2008; Delesky, 2009). The presence of family in the emergency room and in ICUs is accepted well, as is family visitation for pediatric patients in the PACU setting (Agard & Lomborg, 2011; Karlsson et al., 2011). Based on the qualitative interviews conducted with the staff nurses and the pilot family visitation, family visitation in the PACU is

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Appendix A

BSLMC GENERAL SURGERY WAITING AREA
POST ANESTHESIA CARE UNIT
FAMILY VISITATION GUIDELINES

Following surgery, your loved one will be in the Post Anesthesia Care Unit (PACU), where he or she will wake up from anesthesia and be cared for by specially trained registered nurses. Our hospital offers limited visitation for family members/ significant others into PACU. We believe that allowing brief visitation benefits patients as well as the people who love them.

Most of our patients stay in the PACU for 2-3 hours. However, a longer stay maybe required if your loved one needs additional time to recover from anesthesia or if a patient bed on the patient care unit is not yet available. On rare occasions, we may need to keep your loved one in the PACU through the night.

Pediatric Patients

Pediatric patients are 12 years old and under. As soon as your child has awakened from anesthesia, parents are welcome to remain with him or her while in PACU. The Nurse Liaison or a volunteer will bring you into the unit as soon as possible.

Adult Patients

At our hospital, we value the support families/ significant others (SO) can provide to patients during their recovery period. If your loved one will be admitted to the hospital, we allow brief visitation. A Nurse Liaison or volunteer will offer to escort you to see your family member/SO.

The following are guidelines that will help us to care for your family member/SO and other patients present in the unit during visitation:
- Visiting time will be limited to 5-10 minutes to allow us to continue caring for your loved one.
- Only one family member/SO may come to visit.
- Visitors are not allowed to walk in or out of PACU alone. This is a restricted area and you must always have an escort.
- If you think, you may become ill or uncomfortable in a medical environment, please bring it to the attention of the Nurse Liaison or volunteer. You may get an update by phone.
- The privacy of all patients in the PACU is important; therefore, curtains will be pulled during your visit.
- Because the PACU is an open unit, we ask that discussion about your loved one’s condition be kept at a minimum and conducted with a low voice.
- You may be asked to leave the PACU area if the condition of you loved one or another patient requires immediate medical and/or nursing intervention.
- After 6:00 pm, call the PACU at 832-355-2290 for an update. However, please limit phone calls as this may take us away from a patient’s bedside.

Thank you for your help in maintaining a healing environment within the PACU. We value your feedback and welcome any comments you have about these guidelines.
important for all and should be seriously considered.

References


The Impact of the Bachelor of Science in Nursing (BSN) Degree on Patient Outcomes: A Systematic Review
Sharon Haskins & Katie Pierson

Abstract

Background. Currently, the minimum education requirement for entry into practice for a Registered Nurse in the United States of America is a diploma or an associate’s degree. However, several groups including the Institute of Medicine (IOM), the American Nurses Association (ANA), and the Tri-Council for Nursing are strongly in support of the minimum requirement of a Bachelor of Science in Nursing (BSN) degree, as it is believed to be essential for improved patient outcomes. There continues to be opposition to this initiative and the research has not been robust enough or clear whether or not this would be best practice for the profession. It is important to understand whether or not the BSN degree has an impact on patient outcomes.

Objectives. The central focus of this systematic review was to synthesize the best available evidence on the impact of the BSN degree on patient outcomes such as mortality rate and failure-to-rescue in all adult patients.

Inclusion criteria
Types of participants. Nurses actively caring for patients in all healthcare settings were considered in this review. This review included nurses caring for patients at the bedside, nurse executives, and nurse educators.

Types of intervention(s). This review examined studies that analyzed the impact of nurses with a BSN degree or higher had on patient outcomes. Studies that compared the BSN degree or higher to non-BSN were also considered.

Types of studies. Randomized controlled trials, controlled trials, quasi-experimental, prospective and retrospective cohort studies, before and after studies, and case control studies were carefully considered in this systematic review.

Types of outcomes. Studies that included 30-day mortality, in-patient mortality, and failure-to-rescue were considered in this review.

Search strategy. A three-step search strategy was utilized to locate both published and unpublished studies using specific keywords and subject headings. The initial search strategy was limited to CINAHL and MEDLINE. The next search used medical subject headings (MeSH), index terms and keywords across databases. Finally, reference lists of reports and articles to identify additional studies were utilized. All studies selected were published in English between 1965 and June 2014.

Methodological quality. To ensure methodological quality, the Critical Appraisal Checklists for Descriptive Case Studies and Comparable Cohort/Case-Controlled Studies from the Joanna Briggs Institute were used.

Data collection. Data was drawn out using categories from the Joanna Briggs Institute extraction instrument.

Data synthesis. Meta-analysis using the OpenMeta-Analyst program was conducted for the following outcomes: a) 30-day mortality and b) failure-to-rescue. Other outcomes were described in a narrative summary.

Results. There were nine research studies included in this review. Measurement of 30-day mortality was found in all nine studies and failure-to-rescue was found in six studies. The effect of the BSN degree on 30-day mortality was found to be statistically significant. The meta-analysis showed that patients who receive care from a nurse with a BSN degree or higher had 5% lower odds of 30-day mortality. The BSN-prepared nurse or higher was also associated with lessening failure-to-rescue by 6%, and was statistically significant in the meta-analysis as well.

Conclusions. Increasing the number of BSN-prepared nurses or higher in hospital settings is associated with reducing the odds of 30-day mortality and failure-to-rescue.

Keywords. Baccalaureate degree nurse, BSN, Associate Degree Nurse, ADN, Diploma Nurse, clinical outcomes, patient outcomes, 30-day mortality, hospital mortality, patient mortality, failure-to-rescue, complications.
Background
For decades, there has been an ongoing debate in regards to the preferred education level for nurses’ entry into practice, specifically focusing on the baccalaureate degree. At this time, entry into the nursing field can vary from 2 to 4 year course of study at a hospital-based school nursing, at community colleges or at universities (resulting in the completion of a diploma, associate degree, or baccalaureate degree). Moreover, students who completed a bachelor’s degree in another discipline can receive a BSN from an accelerated second-degree program. Having several points of entry makes the nursing profession unique and confusing at the same time, specifically to the public, other health care providers, legislators, and potential nursing students as there is a lack of professional consistency and professional recognition. Despite the many attempts to standardize the point of entry into nursing practice, nurse leaders and educators continue to find difficult to standardize.

Goodrich, Nutting, and Wald (1923) described the Goldmark Report which was financially supported by the Rockefeller Foundation. The report argued that nurses must be educated in academic institutions along with other professionals, to prepare them more adequately to meet the needs of health care consumers and elevate the status of the nursing profession. During this time, the education and training of nurses were primarily hospital based diploma schools. Diploma nursing schools remained to be the major provider of nursing education until community colleges began to offer associate degree in nursing (ADN) programs in the 1950s. Associate degree programs were created to help alleviate the severe nursing shortage post World War II. In addition, Ellenbecker (2010) posited that with the advances in health care, new skills and knowledge were required of the nurse. It became evident that the apprenticeship method of educating nurses in diploma schools was no longer adequate and have negatively affected the standard-of-care provided to patients. Hasse (1990) explained that the ADN preparation for nurses was not only designed to provide students with knowledge and understanding in providing care to patients but also provided the students technical skills. The associate degree preparation decreased the number of years of nursing education from 3 or 4 to 2 years, producing a larger nursing workforce to meet the demands of the nursing shortage.

ADN programs sustained its enrollment despite strong professional associations’ support for the BSN as the minimal education level for entry into professional nursing practice. The ANA’s (ANA, 2013) initial efforts to propose BSN education as entry to practice date back to 1965, after passage of the 1964 Comprehensive Nurse Training Act (CNTA). The CNTA suggested that with the increase evolution in health care, there were concerns in regards to the quality of care being provided to patients by the diploma nurse, which led to the ANA’s First Position on Education for Nursing recommending the BSN degree be the minimum preparation for entry into practice. The ANA House of Delegates who recommended that this minimum preparation for nurses be achieved by 1985 reiterated this proposition in 1978. However, this recommendation did not transpire as nurses struggled with hospital nursing programs closing as well as meeting the demands of the nursing shortages of the 1980s and 1990s (Donley & Flaherty, 2008) Therefore, yet again, the ADN programs prevailed as large quantity of nurses were graduating in a timely manner.

In addition to the ANA, professional nursing and federal organizations have supported the requirement for BSN nurses as the minimum entry level into practice. Four decades after the initial ANA position paper and nine decades after the Goldmark Report, the IOM issued a landmark report, The Future of Nursing, which calls for growing the number of BSN-prepared nurses in the profession to 80% by 2020 (IOM, 2011). The Tri-Council for Nursing, which includes the American Association of Colleges of Nursing (AACN), ANA, American Organization of Nurse Executives (AONE), and the National League for Nursing (NLN) also maintain the view that a highly educated nursing professional is necessary to enhance the quality and safety of patient care. As a result, the Tri-Council of Nursing developed its own manifesto calling for nurses to advance their education because without a highly educated nursing workforce, the health of the US will be at additional risk (Lane & Kohlenberg, 2010; Tri Council for Nursing, 2010). In a report on the U.S. Nursing Workforce: Trends in Supply and Education, the Secretary for Health and Human Services on nursing issues and the policy advisors to the congress from the National Advisory Council on Nurse Education and Practice recommended that at least two-thirds of the nurse workforce hold baccalaureate or higher degrees in nursing (Health Resources and Services Administration [HRSA], 2013). Additionally, the Carnegie Foundation report, Educating Nurses: A Call for Radical Transformation urged for the remodeling in nursing education making BSN as the minimum education for entry into professional nursing practice. BSN-prepared nurses will help meet the increasing practice demands across healthcare settings (Benner, Stephen, Leonard, & Day, 2010).

Another driver in this initiative came from a study in 1983 conducted by the American Academy of Nursing (AAN) Task Force on Nursing Practice in Hospitals that examined what attracted and retained well-rounded nurses while promoting high quality patient care. This led to the development of the Magnet Hospital Recognition Program (later changed to the Magnet Recognition Program). Magnet hospitals have employed a significantly higher percentage of nurses prepared at the bachelor’s level or higher. As there are more hospitals pursuing Magnet designation,
the demand for BSN-prepared nurses have become more pronounced since one of the forces of magnetism includes formal educational development of nurses at the BSN or higher level. In addition, nurse managers employed at Magnet hospitals are required to hold a BSN or graduate degree (Lane & Kohlenberg, 2010).

With all of these influential-nursing organizations making the same recommendation, why has the entry level into practice of Registered Nurse remained at the associate degree level? One explanation is that with so many nurses in the United States, individual nursing groups have developed their own opinions to maintain status quo. For example, the state authorities of Oregon, Montana, Maine, New York, New Jersey and North Dakota have all made attempts to change the educational requirements of nurses to the BSN degree and ultimately did not succeed (Ellenbecker, 2010; Smith, 2009). This was largely due to a lack of cohesion and agreement on how to proceed with the entry-level requirement. In addition, nurses did not understand why the requirement was being implemented and believed that the decision was coming from the top level and did not truly represent their beliefs.

Another reason may be due to the apparent lack of clarity in the evidence supporting the impact on patient care provided by the BSN-prepared nurse. Nursing prides itself on being a profession built upon evidence based practice; however, when examining the previously mentioned position statements, many of the same studies appear in their arguments and are not considered high level of evidence (Aiken, Clarke, Cheung, Sloane, & Silber, 2003). Aiken et al. (2003) was a landmark study as it solely examined the BSN or higher level degree against mortality and failure-to-rescue in the surgical population and found a positive correlation. There have been other studies in which, after adjusting for a number of characteristics, an increase in the number of BSN-prepared nurses resulted in a decrease of 30-day patient morality (Aiken et al. 2003; Estabrooks, Midodzi, Cummings, Ricker, & Giovanetti, 2005; Tourangeau et al., 2007). Additional studies have addressed the need to find the link between nursing characteristics, but inconsistencies were present in the findings as well as a lack of focus on the BSN level degree (Blegen, Vaughn, & Goode, 2001; Van den Heede et al., 2009) Although these findings support the current trend of having only BSN-prepared nurses, many other variables have been found to play a part in lower 30-day mortality rates including hospital characteristics, such as technology and teaching status, and nursing characteristics, such as skill mix and nurse-physician relationships (Aiken, 3003; Estabrooks, 2005; Sasichay-Akkadechanunt, Scalzi, & Jawad, 2003; Tourangeau et al., 2007; Van den Heede et al., 2009; ). Ridley (2008) found that evidence linking nurse educational levels to patient safety is sorely lacking. Finally, the landmark IOM (2011) report indicated, “the causal relationship between the academic degree obtained by RNs and patient outcomes is not conclusive in the research literature” (p. 169).

In evidence based practice, studies are ranked to describe the strength of the findings. Using the Feasibility, Appropriateness, Meaningfulness, and Effectiveness (FAME), the Joanna Briggs Institute (JBI) levels of evidence (2014) are ranked from highest to lowest, and are numbered from 1 to 4. Using this as a guide for the above studies, none obtained a level higher than 3, which includes cohort studies (with control group), case-controlled, or observational studies (without control group). This can cause concern in the nursing community as the evidence supporting the BSN degree as minimum entry into practice is not very strong. Prior to initiating this systematic review, databases such as the Cochrane Library, JBI and CINAHL were searched and no previous systematic reviews on this specific topic were conducted. Therefore, this systematic review was carried out to search for the best available evidence on the impact of the BSN degree on measureable patient outcomes, such as mortality and failure-to-rescue in the healthcare setting.

Inclusion criteria

Types of studies

Experimental and epidemiological study designs including randomized controlled trials (RCTs), non-randomized controlled trials (non RCTs), quasi-experimental, prospective and retrospective cohort studies, before and after studies, and case control studies were carefully considered in this systematic review.

Types of participants

This review considered studies that included all male and female nurses 18 and older, actively caring for patients in any healthcare setting. This included nurses caring for patients at the bedside, nurse executives and nurse educators. Studies that included nurses who have retired were excluded from the review.

Types of intervention(s)

This review considered studies that analyzed the impact of nurses with a BSN degree or higher had on patient outcomes. Studies that compared the BSN degree or higher to non-BSN were also considered. For the purpose of this review, a nurse with a BSN regardless of their path to obtain a BSN was included. BSN can be obtained through many avenues such as licensed practical nurse (LPN) to BSN, Associate Degree Nurse (ADN) to BSN, second-degree bachelors to BSN, and 4-year BSN. Higher than BSN is defined as any nurse with a master’s or doctorate degree. Non-BSN is defined as ADN and Diploma nurses.

Types of outcomes

This review includes studies that have the following outcome measures: (1) 30-day mortality, which is as death within 30-days of admission and (2) failure-to-rescue defined as death following the development of a complication.
Search strategy
The aim of the search strategy was to find both published and unpublished studies. A three-step search strategy was utilized in this review. A basic limited search of MEDLINE and CINAHL through EBSCO host was conducted, subsequently, the text words contained in the title, abstract, and of the index terms used to describe the article were analyzed. A second search using all identified keywords, medical subject headings (MeSH) keywords, and index terms was then employed across all included databases. Finally, the reference lists of all identified reports and articles were searched for additional studies. Studies published in the English language were considered for inclusion in this review. Studies published from 1965 to June 2014 were included for consideration in this review.

The secondary search was divided into three parts: (a) primary search of MEDLINE, CINAHL, and using all identified index terms and keywords (See Appendix I), (b) search of non-indexed databases using identified keywords, and (c) search of the grey literature using identified keywords. The databases searched via EBSCO and OVID platforms included MEDLINE, CINAHL, and ProQuest.

The search for unpublished studies included ANA, American Nurse Credentialing Center (ANCC), Kaiser Family Foundation, ProQuest Digital Dissertations, Rutgers.edu Dissertations and Theses, Google Scholar, and the Virginia Henderson International Nursing Library.

Initial keywords used were: Baccalaureate degree nurse, BSN, Associate Degree Nurse, AND, Diploma Nurse, clinical outcomes, patient outcomes, 30-day mortality, hospital mortality, patient mortality, failure-to-rescue, complications.

Assessment of methodological quality
Articles chosen for retrieval were appraised by two independent reviewers to ensure methodological quality prior to inclusion in the review utilizing standardized critical appraisal instruments from the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI). No disagreements arose between the reviewers.

Data collection
Data from the selected studies were extracted using the categories (bibliographic information, design, setting, participants, interventions, outcomes of significance to the review question, and conclusions) of the JBI Data Extraction Form for experimental/observational studies. Two reviewers extracted data independently. Results were then compared to ensure accuracy of the information. Attempts were made to obtain any missing data from the study report(s) by contacting the authors.

Data synthesis
Meta-analysis using the OpenMeta-Analysis program was conducted for the outcomes of 30-day mortality and failure-to-rescue. Other outcomes were described in a narrative summary.

Results
Description of studies
The initial searches yielded 1480 results including duplicates (Table 1). After duplicates were removed, 1438 studies were further excluded based on information presented in the title and abstract (Figure 1). Nineteen full text articles were retrieved and each was assessed for eligibility; 10 articles were excluded as they did not meet the inclusion criteria or meet requirements of the research question. Nine were finally included for analysis since they met the methodological quality criteria. See Figure 1 for a flow diagram of search results.

Table 1: Summary of study search results

<table>
<thead>
<tr>
<th>Databases Searched</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medline</td>
<td>188</td>
</tr>
<tr>
<td>CINAHL (EBSCO)</td>
<td>127</td>
</tr>
<tr>
<td>Proquest</td>
<td>51</td>
</tr>
<tr>
<td>ProQuest Dissertations and Theses</td>
<td>370</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>577</td>
</tr>
<tr>
<td>Virginia Henderson Library</td>
<td>132</td>
</tr>
<tr>
<td>Reference list</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>1480</td>
</tr>
</tbody>
</table>

No. of records identified through database searching: 1445
No. of additional records identified through reference lists: 35
No. of duplicates removed: 42
No. of records screened: 1438
No. of records excluded, do not meet inclusion criteria: 1419
No. of full text articles retrieved for appraisal: 19
No. of full text articles excluded, with reasons: 10
No. of studies included: 9

Figure 1: Schema of the stages of searching and inclusion/exclusion of studies for the review

Methodological quality
This review attempted to include studies that had the highest methodological quality. Two reviewers independently appraised each study (KP and SH). A standardized critical appraisal instrument from the JBI-MAStARI was used to...
systematically comment on influence of bias on the results of the included studies.

Out of the nine included studies, one was a comparable cohort study and the other eight were descriptive cross-sectional analyses.

Study characteristics
Nine studies were included in this review. A summary of each study is presented in Appendix II. Eight studies originated in North America, with six from the United States (Aiken et al., 2003; Aiken et al., 2011; Kendall-Gallagher, Aiken, Sloane, & Cimiotti, 2011; Kutney-Lee & Aiken, 2008; Kutney-Lee, Sloane, & Aiken, 2013) and two from Canada (Estabrooks et al., 2005; Tourangeau et al., 2007). The ninth study came from Europe (Aiken et al., 2014). The studies included in this systematic review were published between 2003 and 2014 (see Table 3).

Most of the study participants were staff nurses working in acute care hospitals. Some authors did not distinguish between staff nurses and all nurses within that location (Aiken et al., 2003; Aiken et al., 2008; Kutney-Lee, Sloane, & Aiken, 2013). The total number of participants (nurses) for the nine studies was 201,340.

Table 3: Characteristics of included studies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Location</th>
<th>Setting/Population</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aiken et al., 2011</td>
<td>2011</td>
<td>USA (California, Pennsylvania, Florida and New Jersey)</td>
<td>665 (86%) acute care general hospitals 39,038 RNs</td>
<td>Cross-sectional study</td>
</tr>
<tr>
<td>Aiken et al., 2003</td>
<td>2003</td>
<td>USA (Pennsylvania)</td>
<td>168 (80%) federal adult general hospitals 10,184 RNs</td>
<td>Cross-sectional study</td>
</tr>
<tr>
<td>Aiken et al., 2008</td>
<td>2008</td>
<td>USA (Pennsylvania)</td>
<td>168 (80%) non-federal adult general hospitals 10,184 RNs</td>
<td>Cross Sectional Study</td>
</tr>
<tr>
<td>Aiken et al., 2014</td>
<td>2014</td>
<td>Europe (Belgium, England, Finland, Ireland, the Netherlands, Norway, Spain, Sweden, and Switzerland)</td>
<td>300 hospitals 26,516 bedside care professional nurses</td>
<td>Cross Sectional study</td>
</tr>
<tr>
<td>Estabrooks et al., 2005</td>
<td>2005</td>
<td>Canada (Alberta)</td>
<td>49 acute care hospitals 6,526 acute care hospital RNs</td>
<td>Cross sectional study</td>
</tr>
<tr>
<td>Kendall-Gallagher et al., 2011</td>
<td>2011</td>
<td>USA (California, Pennsylvania, Florida and New Jersey)</td>
<td>652 (80%) hospitals acute care hospitals 28,017 staff nurses</td>
<td>Secondary analysis of previous study</td>
</tr>
<tr>
<td>Kutney-Lee et al., 2008</td>
<td>2008</td>
<td>USA (Pennsylvania)</td>
<td>157 hospitals 9,090 staff nurses working in direct patient care</td>
<td>Cross-sectional study</td>
</tr>
<tr>
<td>Kutney-Lee et al., 2013</td>
<td>2013</td>
<td>USA (Pennsylvania)</td>
<td>134 acute care hospitals 1999: 42,000 2006: 25,000</td>
<td>Retrospective, two-stage panel study</td>
</tr>
<tr>
<td>Tourangeau et al., 2006</td>
<td>2006</td>
<td>Canada (Ontario)</td>
<td>75 teaching and community hospitals 3,886 nurses working in a medical-surgical clinical area</td>
<td>Retrospective, cross-sectional study</td>
</tr>
</tbody>
</table>

Study Interventions
The study intervention was nurses who had their BSN degree. Most studies collected this data via a nurse survey (Aiken et al., 2011; Aiken et al., 2014; Estabrooks, 2005; Kendall-Gallagher et al., 2011; Tourangeau et al., 2007; Kutney-Lee & Aiken, 2008). However, some studies used both a nurse survey and administrative data to verify the percentage of BSN nurses within the hospital (Aiken et al., 2003; Aiken et al., 2008; Kutney-Lee & Aiken, 2013). The mean response rate for the nurse survey was 50.8%, and had no significant difference ranging from 37% to 65%. The variation of percentage of nurses who had their BSN degree ranged significantly within the study hospitals, reporting from 0% to 100%.

Table 4: Characteristics of intervention

<table>
<thead>
<tr>
<th>Authors</th>
<th>Methodology</th>
<th>Nurse Survey Response Rate</th>
<th>Percentage/Mean of BSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aiken et al., 2011</td>
<td>Patient discharge data linked to nurse survey</td>
<td>39%</td>
<td>Thirty percent of the hospitals have fewer than 30% of their nurses that are BSN-prepared, whereas 20% of the hospitals have more than 50% BSN-prepared.</td>
</tr>
<tr>
<td>Aiken et al., 2003</td>
<td>Hospital discharge abstracts linked to nurse survey and administrative data</td>
<td>52%</td>
<td>The percentage of staff nurses with bachelor’s degree or higher degrees ranged from 0% to 70% across the hospitals. In 20% of the hospitals (34/168) less than 20% of staff nurses had BSN or higher degree, while in 11% of hospitals (19/168) 50% or more of the nurses had BSN or master’s degrees tended to be larger and have postgraduate medical training programs, as well as high-technology facilities.</td>
</tr>
<tr>
<td>Estabrooks et al., 2005</td>
<td>Hospital discharge abstracts linked to nurse survey</td>
<td>52.8%</td>
<td>Mean Nurse education score was 0.22 with 0=diploma and 1=BSN, MSN and otherwise, Range 0.00-0.50.</td>
</tr>
<tr>
<td>Kendall-Gallagher et al., 2011</td>
<td>Hospital discharge abstracts linked to nurse survey</td>
<td>51%</td>
<td>The mean hospital percentage of staff nurses with a BSN or higher degree was 40%, and ranged across hospitals from 0% to 75%.</td>
</tr>
<tr>
<td>Kutney-Lee &amp; Aiken, 2008</td>
<td>Patient and administrative records linked to nurse survey</td>
<td>50%</td>
<td>In the average hospital, about 30% of the nurses held at least a bachelor’s degree, with a range of none to 74%.</td>
</tr>
<tr>
<td>Kutney-Lee et al., 2013</td>
<td>Retrospective, two-stage panel linking data sources from 1999 and 2006 including nurse survey data and administrative patient discharge data</td>
<td>1999-2006-39%</td>
<td>The number of participants in the 1999 survey was reported as approximately 42,000 and in 2006 reported as more than 25,000 nurses. The mean percentage of nurses with a baccalaureate degree in nursing was 32.5% in 1999, and 32.7% in 2006.</td>
</tr>
<tr>
<td>Tourangeau et al., 2007</td>
<td>Discharge abstract database linked to nurse survey</td>
<td>65%</td>
<td>Proportion (%) baccalaureate-prepared nurses, mean 12.6 (SD 10.8), Range 0 to 61.5%</td>
</tr>
</tbody>
</table>

Study Outcomes
All nine studies included in this systematic review measured 30-day mortality. Eight of the studies reported it as a percentage, and one reported it as a proportion (Aiken et al., 2008). Some of the studies reported the number of patients who had a 30-day mortality (Aiken et al., 2003; Aiken et al., 2011; Aiken et al., 2014; Kutney-Lee & Aiken, 2008; Kutney-Lee et al., 2013).
Six studies measured failure-to-rescue and five reported it as a percentage. One of the studies reported it as a proportion (Aiken et al., 2008). Some of the studies reported the number of patients who had failure-to-rescue (Aiken et al., 2011; Kutney-Lee & Aiken, 2008; Kutney-Lee et al., 2013). (See Table 5)

**Table 5: Characteristics of study outcomes and outcome measures**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Patient Characteristics</th>
<th>Outcome</th>
<th>Outcome measured by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aiken et al., 2011</td>
<td>1,262,120 patients 19 years or older Diagnosis of: general, orthopedic, and vascular surgeries</td>
<td>30-day mortality</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failure-to-rescue</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td>Aiken et al., 2003</td>
<td>232,342 patients 20 years or older Diagnosis of: general, surgical, orthopedic, or vascular surgery</td>
<td>30-day mortality</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failure-to-rescue</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td>Aiken et al., 2008</td>
<td>232,342 patients 20 years or older Diagnosis of: general, surgical, orthopedic, or vascular surgery</td>
<td>30-day mortality</td>
<td>Proportion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failure-to-rescue</td>
<td>Proportion</td>
</tr>
<tr>
<td>Aiken et al., 2014</td>
<td>139,800 patients 50 years or older Diagnosis of: general, orthopedic, or vascular surgery</td>
<td>30-day mortality</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td>Estabrooks et al., 2005</td>
<td>18,742 patients Diagnosis of: acute myocardial infarction, congestive heart failure, chronic obstructive pulmonary disease, pneumonia, or stroke</td>
<td>30-day mortality</td>
<td>Percentage</td>
</tr>
<tr>
<td>Kendall-Gallagher et al., 2011</td>
<td>1,283,241 patients 21 years or older Diagnosis of: general, orthopedic, or vascular surgery</td>
<td>30-day mortality</td>
<td>Percentage</td>
</tr>
<tr>
<td>Kutney-Lee et al., 2008</td>
<td>10,666 patients 20 years or older Diagnosis of: general, surgical, orthopedic, or vascular surgery</td>
<td>30-day mortality</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td>Kutney-Lee et al., 2013</td>
<td>477,334 patients 20 years or older Diagnosis of: general, orthopedic, or vascular surgery</td>
<td>30-day mortality</td>
<td>Number and Percentage</td>
</tr>
<tr>
<td>Tourangeau et al., 2007</td>
<td>47,993 patients 20 years or older Diagnosis of: acute myocardial infarction, stroke, pneumonia, and sepsisemia</td>
<td>30-day mortality</td>
<td>Percentage</td>
</tr>
</tbody>
</table>

**Outcome 1: 30-Day mortality**

All nine studies reported data regarding the impact of BSN-prepared nurse on 30-day mortality. Studies were included only if they examined the proportion of BSN-prepared nurse education level impact on 30-day mortality. Four studies presented sufficient evidence and similarities to extract and pool results (Aiken et al., 2003; Aiken et al., 2008; Aiken et al., 2011; Estabrooks et al., 2005). Test for heterogeneity was not significant \( \tau^2=0.000, Q(df=3)=4.468, \) Het. \( p=0.215, I^2=32.856 \) indicating that the studies were homogenous. Pooling of findings revealed that patients who received care from a greater proportion of BSN-prepared nurses had a 5% lower risk of 30-day mortality and the overall effect was statistically significant \[ OR = 0.946, \text{at 95\% CI 0.922, 0.970, p < 0.001} \].

The remaining studies in this review did not have sufficient data to pool for statistical meta-analysis. The Aiken et al. (2014) study examined the impact of nurse education level on 30-day mortality. The authors found that for every 10% increase in bachelor’s degree nurses was associated with a decrease in the likelihood of dying within 30-days by 7% \[ OR = 0.929, \text{at 95\% CI 0.886, 0.973} \].

The Kendall-Gallagher et al. (2011) study, using bivariate regression models, reported the percentage of BSN-prepared nurses (includes those with master’s and higher degrees) had a significant effect on 30-day mortality in each of the 652 hospitals in the study \( (p<0.001) \). A 10% increase in hospital proportion of baccalaureate staff nurses decreased the odds of adjusted inpatient 30-day mortality by 6%.

### 30-Day Mortality

![Figure 2: Forest plot of the effect of the BSN degree on 30-day mortality](image-url)
The impact of the Bachelor of Science in Nursing (BSN) degree on patient outcomes: A systematic review

The Kutney-Lee and Aiken (2008) study examined the impact of the proportion of BSN-prepared nurses on 30-day mortality. This study of surgical patients compared outcomes of those with serious mental illness and examined effects nurses’ education levels on death within 30-days of admission. The nurse education measure was calculated for each hospital as the proportion of nurses who reported that their degree was a baccalaureate or higher. The authors hypothesized that the greater proportion of BSN-prepared nurses, the lower the odd of dying within 30-days of admission. Nurse education was divided into three groups of BSN nurses. Hospitals that had 20-29% of BSN nurses reduced the odds of 30-day mortality by 6%, while 30-39% of BSN nurses reduced the odds of 30-day mortality by 9%. Neither of these findings was statistically significant. However, hospitals with greater than or equal to 40% reduced the odds by 20% and were statistically significant.

The Kutney-Lee, Sloane and Aiken (2013) study examined the impact of BSN-prepared nurse on 30-day mortality. Kutney-Lee et al. (2013) found that a ten-point increase in a hospital’s percentage of nurses with a baccalaureate degree in nursing was associated with an average reduction of 2.12 deaths for every 1,000 patients (p < 0.01). It was reported that if all of the 134 hospitals in their study had increased the percentage of their nurses with baccalaureates by ten points during their study’s time period, some 500 deaths might have been prevented.

The Tourangeau et al. (2007) study examined the impact of BSN-prepared nurse on 30-day mortality. Tourangeau et al. (2007) found that a 10% increase in proportion of baccalaureate-prepared nurses was associated with nine fewer deaths for every 1,000 discharged patients.

Outcome 2: Failure-to-rescue

Five studies reported data regarding the impact of BSN-prepared nurse on failure-to-rescue (Aiken et al, 2003; Aiken et al., 2008; Aiken et al., 2011; Aiken et al., 2008; Kendall-Gallagher et al., 2009; Kutney-Lee & Aiken, 2008). Studies were included only if they examined the proportion of BSN-prepared nurse education level impact on failure-to-rescue. Three studies presented sufficient evidence and similarities to extract and pool results (Aiken et al., 2003; Aiken et al., 2011). Test for heterogeneity was not significant [tau^2 0.000, Q(df=2)=2.867, Het. p=0.239, I^2=30.234], indicating that the studies were homogenous. Pooling of findings revealed that patients who received care from a greater proportion of BSN-prepared nurses had a 6% lower risk of failure-to-rescue and the overall effect was statistically significant [OR 0.940, at 95%CI 0.917, 0.964, p < 0.001]

Three additional studies measured failure-to-rescue but did not have data to pool for statistical meta-analysis. The Kendall-Gallagher (2015) study performed a secondary analysis and aggregated the data to the hospital level. As mentioned previously, logistic regression models were used to estimate the effect of baccalaureate education on the effect of failure-to-rescue. A 10% increase in hospital proportion of baccalaureate staff nurses decreased the odds of adjusted inpatient failure-to-rescue by 2%.

The Kutney-Lee (2008) study examined the impact of the proportion of BSN-prepared nurses on failure-to-rescue. This study of surgical patients compared outcomes of those with serious mental illness and examined effects nurses’ education levels on failure-to-rescue. The nurse education measure was calculated for each hospital as the proportion of nurses who reported that their degree was a baccalaureate or higher. The authors hypothesized that the greater proportion of BSN-prepared nurses, the lower the odd of failure-to-rescue. Nurse education was divided into three groups of BSN nurses. Hospitals that had 20-29% of BSN nurses reduced the odds of failure-to-rescue by 9%, while 30-39% of BSN nurses reduced the odds of failure-to-rescue by 8%. Hospitals with greater than or equal to 40% of BSN nurses reduced the odds by 18%. None of these results were statistically significant.

The Kutney-Lee (2013) study performed regression coefficients to examine the impact of BSN-prepared nurse on failure-to-rescue. It was found that a ten-point increase in hospital’s percentage of nurses with a baccalaureate degree in nursing was associated with an average reduction of 2.12 deaths for every 1,000 patients (p < 0.01). It was reported that if all of the 134 hospitals in their study had increased the percentage of their nurses with baccalaureates by ten points during their study’s time period, some 500 deaths might have been prevented.

The Tourangeau et al. (2007) study examined the impact of BSN-prepared nurse on failure-to-rescue. Tourangeau et al. (2007) found that a 10% increase in proportion of baccalaureate-prepared nurses was associated with nine fewer deaths for every 1,000 discharged patients.

Outcome 2: Failure-to-rescue

Figure 3: Forest plot of the effect of the BSN degree on failure-to-rescue

J Nursing Practice Applications & Reviews of Research

Vol. 6 No. 1

July 2016
a hospital’s percentage of nurses with a baccalaureate degree in nursing was associated with an average reduction of 7.47 failure-to-rescue patients for every 1,000 patients (p=0.001). The study made the assumption that if all of the hospitals had moved to a nursing workforce containing 80% of nurses with baccalaureates, more than 2,100 lives might have been saved, which is equivalent to 60% of observed deaths in 2006.

Discussion
The studies included in this review reinforce the evidence that the BSN degree does have a positive association on patient outcomes such as 30-day mortality and failure-to-rescue rates. This review suggests that a 10% increase in the amount of BSN nurses can reduce the odds of 30-day mortality by 5-9% and was found to be statistically significant. Failure-to-rescue odds can also be decreased with a BSN nurse by 2-8%, but was not always found to be statistically significant. As the assumption was typically made with a 10% increase, the greater the increase in BSN nurses, the greater association it had on reducing the odds of the patient outcomes. All of these studies were hospital based, and thus the association is being made within that setting.

Limitations
This review has several limitations; most of the studies reported risk of bias due to the response rate of their nurse survey. All of the studies were unable to narrow the survey down to the individual nurse/patient relationship, and therefore, an association relationship was inferred. In addition, there were no RCTs or quasi-experimental studies identified that reviewed the effectiveness of the BSN degree on patient outcomes. The majority of the studies were located in Pennsylvania, USA and Canada; therefore, the studies generalizability in all locations is limited. A few of the studies used data from the same sample of hospital, nurses and patients. All of the studies measured the outcome of 30-day mortality and a few measured the failure-to-rescue rate, however, other possible affected outcomes such as medication errors and fall rates could not be accounted for in the possible impact the BSN degree has on them.

Conclusions
The Aiken et al. (2003) study provided the first empirical evidence that hospitals’ employment of nurses with BSN and higher degrees is associated with improved patient outcomes. The IOM recent recommendation to increase the proportion of nurses with BSN from 50% to 80% by 2020 reflects the growing evidence connecting BSN-prepared nurses and better patient outcomes. The studies included in this review reinforce the evidence that the BSN degree does have a positive association on patient outcomes such as 30-day mortality and failure-to-rescue rates. Employing BSN-prepared nurses or higher is not necessarily more expensive for hospitals, as there is no significant difference in salaries for BSN-prepared nurses in most health care agencies at this time. In addition, any difference in compensation should outweigh the expense resulting from patient complications and loss of life.

Implications for practice
Many variables determine the outcome of a patient and hospitals need to ensure they are providing the public with the safest, most competent nurses. Nevertheless, although this review did show a minimal positive association of the BSN degree and 30-day mortality, it cannot be determined if this would definitively determine the outcome of the patient. However, if hospitals enforce a large increased percentage, then the odds of 30-day mortality and failure-to-rescue could decrease substantially. Therefore, this review suggests that the BSN degree should be recommended as entry level into practice (Level 3).

Implications for research
Future research should investigate the BSN degree and the impact it has on additional clinical outcomes, if any. Research should be directed towards individualizing the nurse/patient relationship to determine if the BSN has a direct effect on patient outcomes. Additional higher levels of evidence studies that look at BSN versus the Associate degree/Diploma degree, allocating a control group, can strengthen evidence.

References
The impact of the Bachelor of Science in Nursing (BSN) degree on patient outcomes: A systematic review


Joanna Briggs Institute. Available from: http://joannabriggs.org/Levels%20of%20Evidence%20FAME.


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Table of Contents

Editor's Perspective - Health Determinants and Health Outcomes
doi: 10.13178/jnparr.2016.0601.0701

President's Corner - Health Disparity and Advocacy for Accessible, Equitable and Culturally Appropriate Healthcare
doi: 10.13178/jnparr.2016.0601.0702

An Investigation of the Relationship between Acculturation and Specific Health Practices in Asian Americans
Cynthia G. Ayres, Leo-Felix M. Jurado, Ganga Mahat & Susan Norris
doi: 10.13178/jnparr.2016.0601.0216

Critical Social Purpose: Social Epidemiology
Nelson Tuazon
doi: 10.13178/jnparr.2016.0601.0416

Factors Influencing the Health Promoting Physical Activity Behaviors of Diverse Urban Adolescents
Susan M. Norris & Cynthia G. Ayres
doi: 10.13178/jnparr.2016.0601.0316

Social Determinants of Youth Homelessness
Dula F. Paquiao & Deborah Michiko Fried
doi: 10.13178/jnparr.2016.0601.0516

Nurses’ Perceptions of Family Visitations in the Adult Post-Anesthesia Care Unit
Pamela Windle
doi: 10.13178/jnparr.2016.0601.5160

The Impact of the Bachelor of Science in Nursing (BSN) Degree on Patient Outcomes: A Systematic Review
Sharon Haskins & Katie Pierson
doi: 10.13178/jnparr.2016.0601.0705