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A POPULATION-BASED APPROACH TO CESAREAN SECTION SURGICAL SITE INFECTIONS: ANALYZING THE RELATIONSHIP BETWEEN INCOME, ACCESS TO FOOD, AND INCIDENT INFECTIONS

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by

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ABSTRACT

A POPULATION-BASED APPROACH TO CESAREAN SECTION SURGICAL SITE INFECTIONS: ANALYZING THE RELATIONSHIP BETWEEN INCOME, ACCESS TO FOOD, AND INCIDENT INFECTIONS

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Various studies have been conducted regarding the risk factors for surgical site infections (SSI) in women who undergo a cesarean section (CS). However, minimal literature exists where independent risk factors such as income and access to food are observed in relation to surgical site infections. Despite technological advances in wound dressings, surgical techniques, and medications, the number of SSI following CS remains substantially high.

The purpose of this study is to determine if a correlation exits between neighborhood income and access to food and the development of surgical site infections among women who have had a cesarean section.

A retrospective analysis hypothesizing that health disparities may be a factor in the development of SSI was conducted. This study was based on administrative coding data from a multi-hospital health system with rural and urban acute care facilities in North Texas. A rate of infectious complications was calculated by ZIP code for the period of June 1, 2013 to December 31, 2013. A total of 191 ZIP codes were analyzed for SSI, income, and food access. The mean SSI rate was 1.3% with 143 ZIP codes having 0 infections, 40 ZIP codes having one infection, five ZIP codes having two infections, three ZIP codes having three infections, and one ZIP code having four infections. The highest prevalence of infections was found in the low income ($31,919-$56,626), and low access category which included 82 out of 191 ZIP codes. The very low and very high income categories presented very similar findings in the number of SSI per ZIP code. The results were not statistically significant (P = 0.469). This study was limited to one hospital system and a six month time period and therefore suggests that a larger sample size and further research is required to analyze the relationship between these variables as literature is limited in this area of study.

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CHAPTER 1

INTRODUCTION

1.1 Background and Significance

A cesarean section is one of the most common surgical procedures performed in the United States today. According to the Centers for Disease Control and Prevention (CDC), approximately one in three babies is born via cesarean section, accounting for 32.8% of women choosing this method of delivery over a vaginal delivery. Due to the rise in the number of cesarean sections (CSEC), infection rates have also increased to a rate of 5.4 infections per 100 CSEC procedures (Fenton et al., 2014).

The United States Department of Health and Human Services (HHS) has implemented a national action plan to reduce healthcare associated infections (HAI). Baseline measures of Cesarean Section (CSEC) Surgical Site Infections (SSI) were published prior to the implementation of the HHS plan. The baseline measures indicate that 1.5-3.82 % of women develop a CSEC SSI (Edwards et al., 2009). Alarmingly, the United States spends approximately $10 billion dollars to treat surgical site infections associated with cesarean delivery. Interventions intended to prevent CSEC SSI are aimed at the immediate preoperative period and include prophylactic antibiotics and preoperative skin care. However, the numbers of CSEC SSI remain high, causing a physiological and emotional burden to the mother, and a financial burden to the healthcare economy.

Currently the CDC, National Healthcare Safety Network (NHSN) include the following factors when stratifying for risk: age, type of anesthesia, The American Society of Anesthesiologists (ASA) score, body mass index (BMI), duration of procedure, emergency procedure, duration of active labor, and wound class (NHSN, 2010). Socio-economic status is not included as a risk factor.

Obesity is an important risk factor for the development of SSI and is known to be associated with health disparities. A pressing issue at the moment is the increasing prevalence of obesity amongst women of childbearing age (Anderson et al., 2012). Disparities in obesity include racial and ethnic differences, with the highest rates of obesity among females occurring in African American females (CDC, 2011). Mexican-Americans are also at an increased risk of obesity compared to Caucasians.

1.2 Food Deserts

Various studies have pointed out that food deserts can have a negative impact in an individual's health. A food desert is an area deprived of adequate access to nutritious, wholesome, and affordable food resulting in inequitable food access across communities (Cummins & Macintyre, 2002). This lack of store access may contribute to a poor diet, obesity, and other diet-related illnesses within a given region (Ploeg, Nulph, & Williams, 2014). A census tract, which is a subdivision of a county and smaller than a ZIP code, qualifies as a food desert if it meets low-income and low-access thresholds. Food deserts can be found in urban and rural areas alike, and are often a reflection of the region's economic disadvantage. In order for an area to be considered low-income, it must have a poverty rate of 20% or more, or a median family income at or below 80% of the statewide or metropolitan area median family income. To determine if an area is low-access, at least 500 individuals and/or at least 33% of the population must live more than one mile from a grocery store or ten miles if the census tract lies in a rural region (Ploeg, Nulph, & Williams, 2014).

This study seeks to determine if a correlation exists between income and access to food and the development of surgical site infections among women who have had a cesarean section operation. In an effort to prevent CSEC SSI, it is important to recognize population risk factors among pregnant women. It is hypothesized that there will be an inverse relationship between income and access to food and the development of CSEC SSI—as income and access to food decline, the rate of CSEC SSI will rise. If a relationship between the stated variables exists, this could lead to further studies related to the importance of addressing antenatal nutrition at a population level.

CHAPTER 2

REVIEW OF LITERATURE

One of the most studied risk factors associated with the development of a surgical site infection following a cesarean section is obesity. Various studies have indicated that BMI is a major predictor for infection. Wloch, Wilson, Lamagni, Harrington, Charlett, and Sheridan (2012) designed a prospective multicenter cohort study to assess the frequency and risk factors for surgical site infections following cesarean section. In their study, data was collected from fourteen hospitals in England from the time period of April to September 2009. A surveillance protocol was carried out and overall, a total of 394/4107 women (9.6%) in the study developed a surgical site infection. The researchers pointed out that being overweight (BMI 25-30 kg/m^2) or obese (BMI 30-35 kg/m^2) were main independent risk factors for infection when compared to a normal (18.5-25 kg/m^2) BMI (Wloch et al., 2012).

In Leth's et al. (2011) prospective cohort study, 2,492 consecutive women having cesarean section (CSEC) from February 2007 to August 2008 were assessed for the impact of obesity and diabetes on the risk of post-cesarean infections. Of 2,492 women having CSEC, 373 (15.2%) were obese and 123 (4.9%) had diabetes. Overall, 458 women (18.4%) had a post-cesarean infection within 30 days and 174 (7.0%) were diagnosed in-hospital. The risk of post-cesarean infections was higher among obese than non-obese women: adjusted (for diabetes and emergency/elective CSEC) odds ratio (OR) =1.43; 95% confidence interval (CI): 1.09-1.88, particularly for in-hospital infection

(OR=1.86; 95%CI: 1.28-2.72). After controlling for obesity and mode of CSEC, type 2 or gestational diabetes were weak predictors of infection risk (OR=1.18; 95% CI: 0.72-1.93), whereas the adjusted OR in women with type 1 diabetes was 1.65 (95%CI: 0.64-4.25). Among diabetic women, obesity increased the risk of post-cesarean infections more than twofold; the adjusted ORs were 2.06 (95% CI: 1.13-3.75) for infections overall and 2.74 (95% CI: 1.25-6.01) for in-hospital infections. The researchers concluded that obesity increases the risk of post-cesarean infections and diabetes further strengthens this association (Leth et al., 2011). Although the study included a large sample size, data was only obtained from medical records and databases, and did not explore the relationship between obesity and CSEC SSI with variables such as ZIP code of residence or income of the women.

The increase in the number of cesarean section surgical procedures performed each year has been closely associated with the increase in obesity of childbearing women. Anderson's et al. (2013) integrative review of literature was conducted using five databases. Thirteen studies were analyzed and all supported a relationship between obesity and SSI and caesarean section was more common in obese women (Anderson et al., 2013).

Although research regarding obesity and surgical site infections is plentiful, there is scarce literature that explores obesity in the context of food deserts and the development of CSEC SSI, let alone infections in general. There is, however, some literature that examines the relationship between obesity and food deserts. (Ghosh-Dastidar et al. (2014) took a narrow approach in examining the relationship among distance to store, prices of food, and the prevalence of obesity. The researchers mentioned that the lack of access to healthy foods may explain why residents of low-income neighborhoods and African Americans have the highest rates of obesity in the United States. Interviews were conducted for 1,372 households over a seven-month period in two low-income, majority African American neighborhoods without a supermarket (Ghosh-Dastidar et al., 2014). Their results showed that distance to the supermarket and food prices were positively associated with obesity. Statistical significance was demonstrated at the ($p<0.05$ level). The researchers also joined both of their variables, distance to store and food prices. They discovered that higher prices weren't necessarily a predictor of obesity due to the availability of unhealthy food obtained at a low-cost in the area.

CHAPTER 3

METHODOLOGY

3.1 Sample Population

A data request for the total number of cesarean section surgeries and the number of infectious complications was made to seventeen hospitals in a multi-hospital health system with rural and urban acute care facilities in North Texas. Subjects were not recruited into the study. Women who resided in Texas and were over the age of 17 years and had a cesarean section at any of the hospitals in the multi-hospital health system between June 1, 2013 and December 31, 2013 and had an infectious complication during that admission or a subsequent admission within 30 days of the surgery were included in the study. Women under the age of 17 years or those who received services at a multi-hospital health system but resided outside of Texas were excluded from the study. If there were fewer than five CSEC in a ZIP code, data from that ZIP code was not utilized. Readmissions for non-infectious complications or infections other than a major puerperal infection/obstetrical wound infection were excluded from the study. This data provided a representative sample of rural and urban neighborhoods at a variety of income levels throughout the Dallas/Fort Worth metropolitan area.

3.2 Data Collection Process

The number of infectious complications was identified by an administrative medical coding data system using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) and by address of residence between June 1, 2013 and December 31, 2013. The following ICD-9-CM codes were selected for this study: 670 = major puerperal infection, 670.1 = postpartum endometritis, and 674.3 = cesarean section wound infection.

The rate of CSEC infections by ZIP code was calculated as follows: (Number of readmissions for infections after C Section / Number of C Sections)/ZIP code of residence multiplied by 100. The infection rates were analyzed and presented in the context of the neighborhood residence of the woman.

Data were maintained on a secure employee server and was not released or transmitted. The aggregated data was saved on an encrypted password- protected thumbnail drive for transmission and analysis at a north Texas University.

3.3 Analysis of Data

Address of residence was translated to a census tract using the U.S. Census 2010 ZIP Code Tabulation Area Relationship files. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 20.0. A correlational analysis was conducted examining the median income level of a census tract of residence obtained from U.S. Census data with CSEC infection rate and USDA Food Access Research Atlas with CSEC infection rate. United States Census Data and USDA Food Access Research data were publically available data sources. To test the differences in populations by ZIP code, Analysis of Variance (ANOVA) was implemented.

CHAPTER 4

RESULTS

4.1 Variable Correlations

This study specifically aimed to compare neighborhoods of residence; therefore it was important to obtain a sample of neighborhoods with statistically significant representation in each neighborhood. A power analysis conducted prior to the data collection indicated that statistical significance would be reached at 269 ZIP codes. If a neighborhood of residence had a moderate (0.30) effect and desired statistical significance ($\alpha = .05$), a sample of 66 cases per ZIP code would provide a power of 0.8.

During the data analysis, a total of 192 ZIP codes were identified for CSEC SSI but information for low-income and low-access from the United States Department of Agriculture (USDA) was made available for only 191 ZIP codes (Table 4.1).

Table 4.1: Descriptive Statistics

Descriptive Statistics	CS	SSI	SSI Rate	Median Income	Low Access	Income Category
Valid ZIP codes	192	192	192	191	191	191
Missing ZIP codes	0	0	0	1	1	1
Mean	22.11	0.33	1.3806	61365.72	0.12	2.69
Median	18	0	0	56985	0	3
Std. Deviation	16.53	0.657	3.11958	24709.19	0.326	0.975
Range	84	4	20	161548	1	4
Minimum	5	0	0	11959	0	1
Maximum	89	4	20	173507	1	5

The mean SSI rate was 1.38% with 23 ZIP codes being low-income and low-access. Five income categories were studied which consisted of: very low (≤ $31,918), low ($31,919-$56,626), median ($56,627-$81,335), high ($81,336-$106,072) and very high (≥ $106,073). A standard deviation of $24,709 was used to identify each income category.

There were 192 ZIP codes included in the analysis. The mean SSI rate was 1.38 (SD= 3.12). There was a wide SSI range with the lowest number of infections being 0 and the highest number of infections being 20. The SSI rate varied widely among the ZIP codes (SD= 3.12) with a range of 0%-20%. The majority of ZIP codes had 0 infections (74.5%). 20.8 % of the ZIP codes had one infection, 2.6% ZIP codes had two infections, 1.6% had three infections, and 0.5% had four infections (Table 4.2).

Table 4.2: Number and Frequency of Surgical Site Infections

Number of SSI	Frequency	Percent	Valid Percent	Cumulative Percent
0	143	74.5	74.5	74.5
1	40	20.8	20.8	95.3
2	5	2.6	2.6	97.9
3	3	1.6	1.6	99.5
4	1	0.5	0.5	100
Total	192	100	100	

Income data was skewed towards low income ZIP codes. Very low income and low income comprised 49% of the ZIP codes under analysis (Table 4.3). The SSI rate by income category is shown in Table 4.4. The very low income category had four SSI, the low income category had 22 SSI, the median income category had 24 SSI, the high income category had ten SSI, and the very high income category had two SSI.

Table 4.3: Income Categories

Number of ZIP codes by income	Frequency	Percent	Valid Percent	Cumulative Percent
Very Low	12	6.3	6.3	6.3
Low	82	42.7	42.9	49.2
Median	61	31.8	31.9	81.2
High	25	13	13.1	94.2
Very High	11	5.7	5.8	100
Total	191	99.5	100	
Missing system	1	0.5		
Total	192	100		

Table 4.4: SSI Rate by Income Category

Income Category	Number of Infections	SSI Rate
Very Low	4	6.34
Low	22	4.65
Median	24	4.48
High	10	3.50
Very High	2	5.82

Analysis of variance (ANOVA) was implemented to compare infection rates between income groups (Table 4.5). When comparing SSI rate between and within income groups using ANOVA, no statistical significance was evident (F = 0.759; sig. 0.469) (Table 4.6).

Table 4.5: Comparison of Descriptive Variables Using ANOVA

SSI rate		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max	Between-Component Variance
						Lower Bound	Upper Bound			
Low		94	1.285	3.25434	0.3356	0.619	1.952	0	20	
Median		61	1.740	3.34768	0.4286	0.882	2.597	0	16.67	
High		36	0.967	2.28727	0.3812	0.193	1.741	0	11	
Total		191	1.370	3.12488	0.2261	0.924	1.816	0	20	
Model	Fixed Effects			3.12885	0.2264	0.924	1.817			
	Random Effects				.22640[a]	.3968[a]	2.3450[a]			-0.03979

a. Warning: Between-component variance is negative. It was replaced by 0.0 in computing this random effects measure.

Table 4.6: Comparison of SSI rate between and within income groups using ANOVA

SSIRate	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.865	2	7.433	.759	.469
Within Groups	1840.462	188	9.790		
Total	1855.327	190			

In a correlational analysis, median income and access to food were used as independent variables with SSI rate as a dependent variable. The SSI rate and the correlation with median income were 0.034, signifying that the two variables were not correlated. The SSI rate and low access variables were negatively correlated but were not statistically significant.

4.2 Regression Results

A regression analysis was conducted to determine the relationship between SSI rate which was the dependent variable and median income and low access which were the independent variables (Table 4.8). When median income and low access variables were analyzed together, there was no indication of a prediction of SSI (Table 4.7). There was no correlation when the variables were analyzed individually and it did not change when the variables were analyzed together. It is hypothesized that one of the reasons for this finding may have been due to the weakness of the results that even putting the variables together did not have an effect (Table 4.9).

Table 4.7: Descriptive statistics: SSI rate, median income, and low access

Descriptive statistics	Mean	Std. Deviation	N
SSIRate	1.3806	3.11958	192
MedianIncome	61365.72	24709.190	191
LowAccess	.12	.326	191

Table 4.8: Correlations between SSI rate, median income, and low access

Descriptive statistics		SSI Rate	Median Income	Low Access
SSIRate	Pearson Correlation	1	.034	-.039
	Sig. (2-tailed)		.636	.594
	N	192	191	191
MedianIncome	Pearson Correlation	.034	1	-.094
	Sig. (2-tailed)	.636		.194
	N	191	191	191
LowAccess	Pearson Correlation	-.039	-.094	1
	Sig. (2-tailed)	.594	.194	
	N	191	191	191

Table 4.9: Regression of food desert and low income effect on SSI rate

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.576	2	2.288	.232	.793[b]
	Residual	1850.751	188	9.844		
	Total	1855.327	190			

b. Predictors: (Constant), LowAccess, MedianIncome

CHAPTER 5

DISCUSSION

5.1 Strengths and Limitations

The results of this study suggest that there is no correlation between neighborhood income and access to food and the development of surgical site infections among women who have had a cesarean section ($p = 0.469$). Despite only having data for 191 ZIP codes, this study is worthy of consideration in that it suggests that geography, most specifically food deserts, may not be a risk factor for the development of CSEC SSI. Limitations of this research were the six-month time period and the use of retrospective comparisons. Further limitations were that low-income and low-access data were obtained mainly from urban ZIP codes (166) than rural (7), a private non-profit hospital system was chosen for this study, and the study did not include women who may have not been readmitted to the hospital.

It is important to note that obesity is prevalent in people of various income levels and may be influenced by a number of factors in addition to the existence of food deserts. Such factors include an individual's level of physical activity, genetics, eating habits, age, and tobacco use. The unexpected finding of the 'very low' and 'very high' income category groups having almost the same frequency of CSEC SSI may point to the 'very low' income category's eligibility for the Women, Infants, and Children (WIC) program. The women in this group would meet the program's criteria for inclusion which consists of categorical, residential, income, and nutrition risk requirements. Furthermore, they may also be receiving aid from the Texas Supplemental Nutrition Assistance Program (SNAP). The 'very low' income category had an income of $31,918 or less. The income eligibility requirements for SNAP include a maximum income level per year of $31,005 for a household size of four (USDA, 2014). The 'low' income category group ($31,919-$56,626) which had the highest number of CSEC SSI, would not be eligible for the WIC and SNAP programs, which could potentially indicate their higher frequency of CSEC SSI due to their inability to benefit from the nutrition assistance, healthcare referrals, and education offered by these programs.

During the data analysis, it was observed that one ZIP code had a total of four CSEC SSI. Further research is warranted to determine the possible causes for this high number of infections in this specific ZIP code.

5.2 Implications for Nursing Research and Practice

The findings from this study recommend further exploration of the individual risk factors that contribute to the development of CSEC SSI. A larger understanding of these risk factors allows members of the healthcare team to provide adequate education to women of child-bearing age to identify those who are at risk. Advising at risk women, regardless of income, to lose weight before conceiving may prevent complications that stem further than a CSEC SSI. For women after the postpartum period, education is important in aiding them to identify signs of infection, ways to meet their nutritional needs, and where to seek support. Additionally, future research regarding the rate of obesity among women in WIC clinics and the ways WIC clinics improve the nutrition of low income pregnant women and postpartum women could lead to population-based interventions to help reduce the incidence of SSI rates.

The topic of women in WIC programs and their health outcomes is another area that is lacking in literature. In a cross-sectional study by Matthews et al. (2009) evaluating the frequency and relationship of food security, dietary choices, and health status among 155 postpartum non-lactating female participants in the WIC program, suggested that food insecurity is a major factor associated with decreased general and mental health and vegetable consumption among WIC participants in the state of California. Although the study points to a relationship between food insecurity and health, it does not explore specific health outcomes such as surgical site infection rates.

CHAPTER 6

CONCLUSION

With the increasing number of cesarean sections performed each year, the number of surgical site infections in the post-operative period is also climbing. Individual risk factors that contribute to the development of a CSEC SSI have not been fully established in the literature. The results of this study strongly support the need for further research regarding the role socioeconomic status and access to food have in the development of a CSEC SSI. Furthermore, it is also important to consider risk factors that do not directly involve aspects of an individual, which include facility risk factors or crime rates in neighborhoods which could indirectly relate to the lack of physical activity. Identification of individual and environmental risk factors can improve a woman's health in the preconception period which can potentially minimize or reduce complications which can have a negative impact for the woman and her baby.

REFERENCES

Anderson, V., Chaboyer, W. & Gillespie, B. 2013. The relationship between obesity and surgical site infections in women undergoing caesarean sections: An integrative review. Midwifery 29, 1331-1338. Viitattu 4.1.2014. http://www.jamk.fi/fi/Palvelut/kirjasto/Etusivu/, Nelli-portaali, CINAHL.

Alishaq et al.: Risk factors of surgical site infection post cesarean section. BMC Proceedings 2011 5(Suppl 6):P189

Centers for Disease Control and Prevention (2011). Fact Sheet: Health disparities in obesity. Available online at http://www.cdc.gov/minorityhealth/CHDIR/2011/FactSheets/Obesity.pdf

Cummins, S., & Macintyre, S. (2002). "Food deserts" evidence and assumption in health policy making. British Medical Journal, 325, 436e438.

Edwards, J.R. Peterson, K., Banerjee, S. Allen-Bridson., K. Morell, G. Dudeck, M. Pollock, D. Horan, T. (2009). National Healthcare Safety Network (NHSN) report: Data summary for 2006-2008, issued December 2009. *American Journal of Infection Control, 37* :783-805.

Fenton L., Barford A., Barnett A., and Becker M., "Skin Preparation for Preventing Infection Following Cesarean Section" (April 2014). The Research and Scholarship Symposium. Paper 6. http://digitalcommons.cedarville.edu/research_scholarship_symposium/2014/poster_presentations/6

Leth RA, Uldbjerg N, Norgaard M, Moller JK, Thomsen RW (2011) Obesity, diabetes, and the risk of infections diagnosed in hospital and post-discharge infections after cesarean section: a prospective cohort study. Acta Obstet Gynecol Scand 90:501–509

Mathews, L., Morris, M. N., Schneider, J., & Goto, K. (2009). The relationship between food security and poor health among female WIC participants. Journal of Nutrition Education and Behavior, 41(4), S10-S10. doi:10.1016/j.jneb.2009.03.147

National Healthcare Safety Network (2010). NHSN e-News: Special edition. Available online at http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf

Wloch C, Wilson J, Lamagni T, Harrington P, Charlett A, Sheridan E. Risk factors for surgical site infection following caesarean section in England: results from a multicentre cohort study. BJOG.2012;119(11):1324–3133. PUBMED

BIOGRAPHICAL INFORMATION

Melissa was born in San Diego, California and spent most of her childhood years there before moving to Dallas, Texas. She began her college education at the early age of 14 when she was accepted at an Early College High School Program that was fairly new during 2007. She was given the opportunity to take both high school and college classes at a community college and simultaneously obtain her Associate of Science degree and high school diploma.

In the fall of 2011, Melissa transferred her college credits to The University of Texas at Arlington to pursue a career in Nursing. After being accepted to the College of Nursing in the spring of 2013, Melissa decided to accept the challenge of obtaining an Honors degree in her chosen discipline.

With the help of her mentor, Dr. Susan M. Baxley and Principal Investigator Janet Glowicz, she was able to explore one of the most common healthcare-associated infections in the United States—cesarean section surgical site infections. Her Honors College Senior Project resulted in an oral presentation at the end of the spring 2015 undergraduate career program.

Melissa is very thankful for the help and support her mentors and faculty have given her. She intends to apply to UT Arlington's master's degree program in her journey to becoming an acute care nurse practitioner.