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A Teaching Innovation on Poverty for Interprofessional Students: Cost of Poverty Experience Simulation

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Abstract

INTRODUCTION Cost of Poverty Experience (COPE) simulation is an innovative teaching methodology to demonstrate the obstacles and challenges of poverty that contribute to those risks. The aim of the study was to evaluate the change in attitudes regarding people living in poverty among interprofessional health science students.

METHODS Medicine, nursing, pharmacy and rehabilitation therapy students in the 2018 Interprofessional Education class (N=100) were enrolled. Interprofessional student teams were assigned family roles, given limited resources and simulated poverty challenges such as unemployment, childcare concerns, limited access to healthy food, and incarceration. A pre- and post-simulation survey measured changes in participants' poverty awareness consisting of three domains - identifying barriers to poverty, confidence in one's ability to address poverty, and likelihood to engage in behaviors to address poverty. The post survey also included questions on insights gained and recognition of organizational systems that perpetuate poverty. Statistical analysis including descriptive statistics and paired t-tests were conducted in SPSS-v23.

RESULTS The confidence in ability domain that included understanding obstacles, identifying key issues and having impact showed a significant difference between pre-test (M=8.63, SD= 1.71) and post-test (M=9.31, SD=1.90). However, no significant change was reported for identifying barriers and likelihood to engage in behaviors to address poverty. Additionally, in post-survey, more than 90% students reported increased mindfulness of poverty, self-reflection, and recognize that organizational systems create and perpetuate poverty.

CONCLUSION Poverty immersive simulation experience is an essential education tool, as it motivates critical self-reflection and improves one's confidence to engage in addressing poverty.

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Implications for Interprofessional Practice

- Educating interprofessional health science students about poverty may contribute to addressing health and health care disparities.
- Interprofessional training for health science students should include community-related, non-clinical simulation experiences that increases understanding of problems faced by vulnerable populations.

Introduction

Clinical simulation is a method of teaching and training that is being increasingly employed in the curricula of health care students. However, few non-clinical simulation experiences to support their training to address the need of a diverse population are conducted for these future health care professionals. There is an increased need to include simulation experiences that highlight the social determinants of health framework, which identifies the social and physical factors that contribute to poor health outcomes.

Literature Review

Health disparities have shown to be consistently linked to adverse health outcomes. In addition, disparities in health outcomes that have been identified consistently to be linked to poverty, racial discrimination, living in impoverished neighborhoods, having low income, lack of insurance and low education, as well as higher among minority population (Adler & Stuart, 2010; Braveman et al., 2011; Mode, Evans, & Zonderman, 2016). Many chronic diseases such as cardiovascular disease, stroke, obesity, diabetes, and depression, have higher incidences in those living in poverty (Al-Turk et al., 2018; Lee et al., 2014; Amin et al., 2014; Kim et al., 2013). Poverty affects approximately 40.6 million people in the U.S. or about 12.7% of the total population. In 2016, the poverty rate for children younger than age 18 years was 18% or 13.3 million, representing 32.6% of people in poverty (Semega, Fontenot, & Kollar2017).

Understanding barriers to health and health care among people living with poverty is integral to providing equitable, patient-centered health care to improve health outcomes. Multiple factors in the healthcare system, such as over-stressed health professionals, poor patient provider communication, issues of maltreatment, lack of trust with health providers, and non-adherence to treatment by patients, contribute to health disparities and are further exaggerated among people living in poverty (Gellad, Haas, & Safran, 2007). Therefore, increasing knowledge and training of health care professionals regarding observed challenges in the health care system for those living in poverty is crucial to begin addressing healthcare-based disparities. The Institute of Medicine Report, 'Health Professions Education: A Bridge to Quality', identified improving patient-centered care and interdisciplinary team experience as two of five core competency areas for health providers (Long, 2003). The AACN Essentials of Baccalaureate Education for Professional Nursing Practice also affirms that preparation of the undergraduate nurse should include an advocacy role to reduce health disparities for vulnerable populations (Mailloux, 2011). Clinical simulation is a method of teaching and training that is being increasingly employed in the curricula of health care professions. Utilizing role-play simulated patient encounters has proven successful to increase knowledge and skills and to change healthcare professionals' attitudes through self-reflection (Paroz, et al., 2016). A simulated experience offers self-reflective practices and the development of critical consciousness that includes analyzing and monitoring personal beliefs and instructional behaviors during patient provider communication. Simulation teaching methodology is based on the framework of Transformative Learning Theory, which refers to the process of changing a learner's frame of reference to include points of view outside of their own life experiences (Mezirow, 1997). This transformation occurs when the learner must utilize different ways of thinking to formulate answers (Tobin & Tippins, 1993). This theory states that the goal of education is for the learner to become an autonomous thinker by learning his or her own values, meanings, and purpose. Educational interventions, critical reflec-

tion, and awareness of other frames of reference allow the learner to achieve this transformation.

The Cost of Poverty Experience (COPE) simulation is a 2.5-hour training simulation that was developed by Think Tank Inc. with the goal of showing participants the effects of poverty and how the broader community interacts with individuals living in poverty (2017). COPE simulation is marketed to all types of consumers including religious groups, businesses, and students (Think Tank Inc., 2017). When an organization purchases the COPE simulation, they receive all the materials needed and undergo facilitator training to properly run the simulation in small and large settings. This experience allows participants the chance to be immersed in the daily activities of low-income individuals and families by offering scenarios where daily obstacles, decisions, and consequences impacting families living in poverty are simulated.

The aim of this simulation study was to evaluate changes in knowledge and attitudes regarding people living in poverty among interprofessional health science students.

Methods

Setting and Participants

The COPE simulation was held at the institution's student union auditorium. Faculty from the interprofessional education (IPE) course received four weeks training to conduct the simulation. Faculty and graduate students from various health science majors participated as volunteers and facilitators for the event. Students enrolled in interprofessional education at the institution during the spring-term of 2018 were eligible for participation. The participating students were from the following health disciplines: medicine, nursing, pharmacy, physical therapy, occupational therapy, respiratory therapy, physician assistant, and speech-language pathology. Participation in the simulation experience fulfilled IPE course requirements, which states all students must attend three IPE events of their choosing during the spring semester. This COPE simulation was one of several options to fulfill the event requirement. Students were welcome to participate in the simulation without completing the surveys if they did not wish to participate in the study. The Institutional Review Board of the research institution approved this study.

During the COPE simulation, interprofessional student teams were created that were assigned roles of diverse real-life families. They were given limited amounts of resources to survive in a simulated community and experienced challenges such as unemployment, childcare concerns, access to healthy food, and incarceration. Community resource areas such as, pawnshops, grocery stores, courthouses, and gas stations were set up for participants to visit in the same manner that they would in real life to meet their daily needs. The simulation consisted of experiences in sequence of four time periods, and in each time period families were required to complete assigned tasks of daily living. If the participant forgot their assigned tasks such as, paying rent, utility bills, or buying groceries in the first time period-they received notice of eviction or had utilities turned off in the next time period.

Measures

The survey utilized was originally developed for the "Welcome to the State of Poverty" simulation by the Reform Organization of Welfare (ROWEL) in 1995 and later copyrighted by the Missouri Association for Community Action in 2002 (Chapman & Gibson, 2006). This survey tool has been utilized in the past to evaluate changes in student perceptions from this Welcome to the State of Poverty simulation (Strasser, Smith, Pendrick Denney, Jackson, & Buckmaster., 2013).

The pretest simulation survey included measures on basic demographics: gender, race and ethnicity, enrollment in health science program, and three domains on poverty awareness. *Identifying barriers faced by low-income families living in poverty* domain included questions on lack of transportation, isolation and lack of support from extended family and friends, not having enough time, having difficulty in understanding rules and completing forms, lack of child care, health problems, lack of confidence or self-esteem, lack of affordable housing, poor people are taken advantage of, lack of jobs, and lure of illegal activities. Response ranged from not a barrier, small barrier, somewhat large barrier, to significant barrier. This 11-item scale was coded as a continuous variable with scores ranging from 11 to 44 and had internal consistency (Cronbach's α) coefficient of .75.

Confidence in ability regarding poverty awareness domain included the following questions - a) I am confident in my ability to understand obstacles faced by families living in poverty; b) I am confident that I can identify key issues that might be contributing to poverty in my community; and c) I am confident about my ability to have a positive impact on poor people in my community. Response ranged from strongly agree, agree, disagree, to strongly disagree. This 3-item scale was coded as a continuous variable with scores ranging from 3 to 12 and had internal consistency (Cronbach's α) coefficient of .83.

Likelihood to engage in behaviors to address poverty domain included the following questions - a) How likely are you to work with community resources to assist people living in poverty; b) How likely are you to view people living in poverty differently in order to better serve their needs; and c) How likely are you to seek out information that can be used to address poverty issues in your community. Response ranged from very likely, likely, unlikely, to very unlikely. This 3-item scale was coded as a continuous variable with scores ranging from 3 to 12 and had internal consistency (Cronbach's α) coefficient of .77.

Post-test simulation survey included the same questions on demographics and three domains of poverty awareness and an additional section on *insight gained* after the simulation by the participants. This section included the following questions – a) be more mindful of those living in poverty when working, studying, and volunteering and in everyday life; b) reflect upon how my work, studies, volunteer life, and everyday experiences currently impact the lives of those living in poverty; c) consider how organizational systems create and maintain policies and procedures that pose further barriers to those living in poverty; and d) explore opportunities to incorporate these new insights and/or knowledge into my work, studies, volunteer work, and everyday life. Response ranged from very likely, likely, unlikely, to very unlikely. This 4-item scale was coded as a continuous variable with scores ranging from 4 to 16 and had internal consistency (Cronbach's α) coefficient of .94.

Analysis

All analyses was conducted using Statistical Package for the Social Sciences (SPSS) v23. The data were manually entered by double data entry to catch any input errors. Descriptive statistics to analyze the demographic characteristics of the study sample responding to pre-test and post-test were conducted. For the analysis of the three domains of poverty awareness (identifying barriers, confidence in one's ability and likelihood to engage in behaviors to address poverty), descriptive statistics were run (mean, SD). Independent samples t-tests were run to measure the difference between pre- and post-test survey on the three domain of poverty awareness. Post-test survey section on insight gained after simulation were also summarized (mean, SD). Use of equal variance was not assumed if both of the following were true: if Levene's Test was significant ($P<0.05$) and the group sizes were unequal.

Results

Table 1 summarizes the demographic characteristics of the sample. A total of 99 students completed the pretest and 96 completed the posttest. Most participants who completed the pretest were female (73.7% pre-test and 72.3% post-test). Additionally, most students enrolled in the simulation were nursing students (44.4% pre-test and 43.6% post-test) and self-identified as Non-Hispanic White (97.9% pre-test and 94.8% post-test). This sample is largely representative of the overall IPE student population at the research institution, however, gender and race demographics for the entire 585-student population in the IPE program are not readily available.

Table 2 shows Independent T-test results regarding changes in poverty awareness consisting of three domains- - identifying barriers to poverty, confidence in one's ability to address poverty, and likelihood to engage in behaviors to address poverty. Confidence in one's ability to address poverty domain that included understanding obstacles, identifying key issues and having impact showed a significant difference between pre-simulation (M=8.63, SD= 1.71) and post-simulation (M=9.31, SD=1.90); and t-test = -2.66, p-value =. 001. However, identifying barriers domain showed no statistically significant difference between pre-test (M=34.85, SD=5.53) and post-test (M=36.198, SD= 7.63); and likelihood to engage in behaviors to address poverty domain also showed no statistically significant difference between pre-test (M=9.24, SD=0.00) and post-test (M=36.198, SD= 0.00).

Characteristics	Pre- Test N (%)	Post- Test N (%)	Total IPE Student Population			
Total participants	99	(100)	96	(100)	585	(100)
Gender						
Male	26	(26.3)	26	(27.7)		
Female	73	(73.7)	68	(72.3)		
Race						
White	84	(84.0)	79	(83.2)		
Black or African American	6	(6.0)	7	(7.4)		
Hispanic	2	(2.1)	2	(2.2)		
Asian	4	(4.0)	4	(4.2)		
Middle Eastern or North African	3	(3.0)	2	(2.1)		
Other	3	(3.0)	3	(3.2)		
Health Science Majors						
Medicine	17	(17.2)	17	(17.7)	179	(30.5)
Nursing	44	(44.4)	41	(42.7)	128	(21.9)
Occupational therapy	3	(3.0)	3	(3.1)	20	(3.4)
Pharmacy	8	(8.1)	9	(9.4)	108	(18.5)
Physical therapy	5	(5.1)	4	(4.2)	25	(4.3)
Physician assistant	5	(5.1)	5	(5.2)	40	(6.8)
Respiratory therapy	6	(6.1)	5	(5.2)	23	(3.9)
Speech language pathology	6	(6.1)	5	(5.2)	51	(8.7)
Others	5	(5.1)	5	(5.2)	11	(1.9)

Table 1. *Demographics of the COPE simulation participants, 2018 IPE program*

	Pre-Test Mean (SD)	Post- Test Mean (SD)	t-test	P-value
Identifying barriers faced by people living in poverty	34.85 (5.53)	36.20 (7.63)	-1.42	0.16
Confidence in ability	8.63 (1.71)	9.31(1.90)	-2.66	0.01
Likelihood to engage in behaviors to address poverty	9.24 (1.43)	9.72 (1.99)	-1.92	0.06

Table 2. *Results of t-test of the poverty awareness domains*

Post-test simulation survey results showed that insight gained to 1) be more mindful of those living in poverty when working, studying, and volunteering in everyday life was 96.5%; 2) reflect upon how their work, studies, volunteer life, and everyday experiences currently impact the lives of those living in poverty was 95.7%; 3) consider how organizational systems create and maintain policies and procedures that pose further barriers to those living in poverty was 92.5%; and 4) explore opportunities to incorporate these new insights and / or knowledge into their work, studies, volunteer work, and everyday life was 93.6%.

Discussion

Students had a prior understanding of poverty issues such as transportation, lack of childcare, unemployment, lack of proper housing, difficulties in getting health care, and lack of social support, and no change was observed in their knowledge post simulation. Similarly, no change was observed in their likelihood to assist people living in poverty with resources and other information post simulation. However, students reported gaining confidence in their ability to understanding obstacles faced by people living in poverty, identifying key issues that contribute to poverty in their community, and in their ability to have a positive impact on poor people in their community.

In addition, post-simulation results revealed that most students aim to be more mindful of people living in poverty when conducting their daily life activities, be reflective of their work and behavior's impact on those living in poverty, will explore opportunities to incorporate knowledge learned regarding poverty to their daily lives, and recognize the impact of organizational systems that create and perpetuate poverty. Being mindful, self-reflective, and understanding the systemic causes of poverty are an important step in building empathy among future healthcare professionals; that hopefully will lead to deeper engagement with people living in poverty in their communities that ultimately addresses the observed widening health disparities.

There are a few limitations of our simulation research study. First, study participants consisted of first-year students from all health science programs, so these results cannot be generalizable to students in their final years of education. Clinical experience and training experienced by senior health science students may facilitate development of skills to address the needs of diverse population groups. Second, self-reported data were collected and this may have led participants to under- and over-report their attitudes regarding poverty.

Conclusion

Simulation experiences are a significant and essential education tool for health science students. Simulations have demonstrated to increase knowledge and skills among health care professionals (Paroz, et al., 2016). Interprofessional experiences like this are valuable in offering the varied disciplines in health care an opportunity to learn and grow together, sharing perspectives of each individual's discipline involved leading to improved patient-centered care (Long, 2003). This COPE experience offers interprofessional healthcare students the opportunity to identify and recognize the varied experiences of people living in diverse poverty situations. This increases their confidence in identifying barriers faced by people living in poverty and supports critical self-reflection that ultimately has the potential to improve their communication and connection to their patients. This has a direct impact on the quality of care and building a trustful relationship with their patients and providing better quality of care. Thus, poverty simulation experience can be a positive impetus for critical self-reflection and civic engagement.

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