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Interprofessional Poverty Simulation Affects Student Attitudes Toward Poverty and Interprofessional Relationships

Barbara Wise
Indiana Wesleyan University, barbara.wise@indwes.edu

Katti Sneed
Indiana Wesleyan University, katti.sneed@indwes.edu

Ruth Eby
Indiana Wesleyan University, ruth.eby@indwes.edu

Rhonda Oldham
Indiana Wesleyan University, rhonda.oldham@indwes.edu

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Abstract

Purpose: Poverty simulations in health professions education involving multiple disciplines have been studied, but the impact of poverty simulations on interprofessional attitudes has been surprisingly neglected. The purpose of this study was to determine the impact of the Cost of Poverty Experience simulation on attitudes toward interprofessional communication, learning, and collaboration, while still positively impacting attitudes toward poverty. Methods: Poverty simulations were held annually at a private midwestern university involving students from multiple disciplines inside and outside healthcare. Debriefing questions related to professional roles and teamwork were used to promote discussions between students from different professions about caring for clients experiencing poverty. Data from the 2017-19 events are detailed in this article. Over the three years, 325 students participated in the study. The University of West England Interprofessional Questionnaire and the Attitudes Toward Poverty Short Form were administered pre-and post-intervention. Results: The University of West England Interprofessional Questionnaire showed a significant (*p*pConclusions: The interprofessional poverty simulation experience positively impacted attitudes toward interprofessional communication and relationships while still significantly improving attitudes toward poverty. This finding adds to the literature by demonstrating that interprofessional poverty simulations can positively impact attitudes toward interprofessional communication and relationships when debriefing questions guide discussions about interprofessional roles and teams in caring for those living in poverty.

Author Bio(s)

Barbara L. Wise, PhD, FNP-BC, is an Associate Professor in the School of Nursing at Indiana Wesleyan University. She is also a licensed Family Nurse Practitioner in the state of Ohio.

Katti J. Sneed, PhD, LCSW, MSW, LCAC, is the Director of Masters in Social Work Program at Indiana Wesleyan University in Marion Indiana. She was a founding faculty member in launching the Poverty Simulation.

Ruth A. Eby, DNP, RNC, is Dean of Doctoral Nursing at Indiana Wesleyan University and participates on the interprofessional task force. In hospital practice, Ruth contributed to interprofessional collaborative practice for patient care and staff education in L&D. Her doctoral work was on interprofessional education for faculty.

Rhonda K. Oldham, DNP, RN, is faculty in the Doctor of Nursing Practice Program at Indiana Wesleyan University in Marion. She is a registered nurse licensed in the states of Kentucky and Illinois.

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Barbara Wise
Katti Sneed
Ruth Eby
Rhonda Oldham

Indiana Wesleyan University

United States

ABSTRACT

Purpose: Poverty simulations in health professions education involving multiple disciplines have been studied, but the impact of poverty simulations on interprofessional attitudes has been surprisingly neglected. The purpose of this study was to determine the impact of the Cost of Poverty Experience simulation on attitudes toward interprofessional communication, learning, and collaboration, while still positively impacting attitudes toward poverty. **Methods:** Poverty simulations were held annually at a private midwestern university involving students from multiple disciplines inside and outside healthcare. Debriefing questions related to professional roles and teamwork were used to promote discussions between students from different professions about caring for clients experiencing poverty. Data from the 2017-19 events are detailed in this article. Over the three years, 325 students participated in the study. The University of West England Interprofessional Questionnaire and the Attitudes Toward Poverty Short Form were administered pre-and post-intervention. **Results:** The University of West England Interprofessional Questionnaire showed a significant (p <.001) improvement in attitudes between the pre-test and post-test, with a small overall effect size (Cohen's d=.25). Two of the four subscales (teamwork/communication and interprofessional relationships) showed a significant improvement. The Attitudes Toward Poverty Short Form also showed significant (p <.001) improvements in attitudes toward poverty between pre-test and post-test with a moderate effect size (Cohen's d=.53). The stigma and structural perspective domains showed significant improvements, although there was no significant change in the personal deficiency domain. **Conclusions:** The interprofessional poverty simulation experience positively impacted attitudes toward interprofessional communication and relationships while still significantly improving attitudes toward poverty. This finding adds to the literature by demonstrating that interprofessional poverty simulations can positively impact attitudes toward interprofessional communication and relationships when debriefing questions guide discussions about interprofessional roles and teams in caring for those living in poverty.

Keywords: poverty simulation, interprofessional education, attitudes toward poverty, cost of poverty experience

INTRODUCTION

An effective team-based approach to care has been shown to improve the ability of healthcare teams to achieve the quadruple aim of healthcare: providing better patient care, improving health for populations, fostering a more efficient and affordable healthcare system, and supporting team well-being.[1] Traditionally, health care professionals have been educated in silos, affording limited opportunities to interact with students of other professions. To attain the skills required for team-based care, students need interprofessional experiences to move beyond professional competency acquisition and to develop interprofessional skills.[2,3] The Institute of Medicine supports interprofessional learning to provide high quality, holistic care, through coordinating the efforts of many different professions.[4] Since 2011, the Interprofessional Education Collaborative (IPEC), an organization supported by a wide variety of healthcare professional organizations including the Association of Schools of Allied Health Professions (ASAHP), has stressed the importance of interprofessional collaborative practice in healthcare. Interprofessional education has demonstrated efficacy in improving student attitudes toward interprofessional collaboration and team-based care.[5] IPEC has developed specific competencies needed for effective interprofessional collaboration in healthcare.[2] The more interprofessional education activities students participate in, the greater the communication and collaboration skill development.[6] Interprofessional practice grows from interprofessional education.[2,3]

Simulation within healthcare provides experiential learning, enabling the development of skills and supporting knowledge retention.[7] Simulation allows participants to fully integrate into a chosen environment and reflect upon the experience. Simulations within healthcare have demonstrated the ability to advance learning and enhance interprofessional competencies.[8,9,10]

Each healthcare profession has content that must be taught; some of that content is the same as that taught by other professions. This shared content is ideal for interprofessional simulation experiences. Social determinants of health is an area of content that all healthcare professions students need to be exposed to.

Poverty, arguably the most important social determinant of health, is a major driver of health inequities and social stratification, leading to differential social classes, income, education, and material resources.[11] Poverty is a complex social issue that cannot be solved by healthcare alone. Only when a wide variety of professionals in many areas of society work together can health inequities be lessened or eliminated.[11] As recognized by the Association of Schools and Programs of Public Health, similar competencies apply to interprofessional teams from all areas of society who collaborate to address social inequities.[12] Students from various professions need to understand poverty, and they need to know how to collaborate to address complex social issues. An interprofessional poverty simulation that could effectively improve attitudes toward interprofessional practice and attitudes toward poverty would be extremely beneficial for health professions education.

Simply experiencing a poverty simulation activity with students from other professions may not be enough to impact attitudes toward interprofessional practice. It is well established in the literature that reflection is a core feature of the learning from simulation.[13,14,15] Reflective thinking is a fundamental part of the simulation experience, allowing participants to enhance learning and improve future performance. Reflection through debriefing gives personal meaning and interpretation to a learning experience. The importance of reflection is supported by Kolb's experiential learning theory that serves as foundational support for simulation-based learning. The stages of Kolb's theory include concrete experience, reflective observation, abstract conceptualization, and active experimentation. Kolb posits that a learning activity is most effective when an experience is followed by reflection to examine ones' beliefs, assumptions, and knowledge.[16] With the last stage of Kolb's model, active experimentation, learners acquire new knowledge to apply to future situations.[6] Published research that investigated the effect of an interprofessional poverty simulation on attitudes toward interprofessional collaboration, or research that described an interprofessional poverty simulation that utilized a reflection activity addressing interprofessional collaboration could not be identified. This study examined the effect of an interprofessional poverty simulation, with debriefing questions that addressed interprofessional learning as well as poverty, on attitudes toward interprofessional collaboration and communication.

RESEARCH QUESTION

How effective is an interprofessional poverty simulation at positively influencing interprofessional awareness and attitudes, while still positively impacting attitudes toward poverty?

METHODS

Procedures

The Cost of Poverty Experience (COPE) is a poverty simulation where participants role-play being part of a family in poverty.[17] The family is presented with various challenges as they complete weekly tasks. The family utilizes resources replicating real-world agencies to cope with those challenges. Children must attend school; younger children must be put in daycare. Parents must go

to work or school; there are bills to pay and appointments to keep. During the simulation, healthcare needs arise, school behavior problems occur, families lose their homes, parents go to jail.

The university first offered an interprofessional poverty simulation for health sciences students in 2014. From 2014 through 2016, the University of West England Interprofessional Questionnaire (discussed below) was administered pre-and post-simulation, with no significant differences noted. In 2017, researchers added questions to the small group debriefing (Appendix 1, questions 4 and 5) designed to elicit reflection and discussion about interprofessional roles in working with clients living in poverty. This article reports on data from 2017 through 2019.

In 2017-19, COPE was offered during the fall semester on the residential campus. To conduct the simulation, the university partnered with Circles of Grant County, a local agency supporting families seeking to leave poverty.[18] Faculty, students who had participated in previous years, and volunteers from Circles of Grant County served as resources and facilitators. After the simulation, students participated in small group debriefings that addressed their learning related to poverty, professional roles in working with families in poverty, and professional teams that could address some of the problems experienced by families in the simulation (see Appendix 1 for debriefing questions). Debriefing groups were structured so that at least two professions, typically three to four, were represented. Following the small group debriefing, a final large group debriefing led by a Circles volunteer focused primarily on learning related to poverty.

Undergraduate and graduate students from all majors were invited to participate via announcements and emails. Faculty in nursing, social work (SW), occupational therapy (OT), pre-service education, and undergraduate ministry programs required students enrolled in specific courses to participate in the simulation. The university Institutional Review Board approved the study with an exemption status for minimal risk. Students were not required to participate in the research to attend the simulation experience. Individual student participation in the research was not divulged to course faculty.

The simulation planning committee included faculty from nursing, SW, OT, education, ministry, Circles of Grant County, and support staff. The planning committee made minor changes to the family scenarios to increase the relevance to specific majors. For example, to better engage education students, two families were tasked with attending a parent-teacher conference at the school resource. To better engage OT students, an older adult fell and fractured a hip in one scenario and was required to report to the clinic weekly for therapy. The clinic's role was expanded beyond the original scenario in several ways to enhance application for nursing students.

Sampling

The sampling frame for the pre-post-test questionnaires included all students who participated in the poverty simulation. Simulation participants registered for the simulation online. The study was explained in an email, with the option to complete the pre-test questionnaires electronically. Simulation participants were asked to arrive 30 minutes before the event to meet their assigned family members and read about their families. If students chose to participate in the research, they were asked to complete pre-questionnaires upon arrival if not previously completed online. At the end of the experience, study participants were asked to complete the post-questionnaires.

There were some changes between 2017 and 2019. Questionnaires were completed on paper or online in 2017 and 2018; in 2019, all participants completed questionnaires electronically. In 2018, more training for table facilitators and an enhanced pre-brief were added. In 2019, sub-prompts were added for facilitators to use if the initial prompts did not elicit discussion (Appendix 1). In 2017 and 2018, only the first three subscales were administered for the UWE IPQ. In 2019, the fourth subscale was administered.

Measurement

Two instruments were administered before and after the simulation experience. The University of West England Interprofessional Questionnaire (UWE IPQ) measured interprofessional attitudes, and the Attitudes Toward Poverty Short Form (ATPSF) measured attitudes toward poverty.

University of West England Interprofessional Questionnaire

The UWE IPQ consists of four attitude subscales, scored on a Likert scale. The subscales assess: 1) respondents' assessment of their communication and teamwork skills (Communication and Teamwork Scale); 2) their attitudes towards IPE (Interprofessional Learning Scale); 3) their perceptions of the quality of interprofessional interaction between other health and social care professionals (Interprofessional Interaction Scale); and 4) their perceptions of the quality of their relationships with colleagues from their own and other professions (Interprofessional Relationships Scale). A lower score on the instrument reflects a more positive attitude towards interprofessional communication, learning, interactions and relationships.[19]

Reliability and validity was established for each scale. The Pearson's correlation coefficient for the first three subscales was found to be 0.78 (p <0.001), 0.86 (p <0.001), and 0.77 (p <0.001) respectively. A Cronbach's alpha of 0.76 (n = 813), 0.84 (n = 836), and 0.82 (n = 825), respectively, demonstrated internal consistency of the scales.[19] Reported separately, the fourth subscale scores were very strongly correlated 0.95 (p <0.001). The Chronbach's alpha of 0.71 (n = 694) established acceptable internal consistency.[20]

Attitudes Toward Poverty Short Form (ATPSF)

The ATPSF consists of 21 questions using a 5-point scale from strongly agree to strongly disagree. It has three domains: personal deficiency, stigma, and structural perspective.[21] Items are summed; some items are reversed. High scores indicate a belief that structural determinants, underlying economic or political structures, are the primary cause of poverty. Low scores indicate a belief that poverty has an individualistic cause. Evaluation of the short form demonstrated evidence of high internal consistency, with a Cronbach alpha ranging from .87 to .89. Convergent validity was established between the ATP and the ATPSF, demonstrating the short form is a feasible alternative to the original ATP scale to measure attitudes toward poverty in university students.[21]

Data Analysis

Data analysis was conducted using SPSS version 24 for Windows (Chicago, Illinois). Adherence to statistical assumptions was validated by testing for independence, normal distribution, and homogeneity of variance. Descriptive statistics for the demographic variables were conducted. Correlation and bivariate data were examined. Pre- to post-test differences on the full instruments and their subscales were analyzed with paired t-tests. Linear regression models examined differences between demographic groups for changes in attitudes pre-post for the poverty and the interprofessional scales. The significance level for all analyses was set at 0.05.

RESULTS

In 2017, there were 102 attendees, with 90 pre-tests and 101 post-tests completed. In 2018, there were 164 attendees, with 143 pre-tests and 147 post-tests. In 2019, there were 211 attendees, with 211 pre-tests and 187 post-tests completed. For the combined years 2017-2019, there were 420 matched pre-and post-tests out of 477 attendees (88% overall participation rate). After combining the datasets and removing participants with missing data (complete case analysis), there were 325 valid respondents.

The number of attendees and eligible participants for analysis increased each year. Invalid participants due to missing data decreased in 2019 because of the electronic surveys. E-survey participants could not move forward in the survey instruments without answering each question. They could stop taking the survey at any point, but they could not skip a question and move on. The increase in numbers of participants reflected better marketing strategies attracting participants from a wider variety of majors.

Table 1. Sample Demographics

	2017 n=63		2018 n=100		2019 n=162		TOTAL N=325	
	n	%	n	%	n	%	N	%
Gender								
Male	5	8	10	10	17	10.5	32	10
Female	58	92	91	90	144	89.5	293	90
Ethnicity								
Caucasian	54	86	86	86	143	88	284	87
African American	0	0	3	3	6	4	6	2
Asian	3	5	4	4	5	3.5	12	4
Hispanic	2	3	4	4	2	1	8	2.5
Other	4	6	2	2	6	4	15	4.5
Academic rank								
Freshman	8	12.5	9	9	30	18.5	47	14.5
Sophomore	20	32	31	31	35	21.5	86	26.5
Junior	8	12.5	13	13	29	18	50	15
Senior	18	28.5	38	38	48	29.5	104	32
Graduate	9	14	9	9	20	12	38	12
Major								
SW	17	27	26	26	32	20	76	23
Nursing	12	19	26	26	43	26.5	81	25
OT	8	13	8	8	19	12	35	11

Education	21	33	15	15	23	14	59	18
Ministry	0	0	8	8	10	6	18	5.5
Other*	5	8	17	17	35	21.5	56	17
Party								
Republican	35	56	51	51	93	57	185	55
Democrat	12	19	19	19	27	17	62	18
Other**	16	25	27	27	42	26	82	24
Income security								
Very insecure	0	0	2	2	0	0	2	.5
Insecure	4	6	1	1	5	3	11	3.5
Somewhat insecure	9	14	10	10	9	5	28	8.5
Somewhat secure	17	27	41	41	48	30	106	32.5
Secure	27	43	33	33	89	55	149	46
Very secure	6	10	12	12	10	6	28	8.5

*Other majors listed by participants included in order of frequency community development (7), pre-art therapy (7), undeclared (7), criminal justice (6), business (6), psychology (4), English (3), biology (3), communications (2), intercultural studies (2), computer science (2), exercise science (2), graphic design (1), chemistry (1), humanities (1), recreation administration (1). **Party choices on the survey were Republican, Democrat, Libertarian (6), Other (66), and None (10).

Comparing the percentages in each demographic category before and after removing participants with missing data (complete case analysis), there were no significant differences, suggesting the data was missing at random. Eighteen participants reported previous participation in a poverty simulation. In a bivariate analysis, there was no correlation between previous participation and pre-post-test differences.

Interprofessional Scale (UWE IPQ) Results

Table 2. Paired Samples t-test for IPQ (subscales 1-3) by year (lower score is more positive)

				95% CI				
Pairs	**Mean**	**SD**	**SE**	**lower**	**upper**	***t***	**df**	***p*-value**
Pooled 17-19 post-pre	-2.187	8.707	.483	-3.138	-1.238	-4.529	324	.000*
2017 post-pre	1.127	10.447	1.316	-1.504	3.758	.856	62	.395
2018 post-pre	-3.100	8.691	.869	-4.824	-1.376	-3.567	99	.001*
2019 post-pre	-2.912	7.667	.602	-4.103	-1.724	-4.838	161	.000*

Post-test score minus pretest score (lower score is more positive) means that a negative score indicates a more positive attitude

Cronbach's alpha for the pooled data was .67 on the pre-test and .82 on the post-test. The pooled difference in scores was significant (p<.001) (Table 2), with a Cohen's d of .25, a small effect size. Table 3 gives the IPQ subscale results. Subscale one, the communication and teamwork scale, showed a significant difference pre to post-test (p<.001), the only subscale that was significant in the pooled data (Cohen's d = .38). Subscales two and three, the interprofessional learning and interprofessional interaction scales, were non-significant. The fourth subscale, interprofessional relationships, was significant with an effect size of .44 but was only administered in 2019 and thus is not part of the pooled pre-post totals in Table 2.

Table 3. Paired Samples t-Test for Pooled UWE IPQ Total and Subscales (N=325) (lower score represents a more positive attitude)

				95% CI				
Pairs	**Mean**	**SD**	**SE**	**upper**	**lower**	***t***	**df**	***p*-value**
Post-pre total	-2.188	8.707	.483	-3.138	-1.238	-4.529	324	.000*
Subscale 1: teamwork and communication	-1.348	3.535	.196	-1.733	-.962	-6.874	324	.000*
Subscale 2: interprofessional learning	-.505	5.189	.288	-1.071	.062	-1.753	324	.081
Subscale 3: interprofessional interactions	.206	5.169	.287	-.358	.770	.719	324	.473
Subscale 4: interprofessional relationships*	-1.679	3.873	.304	-2.279	-1.078	-5.517	161	.000*

*the fourth subscale was only administered in 2019; *n*=162

Table 4. Pre-Post Simulation UWE IPQ Subscale Scores and Interpretation

	Pre-test Mean	**Pre-test SD**	**Interpretation: attitude toward IPE**	**Post-test mean**	**Post-test SD**	**Interpretation: attitude toward IPE**
Subscale 1 (*N*=325)	19.871	3.740	Positive	18.520	4.189	Positive
Subscale 2 (*N*=325)	17.969	17.856	Positive	17.461	8.604	Positive
Subscale 3 (*N*=325)	30.3567	4.452	Neutral	30.553	5.832	Neutral
*Subscale 4 (*N*=162)	17.428	4.673	Positive	15.741	4.606	Positive
TOTAL	70.024	12.085		67.836	14.828	

*subscale 4 was only administered in 2019. Interpretation ranges: Subscale 1, 9-20=positive, 21-25=neutral, 26-36=negative; Subscale 2 & 3: 9-22=positive, 23-31=neutral, 32-45=negative; Subscale 4: 8-20=positive, 21-27=neutral, 28-40=negative

As shown in Table 4, although subscales one and four showed significant differences between pre and post, the interpretation based on cut points as defined by the instrument's authors did not change directions; students had positive attitudes at baseline and more positive attitudes on the post-test.

Poverty Scale (ATPSF-SF) Results

Table 5. Paired Samples t-Test for Poverty Scale (higher score is more positive)

				95% CI				
Pairs	**Mean**	**SD**	**SE**	**lower**	**upper**	***t***	**df**	***p*-value**
Pooled Post-pre 17-19	3.803	7.213	.400	3.016	4.590	9.506	324	.000*
Post-pre 2017	1.429	6.829	.860	-.291	3.148	1.660	62	.102
Post-pre 2018	5.12000	7.01122	.70112	3.72882	6.511	7.303	99	.000*
Post-pre 2019	3.914	7.295	.573	2.782	5.045	6.829	161	.000*

Positive value indicates improvement in attitude from pre-post.

The pooled Cronbach's alpha for the poverty scale was .78 on the pre-test and .82 on the post-test. Pooled results were significant at $p < .001$ (Table 2), with Cohen's d =.53, a moderate effect size.[22] Of the individual years that were significant, 2018 had the largest effect size (Cohen's d = .73), vs. 2019 with a Cohen's d of .54. In a subscale analysis of the pooled data, both stigma and structural perspective were significant in a positive direction ($p<.001$), but personal deficiency was non-significant. An interaction effect was tested between difference scores on the interprofessional and poverty scales but was non-significant.

Demographic Associations

In linear modeling with demographic variables as predictors, gender and majors were collinear (the overwhelming majority of nursing, SW, education, and OT students were female), so gender was not modeled. Rank was collinear with major and, therefore, not modeled. Generally, the majors were assigned to the poverty simulation during a specific year in their program (SW sophomore year, education sophomore or junior year, nursing and ministry senior year, and all OT students are graduate students).

Ethnicity was troublesome because the population was 88% Caucasian. Of the remaining ethnicities, African Americans became less favorable toward poverty pre to post, and Latinos became less positive about interprofessional education pre- to post, which made it inappropriate to combine non-whites into one variable, leaving cell sizes too small to meaningfully analyze. Of the remaining demographic variables, only major was significant in bivariate models for interprofessional attitudes, and was therefore the only predictor in the final model. The omitted variable in major was nursing, as the group with the largest population.

The demographic model accounted for 2.2% of the variance on the interprofessional scale. Modeling the interprofessional scale with the fourth subscale omitted (the one only given in 2019), OT (p=.004), education (p=.044), and other (p=.015) were significantly different from nursing. Nursing had the most significant improvement pre-post (4.5 points), and SW had the second largest (2.7 points).

DISCUSSION

Simulations are intended to generate emotions that provoke changes in attitudes and behaviors.[6] The purpose of this study was to determine the impact of the Cost of Poverty Experience simulation on attitudes toward interprofessional communication, learning, and collaboration, while still positively impacting attitudes toward poverty. The study found a significant impact of the simulation experience on attitudes toward interprofessional education and communication, as well as on attitudes toward poverty.

We found a significant (p<.001) difference pre-post on the UWE IPQ in the positive direction (effect size Cohen's d = .25) on combined subscales 1 through 3; subscale 1 (communication and teamwork skills) accounted for almost the entire difference. Subscale 4 (interprofessional relationships) also showed a significant (p<.001) positive difference (effect size Cohen's d=.44) but was only administered in 2019. Subscale 1 measures teamwork and communication, and subscale 4 reflects attitudes toward interprofessional relationships. It would seem that interacting with one another during the simulation, experiencing a stressful situation together, and discussing it afterward with an emphasis on interprofessional roles and collaboration, did improve the participants' confidence in their ability to communicate with and work with others from different disciplines. Nursing and Social Work majors had the most significant changes in subscales 1 through 3. For subscales 1 through 4 combined (2019 only), Social Work had the largest pre-post differences, followed by Nursing and Education. Although we have not located other quantitative studies in the literature addressing the question of changes in attitudes toward IP as a result of participating in a poverty simulation, there were two qualitative studies where the theme was raised.[23, 24] Those findings merely stated that participants identified the benefits of interprofessional collaboration in addressing issues related to poverty. This study is the first we could identify that found an increased confidence in IP teamwork and communication and relationships after participating in an interprofessional poverty simulation.

On the UWE IPQ, the effect sizes for interprofessional attitudes increased each year of the study. Improvements in the process most likely contributed to or caused the improvement in scores; relevant changes included more training and follow-up probes for small group debriefers. In all three years, the structured debriefing probes began with three questions about the participant's emotional responses to the simulation related to poverty and then two questions related to interprofessional collaboration in working with families in poverty, with a final question asking about application to practice of overall simulation learning. In 2017, participants often reported that the debriefers allowed conversation about emotion related to poverty to continue for most of the allotted time, limiting or eliminating discussion time for the interprofessional questions. In 2018, the debriefing training was increased, and emphasized the importance of getting through all the questions. Additional probes were also added for debriefers to use when participants were not responding to questions. Previous research supports debriefing is a critical part of interprofessional learning in a simulation.[13,14,15] Our results suggest that for an interprofessional poverty simulation, it is not enough just to participate in the simulation with others from different disciplines; the implications for interprofessional practice must be explicitly elicited from participants.

Just as important as more positive attitudes toward interprofessional practice is that the shared content of the poverty simulation lead to more positive attitudes toward those living in poverty. There were significant (p<.001) positive improvements in attitudes toward poverty on the ATP-SF tool from pre- to post-simulation with a moderate effect size (Cohen's d=.54). The stigma and structural domains had significant improvements, but not the personal deficiency domain. Our overall results related to more positive attitudes about poverty are similar to other studies that have reported positive overall attitude changes on the ATP-

SF.[25,26,27,28,29,30,31] Our effect sizes were on the high side among those who reported effect sizes. Adding interprofessional debriefing questions did not appear to detract from the impact of the simulation on attitudes toward those living in poverty.

There was no interaction effect in pre-post differences on the interprofessional scale and the poverty scale. Students who were highly impacted by the intervention in their attitudes about poverty may or may not have experienced a significant improvement in their attitudes toward interprofessional education or practice.

LIMITATIONS

There were several elements of the intervention that were modified over the three years. These included the pre-brief, the debriefer training, and the small group debriefing question guide. Because this likely affected the results, data were given separately for each year in addition to collectively.

The post-test was collected immediately following the experience. This data did not capture additional learning that may have occurred or been reinforced by post-experience reflection assignments or class discussions. It also does not capture whether students applied the learning in their clinical or practica experiences.

Generalizability is limited because the simulation was held at one institution, and the participants lacked ethnic,religious, and gender diversity. At 90% female, the sample is clearly skewed. This is primarily due to female dominance in the health and caring professions in general (76% of US healthcare workers are female[30)] with the four majors with the most participants in our simulation all being female dominated professions: nursing, social work, elementary education, and occupational therapy. In addition, in our specific university there is also a preponderance of female students on the residential campus (65% female, 35% male in 2019), exacerbating the imbalance. This may have influenced the results of the study, in that there may be differences in how males and female respond to experiential interprofessional poverty simulations.

IMPLICATIONS FOR INTERPROFESSIONAL EDUCATION AND RESEARCH

This study found that the simulation experience positively impacted interprofessional attitudes, while further confirming the effects of a poverty simulation on student attitudes toward poverty. We did not identify other studies that have reported this finding. Further studies to validate the findings and specify what conditions are most conducive to promoting interprofessional skills are necessary. This study incorporated debriefing questions that specifically addressed the interprofessional aspect of working with families in poverty. Other studies of interprofessional poverty simulations have not reported incorporating those types of questions in their debriefing discussions. Direct comparison of interprofessional attitudes with and without such debriefing questions would be helpful in providing an evidence basis for planning interprofessional poverty simulations that will positively impact attitudes and skills for interprofessional care of patients living with poverty.

This study used a pre-post test format to examine attitudes toward interprofessional collaboration. A qualitative analysis of what aspects of the experience affected interprofessional attitudes would provide participant insight. An evaluation of changes in interprofessional behaviors in the clinical setting before and after the intervention would provide a better test of interprofessional skills acquisition than measuring attitudes alone. Evaluating the ability of online simulations to affect interprofessional attitudes would be useful; identifying effective ways to promote interprofessional in a poverty simulation for online students would expand the benefit to significantly more educational programs.

Pedagogically, differences based on one evening's activities do not replace an integrated interprofessional curriculum. However, it can be a powerful component of such a curriculum. A poverty simulation is a significant investment of faculty and/or staff time to coordinate. Because many professions work with persons in poverty, including all healthcare professions, a poverty simulation offers shared content for a wide range of university majors. If the shared experience can be leveraged to also expand students' perspectives about interprofessional teams and roles, then the return on investment is multiplied. From both simulation theory and research, debriefing questions are key to learning. Questions that specifically explored the interprofessional implications of caring for patients in poverty seems to have contributed to the interprofessional benefits of the simulation. Faculty planning poverty simulation experiences may want to consider incorporating specific debriefing questions asking how one's own major could positively impact a family in poverty, and what other professions would be helpful to have on the team.

CONCLUSION

This study measured the impact of an interprofessional poverty simulation on interprofessional attitudes. The UWE IPQ questionnaire found positive changes in attitudes on the communication and teamwork subscales, correlating with the Interprofessional Core Competencies of interprofessional communication, and teams and teamwork.[2] Debriefing questions guided application of simulation experiences to interprofessional teams and collaboration. The interprofessional learning did not erode

learning about poverty, with participants demonstrating similar or greater effect sizes on attitudes toward poverty compared to other studies of poverty simulations. This study adds to the literature by demonstrating that interprofessional poverty simulations can impact attitudes toward interprofessional communication and relationships when debriefing questions guide discussions about interprofessional roles and teams in caring for those living in poverty.

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Appendix 1: Small Group Debriefing Questions (final version)

1. How did the simulation make you feel?
   Prompts, if needed:
   - What surprised you?
   - What was your biggest frustration?
   - What was your greatest joy or relief?
   - Where (or how) did you (or didn't you) experience God in this simulation?
   - How did you respond to unmet needs?

2. What insights did you learn about poverty?
   Prompts, if needed:
   - What skills or resources do people in poverty have?
   - What kinds of things make it difficult to leave poverty?

3. What did you learn about barriers to accessing resources for persons in poverty?
   Prompts, if needed:
   - Did your person or family have the mental capacity (i.e. mental disorders or lower functioning mental capacity) to access the resources?
   - How could anxiety/depression be exacerbated by poverty?

4. What resources could your profession offer a family in poverty?
   Prompts, if needed:
   - What does your profession "bring to the table" to help those in poverty?
   - Are there other ways to use your profession's resources than what you saw in this simulation or in your personal experience?
   - What should your profession avoid when providing help for those in poverty?

5. When working with families in poverty, which professions would you consult or work with and why?
   Prompts, if needed:
   - Think of a way someone in your profession could partner with someone in a different profession.

6. How did learning about poverty affect how you will care for people as a professional?
   Prompt, if needed:
   - How will you care for people of poverty differently after participating in this simulation?