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Longitudinal impact of a poverty simulation on healthcare practitioners' attitudes towards poverty

Paula M. Murray^a, Aviril Sepulveda^b, Jennifer Baird^{a,*}

^a Institute for Nursing and Interprofessional Research, Children's Hospital Los Angeles, Los Angeles, USA

^b Division of Rehabilitation Medicine, Children's Hospital Los Angeles, Los Angeles, USA



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ABSTRACT

Background: Many clinicians have limited knowledge about the challenges of living in poverty, leading to stigma and differential treatment in healthcare settings. A poverty simulation event may help clinicians gain empathy and knowledge about the ways that poverty impacts health and well-being.

Purpose: This study evaluated the impact of a poverty simulation and the effect of personal characteristics on clinicians' attitudes towards poverty.

Methods: Using a prospective longitudinal mixed-methods study design, a convenience sampling of clinicians from a freestanding children's hospital was recruited to participate in a poverty simulation event. The 21-item Attitudes Towards Poverty (ATP) tool was administered pre- and post-simulation and at 3 follow-up time points. Multiple linear regression analysis and linear mixed effects models were used to analyze ATP data. Qualitative data were analyzed to identify broad themes.

Results: Mean scores in the ATP domains of stigma and structural perspective increased post-simulation, but only stigma scores demonstrated sustained improvement. Scores in the personal deficiency domain remained unchanged. Being male, White, and having Liberal political views were associated with lower ATP scores in our data. Qualitative data show participants felt the simulation generated feelings of compassion and empathy.

Discussion: Simulation participation improved ATP scores in two domains immediately post-event, suggesting the simulation positively impacted clinicians' attitudes towards poverty. Follow-up data suggest the impact of the simulation may be temporary.

Translation to health education practice: Experiential learning activities, like poverty simulations, help foster awareness and empathy among clinicians but may not have long-term impact. Ongoing education is needed to create a workforce sensitized and equipped to care for families from all backgrounds.

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Introduction

Poverty is a public health crisis in the United States. As many as one in ten people live in poverty with many more struggling to afford necessities of everyday life including food, housing, and health care (Semega et al., 2020). This crisis has been exacerbated due to the COVID-19 pandemic, which initially created high rates of unemployment nationwide and has particularly burdened families with children. In April 2020, in the earliest phase of the pandemic, 21.7% of children had at least one unemployed parent, the highest rate in the over 50-year period for which comparable data is available. Poverty is also unequally distributed, with Black and Hispanic families more likely to live in poverty compared to their White counterparts. Over 16% of Black children had each of their

parents unemployed in August 2020, more than three times the rate of white children (Parolin, 2020).

The relationship between poverty and poor health is well-documented in the literature (Bor et al., 2017; Currie, 2009; Deaton, 2003). Poverty is associated with higher rates of chronic disease, higher rates of acute illness, and lower life expectancy (Chetty et al., 2016; Mercer & Watt, 2007; Sommer et al., 2015). Children also experience numerous health-related consequences of poverty, including higher rates of childhood obesity, elevated blood lead levels, lower neurocognitive function, and higher rates of psychological distress (Chokshi, 2018; Hackman & Farah, 2009; Yoshikawa et al., 2012). Health in childhood has long term effects on health in middle and later life independent of educational attainment and socioeconomic status in adulthood (Bloch et al., 2008; Case et al., 2005; Tao et al., 2021) This link between income and health, in both children and adults, is complex and likely related to numerous factors, including nutrition, housing, literacy, and ability to access healthcare services (Wagstaff, 2002). Despite this complexity,

* Corresponding author.

E-mail address: jebaird@chla.usc.edu (J. Baird).

racism, bias, and discrimination have emerged as important explanatory variables in the relationship between socioeconomic status and health (Fuller-Rowell et al., 2018).

Many experts describe attitudes towards people living in poverty and attributions for poverty as being internal or external. External views of poverty attribute being poor to societal barriers including lack of opportunities and discrimination. Internal views of poverty, in contrast, attribute poverty to personal flaws such as lack of motivation (Schneider & Castillo, 2015). Stigma towards people living in poverty has been found to vary according to demographic characteristics. Religious affiliation, particularly Christian affiliation, has been consistently found to be associated with more internal attributions for poverty (Bergmann & Todd, 2019; Hunt, 2002; Noone et al., 2012). Similar associations have been found with political conservatism (Bobbio et al., 2010; Hunt, 2004; Noone et al., 2012). Noone et al. (2012) found an association between external views of poverty and prior personal experience with living in poverty.

Discrimination is the result of stigma, the social attitudes and stereotypes towards particular groups (Inglis et al., 2019; Rajasuriya et al., 2015). To date, the discrimination experienced by lower income patients in healthcare settings remains relatively understudied in the literature. However, it has been well established that patients living in poverty face barriers to obtaining the same quality of medical care obtained by their wealthier peers. Low-income patients receive less diagnostic and treatment information from their providers and are less likely to be involved in decisions regarding their treatment (Willems et al., 2005). Furthermore, they are more likely to have short consultation times in general practice (Stirling et al., 2001). Due to limited screening for social determinants of health, providers are often unaware of the economic challenges their patients face, which may lead to inappropriate care plans that the patient does not have the time or resources to follow (Bloch et al., 2011; Douglas et al., 2020). Low-income patients may avoid accessing healthcare following interactions with healthcare providers that lack respect and compassion (Allen et al., 2014). When they do seek care, these patients may respond to real or perceived stigma by attempting to conceal their financial status (Reutter et al., 2009). This is especially problematic in pediatric settings where low-income parents report feelings of shame and fears of being perceived as unfit parents by medical providers (Knowles et al., 2018). Finally, providers may feel unprepared to provide low-income patients with appropriate care or be ill-equipped to link them to community resources (Lignon et al., 2014).

Many public health experts have called for widespread education and cultural competency training to increase awareness of poverty-related issues and reduce bias in frontline healthcare providers (Cené et al., 2010; Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, 2003; Smith et al., 2007). Cultural competence refers to the ability to work within the cultural context of the patient and requires a variety of skills including cultural awareness and knowledge (Campinha-Bacote, 2002). Documented approaches for cultural competency training include photovoice training (Hudon et al., 2016; Loignon et al., 2014, 2020), case studies (Doran et al., 2008), community-based activities (Cené et al., 2010), and poverty simulations. Poverty simulations are immersive experiences in which participants role-play life as a member of a low-income family and are designed to improve attitudes toward poverty. These simulations have been tested in samples of undergraduate students and have been shown to be effective in increasing knowledge of the challenges of living in poverty (Nickols & Nielsen, 2011; Steck et al., 2011; Vandsburger et al., 2010; Zosky & Thompson, 2012). Several poverty simulations have been developed to date; Reid and Evanson (2016) provide a comprehensive overview of these tools. One of the most widely used simulations is the Missouri Community Action Network Poverty Simulation (CAPS) (Community Action Poverty Simulation, 2021). The CAPS has been extensively used in nursing students and participation has been linked to a more external view of

poverty (Noone et al., 2012; Northrup et al., 2020; Patterson & Hulton, 2012; Yang et al., 2014). Similar results have been demonstrated in pharmacy and dentistry students (Aspden et al., 2016; Clarke et al., 2016; Lampiris et al., 2017; Sams et al., 2019; C. Smith et al., 2017). To date, no studies have investigated the long-term impact of poverty simulations to determine if the external views of poverty observed immediately following a simulation are sustained over time.

To this end, a poverty simulation was conducted with an interprofessional group of healthcare providers at a free-standing children's hospital on the west coast of the United States. Participants were surveyed to measure attitudes towards individuals living in poverty immediately pre- and post-simulation as well as at one, three, and six months post-simulation.

Purpose

The goals of this study were to (1) assess how personal characteristics influence one's attitudes towards poverty, and (2) evaluate the longitudinal impact of a poverty simulation on healthcare practitioners' attitudes towards poverty.

Methods

Design

This longitudinal, prospective mixed-methods study with an educational intervention assessed the impact of a three-hour poverty simulation immersive experience on change in healthcare provider attitudes towards poverty over a six-month time period following the simulation.

Sample/setting

Hospital staff were invited to participate in the poverty simulation via flyers, verbal announcements, and email invitations. Staff were eligible to participate if they (1) provided healthcare-related services at the hospital or in the community, (2) managed people who provide healthcare-related services, (3) created programs related to healthcare services, or (4) were members of the hospital's five interprofessional Collaborative Governance councils. One of the biannual joint council meetings was used to host the simulation, providing an opportunity for council members to attend as part of their regular work schedules.

This study was approved by the hospital's Institutional Review Board. Participants of the joint council meeting were invited to participate in the simulation and given consent forms indicating that filling out the survey signified their consent to participate in the study. Council members were able to participate in the simulation without a requirement to complete the surveys. Participants were asked to include an eight-digit identifier on each survey consisting of the first four letters of the street they live on and the year of their birth. The identifier was used to anonymously link survey responses over time. Surveys were included in the final analysis if a participant had completed the pre-simulation survey and at least one post-simulation survey.

Intervention

The simulation was conducted using the Missouri Community Action Poverty Simulation (CAPS), a live-action simulation in which participants role-play four weeks in the life of someone living in poverty (Community Action Poverty Simulation, 2021). The simulation was facilitated by one of the authors (AS) and another colleague, both of whom had previously received training as facilitators. They were supported by staff volunteers, including members of the clinical leadership team and the hospital's research institute. Upon arrival, participants were assigned a role as a member of a low-income family. Families were of varying size and had different situational challenges – some were unhoused, some had insufficient funds to pay for monthly bills,

and others had small children in need of supervision. Each family with current housing was assigned a “home” represented by a group of chairs in the middle of the room, and those who were unhoused were directed to the “homeless shelter” in one corner of the room. Large tables around the edge of the room represented essential community resources, including a bank, grocery store, school, and employer; these resource tables were attended by the staff volunteers. The simulation event lasted 60 min, with each week of the simulated month lasting 15 min: 12 min for the work week, and 3 min for the weekend. Following the simulation, the investigators facilitated a one hour debrief in which participants were invited to discuss their experiences and how the simulation affected their perspectives on poverty.

Measurement

A demographics questionnaire was completed at the pre-simulation time point. Participants were asked to report their age, gender, annual gross household income, race, ethnicity, religious affiliation, political affiliation, financial security, and prior experience with poverty in one's lifetime. Table 1 contains the levels of all categorical demographic variables.

Table 1
Participant characteristics.

Characteristic	Mean ± SD / N (%)
Age (years)	36.5 ± 9.7
Gender	
Female	99 (86.1)
Male	8 (7.0)
Did not identify	8 (7.0)
Annual household income	
\$15,000–\$49,999	4 (3.5)
\$50,000–\$99,999	27 (23.5)
\$100,000–\$149,999	41 (35.7)
>\$150,000	37 (32.2)
Did not identify	6 (5.2)
Race	
White	62 (53.9)
Black	5 (4.3)
American Indian/Alaskan Native	0 (0.0)
Asian	25 (21.7)
Hawaiian Native/Pacific Islander	3 (2.6)
Other	18 (15.7)
Did not identify	2 (1.7)
Ethnicity	
Hispanic/Latino	26 (22.6)
Not Hispanic/Latino	75 (65.2)
Did not identify	14 (12.2)
Religion	
Christian (Not Catholic or Orthodox)	36 (31.3)
Roman Catholicism	37 (32.2)
Islam	1 (0.9)
Judaism	4 (3.5)
Orthodox	0 (0.0)
Buddhism	5 (4.3)
Hinduism	0 (0.0)
Mormon	0 (0.0)
Other	2 (1.7)
Do not identify with a religious group	27 (1.7)
Did not identify	3 (2.6)
Political affiliation	
Republican	13 (11.3)
Democrat	67 (58.3)
Independent	20 (17.4)
Other	11 (9.6)
Financial security	
Very Secure	12 (10.4)
Secure	69 (60.0)
Somewhat Secure	26 (22.6)
Somewhat Insecure	7 (6.1)
Insecure	1 (0.9)
Very Insecure	0 (0.0)
Has experience poverty during lifetime	
Yes	49 (42.6)
No	66 (57.4)

The short-form of the Attitude Towards Poverty (ATP) Scale was used to assess participants' poverty-related attitudes (Yun & Weaver, 2010). This scale has been used by several authors to study the effectiveness of poverty simulations (Clarke et al., 2016; Noone et al., 2012; Patterson & Hulton, 2012; Yang et al., 2014). The ATP short form is a 21-item survey that asks users to rate their agreement with statements on a five-point Likert scale. Yun and Weaver (2010) identified three domains underlying respondents' attitudes towards explanations for poverty: 1) personal deficiency, 2) stigma, 3) structural perspective. The *personal deficiency* domain reflects an internal view of poverty that attributes poverty to personal failings (e.g., laziness, lack of intelligence). The *structural* domain, in contrast, corresponds to an external view in which poverty results from societal failings including lack of opportunities and lack of supportive social programs. These personal/individualistic and structural explanations of poverty have been identified in previous research (Cozzarelli et al., 2001; Feagin, 1972, 1975). Yun and Weaver describe the *stigma* domain as a discriminatory explanation of poverty. Domain-specific scores are calculated by taking the mean score over corresponding items while a total score is generated by taking the average score over all 21 items. Possible scores range from one to five where lower scores indicate a less favorable and more individualistic view of poverty and higher scores indicate a more favorable and more structural view of poverty. Yun and Weaver reported that the ATP short form has a high level of internal consistency reliability ($\alpha = 0.87$) and convergent validity (correlation of $r = 0.83$ with the original 37-item ATP developed by Atherton et al. (1993)).

The ATP scale was administered at five time points: immediately pre- and post-simulation and one, three, and six months post-simulation. The surveys conducted immediately before and after the poverty simulation were completed in-person while the one, three, and six-month follow-up surveys were emailed to participants to complete electronically using Qualtrics (Qualtrics, 2020). The first post-simulation survey contained three open-ended questions (*How did the poverty simulation change how you view people living in poverty?; How helpful is the poverty simulation as a tool for teaching healthcare professionals about the experiences of people living in poverty?; How will you look at your patients differently after this simulation?*). The one-month follow-up survey had two open-ended questions (*Describe one thing about the poverty simulation that has stuck with you in the past month; Have you had an opportunity to apply what you learned in the poverty simulation? If so, how?*)

Data analysis

Means and standard deviations were calculated to summarize continuous participant demographic data as well as ATP scores at each time point. For categorical demographic variables, frequency and percentage of each category was reported. Multiple linear regression analysis was used to study the association between total ATP score at baseline and participant characteristics. Variance inflation factors (VIFs) were calculated to test for multicollinearity between the predictor variables (i.e., two or more predictor variables that are linearly related). VIFs are measures of the amount of multicollinearity in a regression analysis and values greater than five may be considered indicative of collinearity (James et al., 2013). Linear mixed effects models were used to test for a significant change in ATP score at all post-simulation time points relative to pre-simulation scores after adjusting for personal characteristics. In order to test for a response bias due to participant attrition over time, *t*-tests were performed to compare responses on the post-simulation survey between the participants who did and did not complete each follow-up survey. All analyses were conducted using R software (R Core Team, 2021).

Responses to the open-ended survey questions were reviewed and coded by all three authors. After an initial round of independent coding, the authors met to compare and discuss codes; similar codes were condensed into the broad themes discussed in the text below.

Results

Demographic data

One hundred and fifteen simulation participants met the criteria for inclusion in the final analysis though participation decreased over the observation period (post-simulation: $N = 106$, one month: $N = 51$, three months: $N = 36$, six months: $N = 36$). Characteristics of the participants are summarized in Table 1. Participants primarily identified as female (86%), White (54%), Democrat (58%), non-Hispanic or Latino (88%), Christian or Catholic (64%), and reported having an annual household income of at least \$100,000 USD (73%). Most participants reported feeling financially secure (70.4%) and having not experienced poverty in their lifetime (57%).

Multiple linear regression analysis was performed to test for an association between the personal characteristics of simulation participants and pre-simulation ATP scores. To test for multicollinearity between the predictor variables, a multiple linear regression model was fitted to the pre-simulation survey data and the variance inflation factor (VIF) was calculated for each predictor variable. All VIFs were less than or equal to 2.24 suggesting no multicollinearity was present and, as such, all predictors were included in the final model. The results (Table 2) show that being female, non-White, and Republican was significantly associated with less favorable attitudes towards poverty.

Attitudes towards poverty scale

The mean and standard deviation (SD) of the ATP domain scores at each time point are reported in Table 3. Linear mixed effects modelling was performed to test for an effect of the poverty simulation on these scores over time (Table 4). The results show that mean scores in the ATP domains of stigma and structural perspective increased post-simulation, but only stigma scores demonstrated sustained improvement ($\beta = 0.25\text{--}0.36$, $p < 0.001$). Scores in the personal deficiency domain remained unchanged. Note that the analyses were adjusted for age, gender, experience of poverty, annual household income, race, ethnicity, religious affiliation, political affiliation, and financial security.

To test for a possible response bias at the one, three, and six-month follow-up time points, we compared scores on the post-simulation survey between the groups of participants who did and did not complete each follow-up survey. A significant difference would indicate that respondents who completed the one, three, or six-month follow-up survey may have more- or less-favorable attitudes towards poverty following the simulation relative to those participants who failed to complete the survey. However, no statistically significant differences were detected (1 month: $\Delta x = 0.01$, 95% CI: $(-0.11, 0.32)$, $t(84) =$

Table 3
ATP domain scores.

	Mean \pm SD		
	Personal	Stigma	Structural
Pre-simulation ($N = 115$)	4.20 \pm 0.63	3.58 \pm 0.80	3.91 \pm 0.62
Post-simulation ($N = 106$)	4.16 \pm 0.65	3.87 \pm 0.74	4.11 \pm 0.59
1 Month ($N = 51$)	4.13 \pm 0.61	4.01 \pm 0.76	4.20 \pm 0.60
3 Months ($N = 36$)	4.05 \pm 0.61	4.06 \pm 0.78	4.04 \pm 0.86
6 Months ($N = 36$)	4.01 \pm 0.59	3.83 \pm 0.77	4.11 \pm 0.53

0.94, $p = 0.35$; 3 months: $\Delta x = 0.20$, 95% CI: $(-0.03, 0.42)$, $t(60) = 1.72$, $p = 0.09$; 6 months: $\Delta x = 0.06$, 95% CI: $(-0.29, 0.16)$, $t(62) = -0.57$, $p = 0.57$).

Qualitative data

Qualitative data collected immediately following the simulation overwhelmingly showed that participants found the simulation helpful and felt it increased their compassion, empathy, and understanding and decreased their judgment towards their low-income patients. Many participants described the simulation as “eye-opening” and reported that they experienced feelings of frustration and stress when role-playing life as a member of a low-income family. One participant (age 25–30, White, very secure financially, no prior poverty experience) wrote:

“The system is totally stacked against those who live in poverty. This simulation made me realize how fortunate I am just to have a phone with maps and a checking account with automatic deposit. It’s so difficult just to live everyday life. I played a one year old and what really hit me was my mom needed a job but couldn’t afford daycare. Without social support I don’t know how people survive.”

Another participant (age 25–30, White, very secure financially, no prior poverty experience) described the challenges of having a hospitalized child for a low-income parent:

“I am feeling a little guilty about all of our visitation restrictions because having been through this simulation I don’t know how some of our families manage it. I also feel like I should be less judgmental about some of our parent’s lack of engagement and interest - how can they spare the time and emotion to be engaged as a parent?”

At the one-month follow-up time point, many participants reported that what stuck with them the most about the simulation was the difficulty and frustration of day-to-day life during the role play and the obstacles they had to overcome, including access to transportation and childcare. When asked how the poverty simulation had impacted their patient care, common responses included that the simulation had made them less judgmental of parents who are not at the hospital with their children or who miss or are late to appointments. Several participants reported that they had been motivated to seek out resources to help low-income patients and their families. Some, including the participant (age 30–35, White, secure financially, prior poverty experience) quoted below, also noted that they had talked to their co-workers about their experience with the poverty simulation to increase their awareness of the challenges of living in poverty:

“I have always tried to explain to others how people that may not be as high as them on the socio-economic ladder may not have the same things on their priority list as they do, and that we need to take this into consideration when we wonder why [parents] do not visit, or why they do not call to check on their child as frequently as we think they should. I now try to encourage others to spread this idea so that more healthcare providers can be aware of other people’s situations.”

Table 2
Results of the multiple linear regression analysis with pre-simulation ATP scores as the dependent variable.

Participant characteristic	$\hat{\beta}$	SE ($\hat{\beta}$)	p-Value
Age (years)	0.01	0.01	0.051
Gender			
Female vs. Male	-0.59	0.26	0.025
Income			
\$100,000–\$150,000 vs. <\$100,000	-0.19	0.16	0.805
>\$150,000 vs. <\$100,000	-0.02	0.18	0.918
Race			
Non-White vs. White	-0.24	0.12	0.040
Ethnicity			
Not Hispanic/Latino vs. Hispanic/Latino	0.08	0.14	0.553
Religion			
Identifies with a religious group vs. does not identify	-0.25	0.13	0.128
Politics			
Republican vs. Democrat	-0.50	0.20	0.001
Independent vs. Democrat	-0.23	0.13	0.023
Has experienced poverty vs. has not	-0.15	0.13	0.272
Financial security			
Secure/Very Security vs. Somewhat secure/Somewhat insecure/Insecure	0.01	0.14	0.952

Table 4
Results of the linear mixed effects models with ATP domain scores as the dependent variable and survey time point as the independent variable.

	Personal			Stigma			Structural		
	$\hat{\beta}$	SE($\hat{\beta}$)	p-Value	$\hat{\beta}$	SE($\hat{\beta}$)	p-Value	$\hat{\beta}$	SE($\hat{\beta}$)	p-Value
Pre-simulation	Reference								
Post-simulation	−0.05	0.04	0.229	0.28	0.05	<0.001	0.20	0.05	<0.001
1 Month	−0.07	0.06	0.237	0.33	0.06	<0.001	0.23	0.06	<0.001
3 Months	−0.19	0.07	0.006	0.36	0.07	<0.001	0.06	0.07	0.445
6 Months	−0.09	0.07	0.175	0.25	0.07	<0.001	0.18	0.07	0.014

Discussion

The purpose of this study was to evaluate the longitudinal impact of a poverty simulation on healthcare practitioners' attitudes towards poverty and assess how those attitudes are influenced by personal characteristics. Data collected prior to the simulation showed that being male, White, and having liberal political views were associated with more favorable attitudes towards poverty. Our longitudinal analysis showed that the stigma and structural ATP scores improved immediately post-simulation, but only the stigma domain demonstrated sustained improvement over time. Qualitative data collected following the simulation showed that participants felt the event increased their awareness of the challenges of living in poverty and improved their empathy and understanding of their low-income patients.

The immediate improvement in attitudes towards poverty following poverty simulations has been previously observed in cross-sectional studies (e.g., Clarke et al., 2016; Nickols & Nielsen, 2011; Patterson & Hulton, 2012; Yang et al., 2014). Similarly, the improvements we observed in the stigma and structural ATP domain scores immediately following the poverty simulation are consistent with the existing literature. Clarke et al. (2016) also found significant improvements in the stigma and structural ATP scores following a one-time simulation event and Patterson and Hulton (2012) showed an increase in the stigma domain. However, in our data, statistically significant improvements in the structural domain scores were not observed at the three-month follow up time point, indicating these improvements were not sustained. Similarly, though there were statistically significant improvements in the stigma domain scores across all follow-up time points, the magnitude of the improvement was smallest at the 6-month time point. No significant changes were observed in the personal deficiency domain scores. These results suggest that a one-time poverty simulation is not enough to sustain long-lasting improvements in attitudes towards poverty and that ongoing education is needed. It is notable that this study is, to our knowledge, the first longitudinal evaluation of a poverty simulation on attitudes towards poverty and one of the first evaluations in a group of multi-disciplinary, practicing pediatric health care professionals.

In our sample, male gender, White race, and having liberal political views were associated with more favorable attitudes towards poverty prior to the simulation. The association between political affiliation and beliefs about poverty has been previously documented (e.g., Bobbio et al., 2010). Hunt (2004) also described an association between race/ethnicity and beliefs about poverty, although their data shows that racial ethnic/minorities simultaneously report more structural/external and more individualistic/internal beliefs about poverty. Interestingly, in our data, participants who reported prior experience with poverty reported lower ATP scores on average although these results were not statistically significant. We did not find an association between ATP scores and age, income, ethnicity, religious affiliation, financial security, and previous experience with poverty which may suggest that cultural competency training is beneficial for healthcare professionals of all backgrounds.

It is notable that this work represents one of the first times that a poverty simulation has been conducted and evaluated as a means of affecting attitudes towards poverty in a group of practicing clinicians

rather than students. This work suggests that poverty simulations are effective, at least temporarily, in improving ATP scores in clinicians with “real world” exposure to patients and families who live below the poverty line.

Future steps

In other health-related fields, repeated education (e.g., repeated simulation training) has been utilized to maximize long-term benefits (Abe et al., 2013; Maenhout et al., 2021). Similarly, our research suggests that ongoing education is required to maintain an environment of awareness, compassion, and empathy amongst clinicians for the challenges faced by children and families who live in poverty. Future research will focus on understanding how frequently education should be conducted to see sustained improvement in ATP scores. Furthermore, it would be valuable to study if and how changes in perceptions of poverty lead to changes in clinician behavior and directly impact patient care.

Translation to health education practice

It has been consistently demonstrated in the literature that poverty simulations are an effective educational tool for building empathy, creating an awareness of structural barriers to wealth, and breaking down preconceived notions about poverty (Kelty et al., 2020). This was further supported by our study which found a poverty simulation to be well-received by a group of interprofessional pediatric health care professionals and led to initial improvements in ATP scores. Simulations have been shown to be an effective method for long-term knowledge retention in education literature (Levin-Banchik, 2018; Wunische, 2019). However, given the complexity of the context in which clinicians provide care to patients and families experiencing poverty, it may be unreasonable to expect that a one-time simulation event would have a long-lasting impact on one's attitudes towards poverty. Health care providers are exposed to broader societal messages around poverty that inform how they think about the patients and families receiving care from their institution, and these beliefs may be reinforced by organizational practices that subtly differentiate patients by socioeconomic status (e.g. access to appointments based on insurance status, gatekeeping of meal/parking vouchers by social workers or charge nurses). Health care organizations have also been slow to embrace assessment of socioeconomic status and other social determinants as a responsibility, creating limited opportunities for health care providers to respond to the social needs of patients and families living in or near poverty. In the current healthcare climate, compassion fatigue may also impact providers' interest in or perceived ability to address these social needs. This study underscores the need for ongoing cultural competency training to reduce poverty stigma and maintain a culture of compassion for low-income patients in healthcare settings.

Limitations

There were several limitations associated with this research. First, due to the longitudinal nature of our study, we experienced participant attrition over the observation period. Our analyses do not suggest a

response bias based on post-simulation ATP scores. However, there may be some response bias based on attitudes towards poverty in the months following the simulation and/or opinions of the simulation itself. Another possible limitation of this study is the social-desirability bias that may be present due to the self-reported nature of the data and the workplace setting of our study. By using anonymous participant identifiers, we aimed to reduce such bias. However, participants' true attitudes towards poverty may be lower than is reflected in the ATP scores.

Additionally, anecdotal feedback from simulation participants suggested that there may have been some confusion regarding the interpretation of items within the Personal Deficiency domain of the ATP. For example, regarding the item "Poor people are different than the rest of society", some participants communicated that they were unsure whether the item was referring to inherent personal differences or differences in barriers and opportunities. Accordingly, there may be limitations in our ability to interpret the Personal Deficiency domain scores. Although the ATP has been widely used to measure the impact of poverty simulations, this feedback may suggest the need for refinement of the tool.

Finally, it is notable that all participants in this study were members of the hospital's Collaborative Governance Councils. These are self-nominated positions that require work beyond normal clinical duties, and the members of the councils are typically motivated and display high levels of engagement with organizational initiatives. As such, they may not be fully representative of all healthcare practitioners.

Conclusion

Provider stigma and discrimination remain barriers to receiving quality healthcare for low-income patients. Education focusing on the lived experience of poverty is vital in order to promote empathy and compassion in healthcare professionals of all backgrounds. Poverty simulations, a method of cultural competency training, are effective, at least temporarily, in reducing stigma and increasing awareness of the external causes of poverty. However, ongoing cultural competency training is necessary to reduce disparities in health outcomes between patients living in poverty and their wealthier peers.

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Declaration of Competing Interest

The authors declare that there are no known conflicts of interest associated with this publication.

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