

How Can Clinical Communication Alleviate the Negative Impacts of Social Determinants of Health?: A Secondary HINTS 6 Dataset Analysis

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Abstract

Structural disparities (eg, food insecurities, housing, and lack of transportation) at different social levels (eg, personal, family, and community) are strong determinants of health, influencing individuals' and population well-being worldwide. Research is scarce examining how clinical communication can mitigate the negative impact of social disparities obstructing the reception of quality healthcare. In this study, we explore the mediation role of patient-centered communication (PCC) between social determinants of health (SDH) and quality of care. Using a sample of 5437 adult who visited a healthcare provider in the past 12 months from the sixth Health Information National Trends Survey (HINTS 6), our key points of findings included that the models showed PCC partially mediating the connections from (a) "skipped meals" (effect = $-.08$, 95%CI = $[-.12, -.04]$), (b) "unaffordable meals" (effect = $-.08$, 95%CI = $[-.11, -.05]$), (c) "fear of eviction" (effect = $-.1$, 95%CI = $[-.14, -.06]$), and (d) "lack of transportation" (effect = $-.12$, 95%CI = $[-.16, -.08]$) to quality of care (QoC). Specifically, better communication had a positive impact on mediating the disparities; poor communication did not. Demonstrating in a nationally representative sample, our findings indicate the key role of patient-centered clinical communication in effectively alleviating the inherent challenges faced by people with low health literacy and socioeconomic status. Theoretical and practical implications are discussed.

Keywords

social determinants of health, patient-centered communication, quality of care, HINTS

Introduction

Structural determinants (eg, food insecurities, lack of transportation) at different social levels (eg, personal, family, and community) are strong predictors of health disparities, harming individuals' and population well-being worldwide.¹ Policymakers have proposed using clinical interventions, such as better allocating clinical resources, as an effective response to alleviate social barriers of health.² The literature also shows the therapeutic effects of patient-centered communication (PCC) in predicting health outcomes, suggesting its potential to alleviate the impact of health disparities.³ Specifically, better PCC can facilitate improved health outcomes, which is cost-effective.⁴ While research establishing clear links among social determinants of health (SDH), PCC, and health outcomes is scarce, our study explores such relationships using a nationally representative dataset.

PCC and the Ecological Model

PCC is critically predictive of health outcomes. PCC centers on six communication processes: fostering healing relationships, exchanging information, responding to emotions, managing uncertainty, decision-making, and enabling patient self-management.⁵ PCC contributes positively towards quality of healthcare encounters, intermediate outcomes

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like adherence, and ultimately, health outcomes like improved well-being or functioning.⁵ The ecological model of communication in medical interactions (“the ecological model” thereafter) suggests that clinical environments interact with other social environments to produce health outcomes.³ While indicators of social disparities such as living conditions, level of health system responsiveness,⁶ and education,⁷ may influence the quality of patient-centered care received, research is scarce examining how clinical communication can mitigate the negative impact of social disparities obstructing the reception of quality healthcare.

Empirical research shows that PCC can address SDH in the clinical environment.⁸ Specifically, improved PCC may lead to more patient trust, improving care coordination, perceptions of quality health care and ultimately health outcomes.⁹ It can also improve cost-effective use of health services,⁵ including online health services⁷ and mental health services.¹⁰ Using quantitative data from nationally representative health surveys, previous studies examined ratings of PCC among special populations, including parents^{11,12} and non-pregnant women of reproductive age with diabetes.¹³ Other studies investigated how PCC is related to cancer screening behaviors among adults.¹⁴ While these studies shed light on patients’ perceptions of PCC, they fail to address how clinical conversations may alleviate the negative effects of SDH on quality of care. Another study showed that satisfactory outcomes of PCC were related to patients’ future use of telemedicine, improving the access to care for patients impacted by SDH (such as low educational background).⁷ While research suggests forgone care (the needed but not received care)¹⁵ is usually a result of social disparities, other research suggests that shared decision-making (a key component of PCC) predicts lower likelihood of forgone pediatric care during COVID-19. Given the principles of the ecological model³ and the aforementioned research, SDH may negatively impact PCC and quality of care, and PCC may be associated with improved care quality for patients that experience SDH. Hence, we hypothesized:

H1: PCC mediates the relationship between SDH and patient perceptions of high-quality healthcare.

Method

Study Design and Data Sources

We used the nationally representative Health Information National Trends Survey (HINTS) data collected between March 7, 2022, and November 8, 2022.¹⁶ The HINTS 6 general population survey was designated “exempt research” under 45 CFR 46.104 and approved by the Westat IRB on May 10, 2021 (Project # 6632.03.51), with a subsequent amendment approved on November 24, 2021 (Amendment ID #3597). HINTS 6 also received a “Not Human Subjects Research” determination from the NIH Office of IRB Operations on August 16, 2021 (iRIS reference number: 562715). HINTS examines how Americans access, use, and perceive health-related information, knowledge, and behavior,

allowing us to assess how the constructs of interest are related in a representative sample. Our final sample consists of 5437 adult respondents who visited a healthcare provider (including doctors, nurses, or other health professionals) in the past 12 months prior to completing the survey. All items were defined and validated by HINTS; items identified below are based on the cited instrument listed on the HINTS website. Measurements are indicated in Appendix I with scale reliabilities. Items included SDH, PCC, and quality of care (QoC).

Variables

SDH was examined using four items asking about experiences over the past 12 months on items including, “Someone in your household cut the size of meals or skipped meals because there wasn’t enough money for food,” “Someone in your household was not able to afford to eat balanced meals,” “Someone in your household was worried about being forced to move (eg, because of eviction or foreclosure),” and “Lack of reliable transportation kept someone in your household from medical appointments, work, or from getting things needed for daily living.” Each item was measured on a 3-point scale (1 = never true, 3 = often true). Items were averaged to create a composite ($\alpha = .96$).

PCC was examined using seven items which asked about the communication with all health providers over the past twelve months. The items included how often the providers did each of the following: (1) gave the chance to ask all health-related questions, (2) gave attention needed to feelings and emotions, (3) involved the patient in decisions as much as wanted, (4) made sure the next steps of health care were understood, (5) explained things clearly, (6) spent enough time, and (7) helped deal with feelings of uncertainty. All items were measured on a 4-point scale (1 = never, 4 = always). Items were averaged to create a composite ($\alpha = .97$).

The outcome variable, *QoC*, was measured by one item, “Overall, how would you rate the quality of health care you received in the past 12 months?”

Covariates included age (numeral), sex (male/female), education (Less than High School/High School Graduate/Some College/Bachelor’s Degree/Post-Baccalaureate Degree), and self-efficacy. Self-efficacy was measured by one item, “Overall, how confident are you about your ability to take good care of your health?” Answers were measured on a 5-point scale (1 = not confident at all, 5 = very confident).

Data Analysis

Our analysis is based on the framework of the ecological model.³ Using the PROCESS macro model 4¹⁷ in SPSS v 29.0 with 5000 bootstrap resamples, we conducted mediation analysis to test if PCC is a significant mediator between SDH and QoC. We also probed for further mediation results by individual SDH variables (skipped meals/unaffordable meals/fear of eviction/lack of transportation) for sensitivity tests. Missing data was treated as missing.

Results

Selected Characteristics

Over half (58.6%) of the participants were born female ($n = 3185$). The sample's mean age was 56.1 ($SD = 17.3$) years. Nearly half (45.2%, $n = 2459$) of the participants had college degrees and above. Self-efficacy was somewhat high ($M = 3.92$, $SD = .88$). QoC was moderately high ($M = 3.87$, $SD = .96$).

Bivariate Analysis

Bivariate analysis showed that higher quality of care was correlated with older age ($r = .12$, $P < .01$), higher education ($r = .1$, $P < .01$), stronger self-efficacy ($r = .32$, $P < .01$), less SDH ($r = -.21$, $P < .01$), fewer skipped meals ($r = -.16$, $P < .01$), fewer unaffordable meals ($r = -.18$, $P < .01$), less fear of eviction ($r = -.17$, $P < .01$), more access to transportation ($r = -.18$, $P < .01$), and better PCC ($r = .57$, $P < .01$; see Supplemental Materials).

Regression Analysis

Regressions models showed that overall SDH predicted PCC ($\beta = -.21$, $P < .01$) and QoC ($\beta = -.16$, $P < .001$), explaining some variance ($R^2 = .11$; $R^2 = .37$). Probing models showed skipping meals predicted PCC ($\beta = -.11$, $P < .01$) and QoC ($\beta = -.10$, $P < .01$); affording meals predicted PCC ($\beta = -.11$, $P < .01$) and QoC ($\beta = -.10$, $P < .01$); fear of eviction predicted PCC ($\beta = -.14$, $P < .01$) and QoC ($\beta = -.12$, $P < .01$); lack of transportation predicted PCC ($\beta = -.16$, $P < .01$) and QoC ($\beta = -.09$, $P < .001$).

Mediation Analysis

Mediation analysis suggested that PCC partially mediated the relationship between SDH and QoC (H1; effect = .15, 95%CI = [0.2, -.1]). Sensitivity tests showed PCC partially mediated the connections from "skipped meals" (effect = -.08, 95%CI = [-.12, -.04]), "unaffordable meals" (effect = -.08, 95%CI = [-.11, -.05]), "fear of eviction" (effect = -.1, 95%CI = [-.14, -.06]), and "lack of transportation" (effect = -.12, 95%CI = [-.16, -.08]) to QoC. See Tables 1 and 2 for regression and mediation results.

Discussion

The purpose of this study was to evaluate how PCC may mediate SDH and QoC, as informed by Street's³ ecological model of communication in medical interactions. The mediation effect of PCC between (both individual and general) SDH and QoC alleviated the negative effect of SDH on QoC. Demonstrating in a nationally representative sample, this finding shows how clinical communication may be considered in conjunction with SDH in efforts to improve quality health care for all. Specifically, SDH may be a significant barrier to receiving quality health care and achieving equitable health.¹ For instance, one's living and working conditions (eg, housing, food

security), as well as interactions with areas like health literacy, language proficiency, and cultural and sexual identities, have exacerbated health disparities and equity across various countries.^{1,18} Patients with SDH challenges may experience poor outcomes including but not limited to cancer screening, chronic disease management, geriatric care, and healthcare utility.¹⁹

Nevertheless, PCC may be a more important contributor of quality of care, as it (a) explained the association of SDH with clinical outcomes and (b) significantly explained the variance of quality of care. This reflects the relationship-centered framework where healthcare providers collaborate with patients to address SDH.⁸ Providers can initiate conversations to screen patients' survival, psychological, and health-related needs. The healthcare teams can then share SDH information to collaboratively provide PCC that demonstrates empathy and support.

It may not always be easy for providers to address patients' social needs during office visits. While previous literature recommended healthcare professionals to work together to tackle patients' SDH, we found that SDH was a factor in unsatisfactory communication experiences with providers. Some challenges include providers' lack of confidence to discuss SDH, their concerns over limited time to provide medical care,²⁰ and lack of standardized SDH information exchange among healthcare teams in electronic health records (EHR).²¹ Such barriers to SDH communication in the clinical setting may subject patients with chronic conditions (eg, diabetes) to poor self-management, which may be constrained by structural conditions.²¹ To strengthen clinical communication on SDH, researchers had the following recommendations²¹: First, providers can use short phrases during medical interviews to refer to SDH to save time. Second, they can coordinate better with the healthcare team by sharing SDH with colleagues. Finally, building rapport with patients may allow patients to open up about their social conditions and health-related needs.

Limitations

As with any study, some limitations exist. First, while HINTS datasets are nationally representative, there may be some response bias or other sampling issues that should be considered when interpreting the data. Second, while we adjusted for the same covariates (eg, age, sex, education, and self-efficacy) some covariates not assessed by the HINTS dataset may be more influential when examining the relationships between SDH and quality of care (eg, system of care, or the coordinated network of services, providers, and resources that work together to deliver comprehensive health support). Specifically, while we assessed all four items identified by HINTS as SDH, other drivers of health exist and can affect quality of care, such as growing up in a family experiencing violence, substance abuse, incarceration, and discrimination.⁸ Finally, we did not incorporate sampling weights in our analysis because PROCESS did not support weighted data. To improve the generalizability of future studies, researchers should use advanced analytical methods to replicate our findings.

Table 1. Regression Models.

	PCC				QoC			
	β	P	LLCI	ULCI	β	P	LLCI	ULCI
Predictor: Overall SDH								
Age	0.004	<.01	0.003	0.005	0.004	<.01	0.002	0.005
Sex (female)	0.01	.77	−0.03	0.04	−0.05	.01	−0.1	−0.01
Education	−0.02	.01	−0.04	−0.006	0.07	<.01	0.05	0.09
Efficacy	0.21	<.01	0.19	0.23	0.16	<.01	0.13	0.19
SDH	−0.21	<.01**	−0.26**	−0.15**	−0.16	<.01	−0.22	−0.1
PCC					0.73	<.01	0.7	0.77
R ²	0.11				0.37			
p	<.01				<.001			
Predictor: SDH—Skipped meals								
Age	0.004	<.01	0.003	0.005	0.004	<.01	0.003	0.005
Sex (female)	−0.02	.03	−0.04	0.04	−0.06	.01	−0.1	−0.01
Education	0.001	.97	−0.03	−0.002	0.07	<.01	0.05	0.09
Efficacy	0.22	<.01	0.2	0.24	0.17	<.01	0.14	0.19
SDH—Skipped meals	−0.11	<.01**	−0.15**	−0.06**	−0.1	<.01**	−0.15	−0.05
PCC					0.74	<.01**	0.7	0.77
R ²	0.1				0.37			
p	<.01				<.01			
Predictor: SDH—Afford meals								
Age	0.004	<.01	0.003	0.005	0.004	<.01	0.003	0.005
Sex (female)	0.004	.82	−0.03	0.04	−0.06	.01	−0.1	−0.01
Education	−0.02	.02	−0.03	−0.003	0.07	<.01	0.05	0.09
Efficacy	0.22	<.01	0.2	0.24	0.16	<.01	0.14	0.19
SDH—Afford meals	−0.11	<.01**	−0.15**	−0.07**	−0.1	<.01**	−0.14	−0.05
PCC					0.74	<.01**	0.7	0.77
R ²	0.11				0.37			
p	<.01				<.01			
Predictor: SDH—Fear of eviction								
Age	0.004	<.01	0.003	0.005	0.004	<.01	0.003	0.005
Sex (female)	0.001	.95	−0.04	0.04	−0.06	.01	−0.1	−0.01
Education	−0.02	.06	−0.03	0.0004	0.08	<.01	0.06	0.09
Efficacy	0.22	<.01	0.2	0.24	0.16	<.01	0.14	0.19
SDH—Fear of eviction	−0.14	<.01**	−0.18**	−0.09**	−0.12	<.01**	−0.18	−0.07
PCC					0.74	<.01**	0.7	0.77
R ²	0.11				0.37			
p	<.01				<.01			
Predictor: SDH—Lack of transportation								
Age	0.004	<.01	0.003	0.005	0.004	<.01	0.003	0.005
Sex (female)	0.005	.81	−0.03	0.04	−0.06	.01	−0.1	−0.02
Education	−0.02	.01	−0.04	−0.004	0.07	<.01	0.06	0.09
Efficacy	0.21	<.01	0.19	0.23	0.17	<.01	0.14	0.19
SDH—Lack of transportation	−0.16	<.01**	−0.2**	−0.12**	−0.09	<.01	−0.14	−0.04
PCC					0.74	<.01**	0.7	0.77
R ²	0.11				0.37			
p	<.01				<.01			

Note. SDH, social determinants of health; PCC, patient-centered communication; QoC, quality of care. **p<.01.

Table 2. Mediation Effects.

	Effect	BootSE	BootLLCI	BootULCI
Overall SDH	−0.15	0.02	−0.2	−0.1
SDH—Skipped meals	−0.08	0.02	−0.12	−0.04
SDH—Afford meals	−0.08	0.02	−0.11	−0.05
SDH—Fear of eviction	−0.1	0.02	−0.14	−0.06
SDH—Lack of transportation	−0.12	0.02	−0.16	−0.08

Note. SDH, social determinants of health.

Conclusion

As quality communication is essential to alleviate the negative impacts of SDH and improve healthcare, healthcare providers should practice PCC for more equitable allocation of health-related resources, leading to better health outcomes. Specifically, they may consider risk factors of low PCC (eg, SDH) during consultations. These considerations may improve efforts to engage in more health equity-centric practices,²² particularly as research shows that PCC breakdowns can create distress, worsening care experiences.²³

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Authors' Contributions

QLW did conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing—original draft, writing—review and editing.

TBK did investigation, methodology, validation, visualization, writing—review and editing.

GEB did conceptualization, data curation, investigation, methodology, project administration, resources, supervision, validation, visualization, writing—original draft, writing—review and editing.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

Ethical approval is not applicable for this it included secondary data that were anonymous and de-identified; therefore, it was not considered human subjects' research by The University of Texas at Arlington Institutional Review Board.

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Statement of Informed Consent

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Supplemental material

Supplemental material for this article is available online.

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Appendix I. Measurements and reliabilities.

Items	Measured	Cronbach's α
SDH: “In the past 12 months how often was the following true...”		
1. Someone in your household cut the size of meals or skipped meals because there wasn't enough money for food?	3-point scale (1 = never true, 3 = often true)	.96
2. Someone in your household was not able to afford to eat balanced meals?		
3. Someone in your household was worried about being forced to move (for example, because of eviction or foreclosure)?		
4. Lack of reliable transportation kept someone in your household from medical appointments, work, or from getting things needed for daily living?		
PCC: “In the past 12 months, how often did your doctors, nurses, or other health professionals...”		
1. Give you the chance to ask all the health-related questions you had?	4-point scale (1 = never, 4 = always)	.97
2. Give the attention you needed to your feelings and emotions?		
3. Involve you in decisions about your health care as much as you wanted?		
4. Make sure you understood the things you needed to do to take care of your health?		
5. Explain things in a way you could understand?		
6. Spend enough time with you?		
7. Help you deal with feelings of uncertainty about your health or health care?		
Quality of care: “Overall, how would you rate the quality of health care you received in the past 12 months?”		
	5-point scale (1 = poor, 5 = excellent)	

*Note: SDH, social determinants of health; PCC, patient-centered communication.