Short communication
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Social determinants of health and appointment compliance among inner city adolescents and young adults seeking family planning services: a preliminary analysis

Abstract

Current medical intervention strategies to reduce health disparities often do not take social determinants of health (SDOH) into consideration and tend to be disease-specific. Moreover, minority low-income youth may be disproportionally affected by SDOH status resulting in low access to and utilization of reproductive and primary care. Based on publicly available data, the aggregate status of various SDOHs measures in five inner city neighborhoods where specific adolescent clinics were collected. Aggregate data of appointment compliance for each of the seven clinics in an adolescent and young adult clinic system was also calculated. The purpose of this study was to conduct a preliminary descriptive analysis of the neighborhood-level SDOH status, appointment compliance among patients on a clinic-level and identify potential relationships between the two.

Keywords: Social Determinants of Health, inner city youth, family planning, appointments, risk reduction

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Abbreviations: SDOH, social determinants of health; AYA, adolescents and young adults

Introduction

Recent public health research suggests that nonmedical factors may have a broader influence on health behaviors than targeted medical strategies.[1] Social Determinants of Health (SDOH) and the related concept of appointment compliance appear to be major antecedent forces influencing physical and mental wellness. Shifting from a medically driven paradigm, SDOH or nonmedical drivers are defined as broad based, with concepts such as socioeconomic status, education, employment, gender, and race/ethnicity. In keeping with this paradigm,[2] data suggests SDOHs have a significant role to play in enhancing physical and behavioral wellness than targeted medical approaches.

Moreover, various SDOH measures, while not specifically clinical, can reduce mortality. For example, areas such as motor vehicle safety, the availability of effective family planning, and water purity have a larger and more profound impact on the quality and length of life.[3] This is especially significant in that, while life span in the US has increased *25* years in the last century, only 15% of factors influencing longevity were driven by medical interventions.[1] Some authors[4] note that while expansions of Medicaid maternity care around 1990 in the US resulted in increased receipt of prenatal care by African American women, racial disparities in the key birth outcomes of low birthweight and preterm delivery were not reduced.[5] Similar trends were also recognized in England. From the mid-19th century through the early 1960s, morbidity and mortality from multiple causes fell precipitously years before the appearance of modem medical and pharmaceutical advancements.[6] Researchers in the US attributed the dramatic reduction of these factors primarily to improved living conditions, including nutrition, sanitation, and clean water. This observation suggests that SDOH-targeted and public health measures may have impacted longevity and quality of life than medical interventions.

Appointment compliance influences healthcare utilization and thus impacts health outcomes. Missed appointments, can include a variety of forms from serial rescheduling and is a "no-show" when a patient either cancels or does not attend a scheduled appointment. The general lack of appointment compliance can affect a variety of medical issues including follow up, quality of care, patient outcomes, and overall satisfaction.[7] The literature has documented that this issue is universal[8] and affects a multitude of care platforms from services provided by the Veteran Affairs[9] to medical specialty clinics which also may vary by socioeconomic status.[10] While evidence suggests that a variety of strategies including mobile phone text messaging reminders and personal phone calls can increase attendance at healthcare appointments compared to no reminders, or postal reminders, appointment compliance can still be low. Some assessments also propose that SDOH disparities may significantly impact many aspects of appointment compliance among underserved populations such minorities and youth. Thus, SDOH disadvantage may contribute to more missed appointments and ultimately a worse medical outcome.[11]

Given the existence of the presence of two constructs, SDOH and appointment compliance in our clinic setting, and the potential relationship between them, this preliminary descriptive analysis explored neighborhood-level SDOH statuses, appointment compliance among patients on a clinic-level and identify potential relationships between the two.

Methods

This retrospective assessment was conducted in a seven clinic-system that provides primary preventive and reproductive health care to adolescents and young adults (AYA), males and females, 13 to 24 years of age, in southeast Texas. Majority of the patients are female at birth (80%). The clinic system is primarily state funded for family planning health programs and has been an important safety net site for Medicaid, low-income and uninsured AYA, conducting over 17,000 viriscprelsits a year.

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Aggregate data of patient appointment compliance from January 1, 2025 - December 31, 2025 using the clinic's billing software and clinic neighborhood SDOH profiles were collected using publicly available 2019 data.[12] The researchers used a cross-sectional descriptive approach to conduct a preliminary descriptive analysis of the relationship between neighborhood SDOH status and clinic appointment compliance. SDOH status for various measures for each neighborhood was collected using local public data. SDOH measures included median household income, neighborhood density, racial breakdown, unemployment rate, educations status, members experiencing economic hardship, uninsured rate of residents, barriers to health care and no personal doctor. The city's average SDOH measures were also included to serve as a comparison group. The researchers collected aggregate data around the appointment compliance per clinic site. Appointment compliance data includes the number of clinic appointments kept (i.e. the number of patients who showed up to their appointment), canceled, rescheduled, or broken (i.e. the number of patients who did not show up to their appointment).

Results

In the baseline assessment, when the clinics' neighborhood SDOH from county data were compared to city averages, all SDOH measures in target clinics were below the city's SDOH status (Table 1). All but one neighborhood had a higher population density than the city average. The clinic neighborhoods have higher percentages of Non-Hispanic Blacks and Hispanic Whites, and lower percentages of community members with a bachelor's degree or higher than the city average (87% to 95% vs. 67%, and *5%* to 18% vs. 33%, respectively). All clinic neighborhoods were below the city median income of $52,338 with values varying from $27,668 to $39,447 within the communities where clinics are located. The neighborhoods with a higher percentage of Hispanic White community members, had a lower percentage of community members where the primary language spoken in the home was English. Especially relevant was the high uninsured rates and percentage of community members with no personal doctors. While the city's uninsured rate was 30.7%, the neighborhoods ranged from 35.90% to 43.70%. All but one neighborhood had a higher percentage of community members who do not have a personal doctor compared to the city's average (26.20% to 55.10% vs. 30.90%, respectively). Overall, those who responded to facing barriers to health care access had a range of 13.70% to 21.40% were all higher than the city's value of 14.1%. Finally, most of the neighborhoods had higher percentages of community members with fair or poor health as compared to the city's (16.50% to 33.80% vs. 20.20%). In the seven inner city clinics, a total of 35,297 appointments made for family planning and associated primary care (Table 2). The percentage of appointments kept ranged from 45.33% to 66.30%. The range for rescheduled appointments was 12.93% to 22.30%, and the range for canceled appointments was 4.03% to 8.24%. The percentages of broken (no show) appointments ranged from 7.01% to 30.07%.

Table 1 Socioeconomic indicators by neighborhood

Socio-economic indicators	Neighborhood 1	Neighborhood 2	Neighborhood 3	Neighborhood 4	Neighborhood 5	Houston/ Harris County
Associated Clinics	Clinics 5 & 7	Clinic 6	Clinics 1 & 3	Clinic 2	Clinic 4	
Total Population	47,961	7,936	19,391	26,608	54,676	2,310,43
Persons per sq. mile	16,931	4,285	3,887	2,969	5,397	3,443
Race						
Non-Hispanic Whites	6%	4%	4%	6%	5%	24%
Non-Hispanic Blacks	15%	2%	43%	60%	8%	22%
Hispanic White	72%	86%	51%	31%	86%	45%
Non-Hispanic Asian	5%	7%	1%	1%	1%	7%
Non-Hispanic Others	2%	2%	1%	2%	0%	2%
Unemployment Rate	4%	5%	9%	10%	4%	4%
Median Household Income	$32,578	$39,447	$27,668	$35,815	$35,202	$52,338
Educational status						
No diploma	39%	38%	32%	24%	48%	21%
High school diploma	27%	28%	34%	34%	32%	23%
Some college	16%	24%	22%	26%	14%	23%
Bachelor's or Higher	18%	10%	12%	16%	5%	33%
English is Primary Language Spoken at Home	15%	22%	54%	70%	24%	53%
Uninsured rate	43.70%	35.90%	34.50%	39.50%	42.40%	30.70%
No personal doctor	55.10%	41.80%	26.20%	40.90%	46.50%	30.90%
Face Barriers to healthcare access	21.20%	15%	13.70%	19.50%	21.40%	14.10%
Fair or Poor Health	28.80%	26%	16.50%	28.30%	33.80%	20.20%

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Table 2 Appointment compliance by clinic

Show rate	Kept N (%)	Broken N (%)	Rescheduled N (%)	Canceled N (%)
Clinic 1	2,792 (56.98%)	1,044 (21.31%)	690 (14.08%)	374 (7.63%)
Clinic 2	2,739 (45.33%)	1,813 (30.00%)	1,099 (18.19%)	392 (6.49%)
Clinic 3	3,917 (52.97%)	2,224 (30.07%)	956 (12.93%)	298 (4.03%)
Clinic 4	3,553 (52.80%)	1,742 (25.89%)	1,019 (15.14%)	415 (6.17%)
Clinic 5	2,518 (59.02%)	621 (14.56%)	911 (21.35%)	216 (5.06%)
Clinic 6	1,346 (58.98%)	269 (11.79%)	479 (20.99%)	188 (8.24%)
Clinic 7	2,441 (66.30%)	258 (7.01%)	821 (22.30%)	162 (4.40%)

Discussion

Social determinants of health (SDOHs) have been identified as key factors that drive wellness and health. A logical application of this belief is to identify specific disparity among at risk groups and their appointment compliance. To address these components, this preliminary cross-sectional study explored SDOH status of various measures in specific neighborhoods where AYA clinics are embedded, appointment compliance among patients and the descriptive analysis of potential relationship between the two. Neighborhood SDOH data shows that the clinics are embedded in community with a higher than city average minority population, rates of poverty, unemployment and access to medical care. Descriptively comparing the aggregate SDOH and aggregate appointment compliance data, there may be a relationship between appointment compliance and higher SDOH status for some measures. For example, the clinics with the higher percentage of kept appointments were located in the neighborhoods with the lower median household incomes, the higher rates of uninsured individuals and the higher rates of individuals who do not have a primary care Physician. The descriptive differences between SDOH measures and appointment compliance may suggest a relationship, which requires additional research to further explore and measure the statistical associations between SDOH measures and appointment compliance. In addition, some neighborhoods may be unwilling or unable to address existing disparities which may stimulate ethical questions on how to reduce the non-medical determinants of health.

While this preliminary descriptive assessment provides insight into SDOH measures that may influence appointment compliance, there are some limitations to this approach. First, data included aggregate data and did not use individual-level data with a control group or parametric statistics; thus, we cannot statistically measure causality nor strong association. In addition, no similar data was available from other clinics and clinic systems to make comparisons against clinic-level data. Despite these limitations, this exploratory study described potential associations between neighborhood SDOH status and clinic-level appointment compliance among an at-risk population. Future research should look into individual-level data to statistically correlate the specific impacts of community- and individual-level SDOHs on an individual-patient appointment compliance, and suggest targeted ways to improve appointment compliance.

Conclusion

SDOHs play a role in the overall health and wellness of communities. Our preliminary descriptive assessment has identified potential relationships between various community-level SDOHs and appointment compliance. Future research would be useful in specifically statistically quantifying these relationships. Understanding the relationship between these two factors could generate strategies to enhance access to and utilization of medical care among at risk populations.

Conflict of interest

The authors have no conflict of interest.

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