

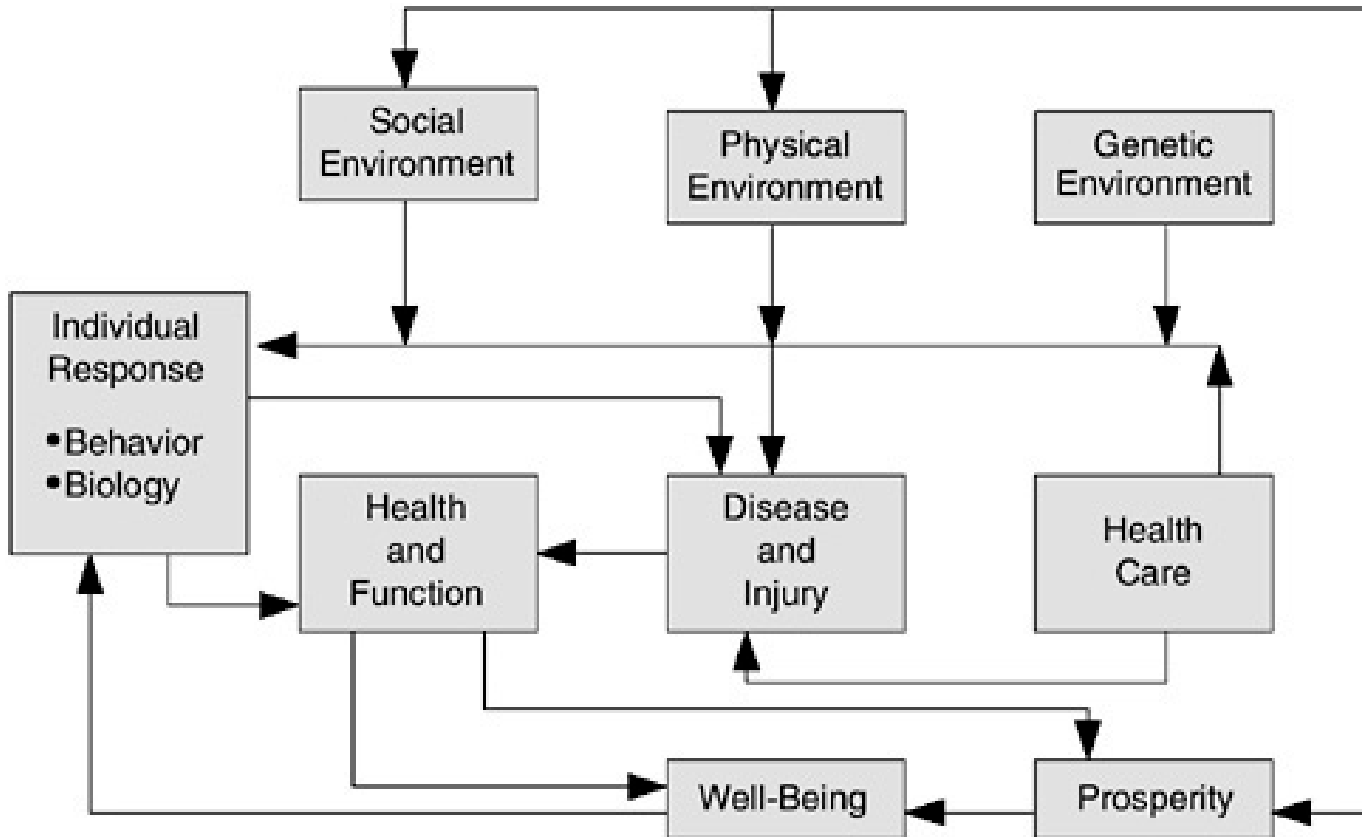
How Social Determinants Impact Patient Preference and Utilization of Primary Care Provider Type: An Important Role for PAs, NPs and Other Team Members

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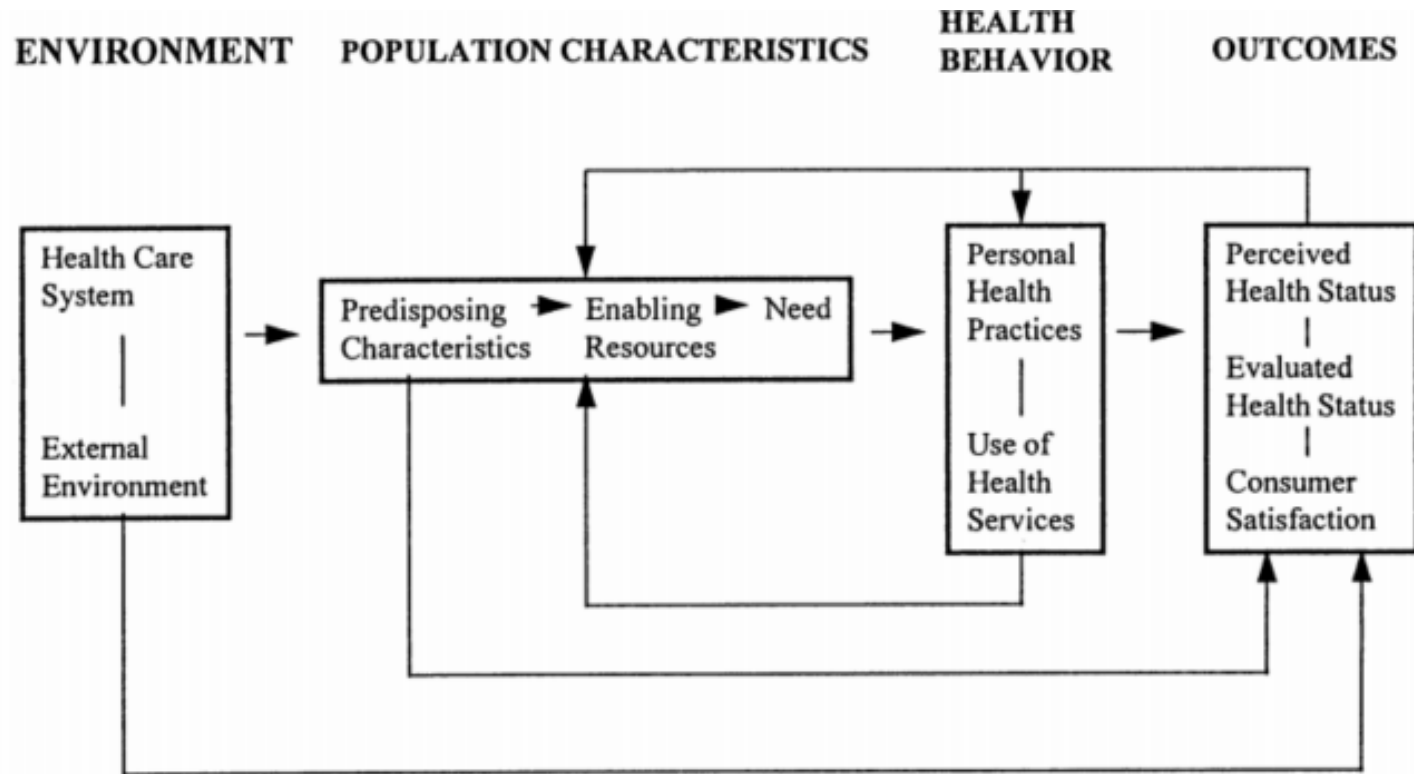
Objectives

- Discuss conceptual models
 - Determinants of Health
 - Healthcare Utilization
 - Teams
- Social determinants and primary care provider utilization
- Social determinants and primary care provider preference

Determinants of Health

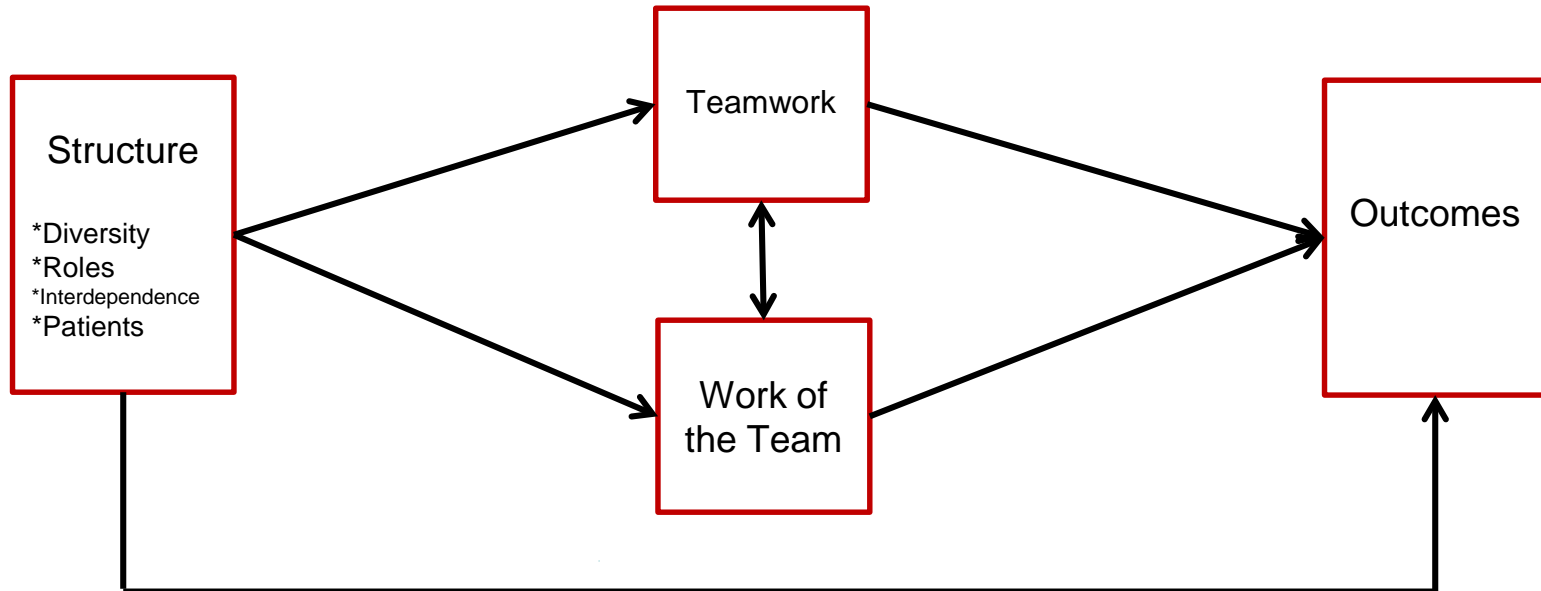


Andersen Model of Healthcare Utilization



Andersen. Revisiting the behavior model and access to medical care: does it matter?
J Health Soc Behavior 1995; 36:1110

Team Conceptual Model



Social Determinants Predict PAs & NPs as a Usual Source of Care

Table 1. Descriptive Characteristics for Explanatory Variables (n = 6,803)*

Predisposing Factors	% Total Sample	% PA/ NP	% Doctor	P Value	Enabling Factors	% Total Sample	% PA/ NP	% Doctor	P Value
Age†	(mean = 64.26)	(mean = 64.3)	(mean = 63.5)	.002	County designation†				.000
<60	9.53	15.36	9.25		Nonmetropolitan NCBSA ^a	13.40	25.49	12.84	
60-64	52.18	50.33	52.27		Micropolitan	71.13	55.23	71.96	
65-69	29.65	28.76	29.69		Metropolitan	15.37	19.28	15.21	
≥70	8.64	8.79	5.56		Income				.089
Sex†				.000	<\$30,000	19.18	24.84	18.92	
Male	45.67	33.01	46.27		\$30,000-45,000	16.58	16.67	16.58	
Female	54.33	66.99	53.73		\$45,000-60,000	15.21	16.67	15.15	
Marital status				.076	\$60,000-75,000	12.48	10.13	12.59	
Currently married	79.58	74.75	79.89		>\$75,000	31.96	27.12	32.18	
Divorced/Separated	16.69	21.31	16.45		Missing	4.59	4.58	4.59	
Never married	3.67	3.93	3.66		Health insurance†				.001
Educational attainment†				.031	Private	54.70	55.88	54.64	
High school graduate	54.19	58.03	54.00		Medicare & Other private	33.02	25.82	33.36	
Some college	15.93	19.34	15.77		Medicare	8.52	11.11	8.39	
College degree	15.10	11.48	15.28		Uninsured/Other public	3.77	7.19	3.60	
Some postgraduate	14.78	11.15	14.95		Need Factors				
Personality traits	Mean (SD)	Mean (SD)	Mean (SD)		Perceived Need				
Agreeableness	38.37 (5.71)	38.73 (5.36)	38.36 (5.71)	.2759	Perceived health in 1992				.121
Extroversion	31.32 (7.49)	30.61 (7.80)	31.35 (7.48)	.1091	Very poor/poor/fair	10.55	8.85	10.63	
Conscientiousness	38.68 (5.52)	38.75 (5.38)	38.69 (5.52)	.8547	Good	60.96	66.56	60.69	
Neuroticism	22.38 (7.20)	22.22 (7.28)	22.38 (7.19)	.712	Excellent	28.50	24.59	28.68	
Openness	31.05 (6.23)	30.70 (6.44)	31.08 (6.22)	.3168	Evaluated Need				
					Count of reported diagnoses				.223
					0	18.43	20.92	18.32	
					1	34.41	36.60	34.31	
					2+	47.16	42.48	47.38	
					Chronic diseases treated by PA/NPs				.105
					0	27.96	32.03	27.76	
					1+	72.04	67.97	72.24	

*Percentages may not total 100 due to rounding.

†Statistically significant results.

^aNonmetropolitan NCBSA = Nonmetropolitan non-core based statistical areas.

Socially Complex Patients are More Likely to Utilize PAs & NPs in Different Roles

Table 1. Complexity of Patients With Diabetes on Primary Care Panels in 2008 (N = 2603 Patients).

	Total sample, mean (SD) or %	Patients on panels with no PA/NPs (N = 1,019), mean (SD) or %	Patients on panels with PA/NPs as supplemental provider (N = 1,454), mean (SD) or %	Patients on panels with PA/NPs as usual providers (N = 130), mean (SD) or %	p value
Sociodemographics					
Age (SD)	72 (11)	72 (11)	72 (11)	71 (14)	.34
Race*					
Caucasian	91%	91%	92%	87%	.02
Black	5%	6%	4%	8%	
Other race/ethnicity	4%	3%	4%	5%	
Female	55%	53%	55%	61%	.25
Medicaid buy-in*	16%	15%	16%	24%	.04
Entitlement due to disability*	19%	18%	19%	30%	.01
Comorbid conditions at baseline					
ACG, mean (SD)	1.5 (1.0)	1.4 (1.0)	1.5 (1.1)	1.5 (0.9)	.23
ACG count of conditions* (SD)	5.0 (3.2)	4.8 (3.1)	5.4 (3.2)	5.3 (3.3)	<.01
Cardiovascular disease					
None	47%	49%	47%	41%	.32
Ischemic heart disease	23%	22%	24%	29%	
Congestive heart failure	29%	29%	30%	30%	
Chronic kidney disease/ESRD	23%	21%	24%	25%	.19
Dementia*	9%	7%	10%	14%	.01
Stroke/TIA	8%	8%	9%	8%	.83
Obesity*	22%	20%	22%	29%	.05
Drug abuse	2%	2%	2%	5%	.05
Depression*	22%	20%	23%	31%	.01
Hypertension	83%	81%	83%	84%	.30
Diabetes complications					
Ulcers*	12%	12%	11%	19%	.03
Amputation	2%	1%	2%	2%	.25
Eye disease	22%	21%	22%	22%	.95
Peripheral vascular disease	37%	36%	37%	38%	.70

Note. PA/NP = physician assistant/nurse practitioner; SD = standard deviation; ACG = Johns Hopkins Adjusted Clinical Groups system; ESRD = end-stage renal disease; TIA = transient ischemic attack.

*p ≤ .05.

Predisposing Characteristics Predict Primary Care Provider Type Preference

Predisposing Characteristics Predicting Provider Preference (N=4949)

	Outcomes			
	Prefer PA/NP		No Preference	
	Odds Ratio	p Value	Odds Ratio	p Value
Age (reference = 65+)				
18-24	4.0	0.001	2.5	0.027
25-34	4.5	<.001	2.4	0.001
35-44	3.4	<.001	2.2	0.009
45-54	1.8	0.023	1.6	0.480
55-64	1.3	<.001	1.3	0.002
Gender (reference category=female)				
Male	1.3	0.009	0.9	0.241
Household size (ordinal)	1.0	0.554	1.0	0.441
Marital status (reference = single)				
Married	0.9	0.433	0.9	0.944
Widowed	0.7	0.409	1.0	0.021
Divorced	1.3	0.001	1.0	0.454
Separated	0.5	0.075	0.8	0.413
Education (reference = high school degree)				
Some college	0.7	0.992	1.1	0.931
College degree	0.6	0.997	0.8	0.919
Graduate degree	0.7	0.994	0.7	0.917
Sexual Orientation (reference = heterosexual)				
Gay	0.5	0.001	1.0	0.022
Bisexual	1.5	0.260	1.7	0.530
Other	2.4	0.102	3.3	0.018
Race (reference = non-Hispanic White)				
Black	1.2	0.152	0.6	<0.001
Hispanic	1.7	0.001	1.1	0.402
Other race	1.0	0.862	0.8	0.046

*p<.05

Enabling Characteristics Predict Primary Care Provider Type Preference

Enabling Characteristics Predicting Provider Preference (N=4949)

	Outcomes			
	Prefer PA/NP		No Preference	
	Odds Ratio	p Value	Odds Ratio	p Value
Employment status (reference = full-time employment)				
Part-time	0.8	0.136	1.1	0.691
Home maker	0.7	0.822	1.1	0.624
Unemployed	0.4	0.001	0.8	0.093
Student	0.7	0.685	1.3	0.219
Retired	0.6	0.346	0.9	0.296
Income (reference = < \$25,000)				
\$25,000-\$49,999	1.0	0.116	0.9	0.554
\$50,000-\$74,999	1.0	0.274	0.8	0.254
\$75,000-\$99,999	1.6	0.100	0.8	0.182
\$100,000-\$124,000	1.3	0.696	1.2	0.099
\$125,000-\$149,999	1.0	0.450	0.7	0.164
> \$150,000	1.3	0.716	0.8	0.556
not reported	1.7	0.630	1.4	0.464
Insurance type (reference = private)				
Parents' insurance	1.4	0.672	1.5	0.153
Medicare	1.1	0.299	0.9	0.434
Medicaid	1.1	0.183	1.2	0.778
Medicare supplement	0.8	0.215	1.7	0.140
Medicare + Medicaid	0.8	0.008	0.9	0.567
Tricare	2.8	0.182	4.2	0.005
VA	1.7	0.422	2.1	0.019
Indian Health Services	1.8	0.718	0.1	0.319
No insurance	1.8	0.217	0.7	0.215
Didn't answer	1.4	0.771	1.1	0.992
If lacked insurance during past year (dichotomous)	1.9	<.001	1.0	0.909
Location type (reference = urban)				
Suburban	0.7	<.001	1.0	0.058
Rural	0.9	0.580	1.3	0.003
If experienced delay in ability to get care within last year	2.0	<.001	0.8	0.136
If ever seen a PA or NP for medical care (reference = never)				
Yes, within past 12 months	4.4	<.001	2.2	0.008
Yes, more than 12 months ago	1.3	0.037	1.8	0.533
Don't know	0.6	<.001	1.4	0.067
Didn't answer	3.9	<.001	3.0	<.001
If have usual source of care (dichotomous)	0.3	<.001	0.4	<.001
Travel time to provider (reference = < 30 minutes)				
30-60 minutes	1.8	0.118	1.1	0.488
> 60 minutes	2.1	0.022	1.4	0.168

*p<.05

Need Characteristics Predict Primary Care Provider Type Preference

Need Characteristics Predicting Provider Preference (N=4949)

	Outcomes			
	Prefer PA/NP		No Preference	
	Odds Ratio	p Value	Odds Ratio	p Value
Overall Health (reference category = excellent)				
Very Good	0.5	0.002	0.7	0.601
Good	0.4	0.834	0.6	0.089
Fair	0.2	<.001	0.6	0.274
Poor	0.2	<.001	0.6	0.223
Has physical limitation	1.5	<.001	0.9	0.083
Has mental limitation	1.4	0.005	0.7	0.001

*p<.05

Outcomes May Not Be Maximized if Social Determinants Are Not Considered

Table 3

Relationship between patient outcomes and utilization of PA/APN in primary care roles (N=6864).Source: Health Tracking Household Survey.

Variable	MD PCP+PA/nurse visit			PA or nurse PCP		
	RRR or OR	p value	CI	RRR or OR	p value	CI
Healthcare utilization						
<i>Number of visits at usual place of care</i>						
2-4	Ref			Ref		
1	0.7	< 0.01	(0.52, 00.83)	0.9	0.67	(0.69, 10.27)
5-9	1.3	0.05	(1, 10.63)	2.4	< 0.01	(1.77, 30.37)
10+	1.2	0.31	(0.86, 10.58)	3.0	< 0.01	(2.04, 40.53)
Emergency department visits						
0	Ref			Ref		
1	1.0	0.84	(0.78, 10.36)	0.9	0.66	(0.67, 10.29)
2+	1.8	< 0.01	(1.26, 20.47)	1.1	0.69	(0.66, 10.87)
<i>Emergency Hospitalization</i>						
0	Ref			Ref		
1+	1.2	0.26	(0.88, 10.63)	0.7	0.12	(0.38, 10.13)
Unmet need						
<i>Did not get needed medical care in past 12 months</i>	1.3	0.16	(0.89, 10.98)	1.3	0.33	(0.79, 20.03)
Patient satisfaction						
<i>Satisfaction with healthcare</i>						
Very satisfied	Ref			Ref		
Somewhat satisfied	1.2	0.06	(0.99, 10.53)	1.0	0.92	(0.73, 10.32)
Neither satisfied or dissatisfied	1.7	0.11	(0.88, 30.25)	1.8	0.14	(0.82, 30.82)
Somewhat dissatisfied	1.7	0.07	(0.95, 20.96)	1.0	0.93	(0.57, 10.66)
Very dissatisfied	1.8	0.04	(1.03, 30.00)	1.7	0.06	(0.98, 30.04)

Notes: Reference category is MD only; Baseline category for comparison is: ^a very satisfied; ^b 2-4 visits; ^c zero; Bold type indicates significance at $p < 0.05$; Controlled to: age, sex, race/ethnicity, education, county designation, income, health insurance, going to doctor as soon as feel bad, do anything to avoid doctor visits, perceived health, utilization (except when dependent variable), usually see same provider, and put off care in past 12 months (and unmet need for satisfaction and utilization).

Summary

- Health system design impacts how patients utilize
- Social determinants predict utilization of primary care providers
- Social determinants predict preference for primary care providers
 - However, what predicts utilization may not predict preference
- Social determinants should be considered when redesigning health-care to team-based systems

Thank you

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