APHA 2007 Medical Care Section
Student Paper Award Session

Perceived access barriers to conventional medicine and the utilization of complementary and alternative medicine (CAM): A population-based study

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Learning Objectives

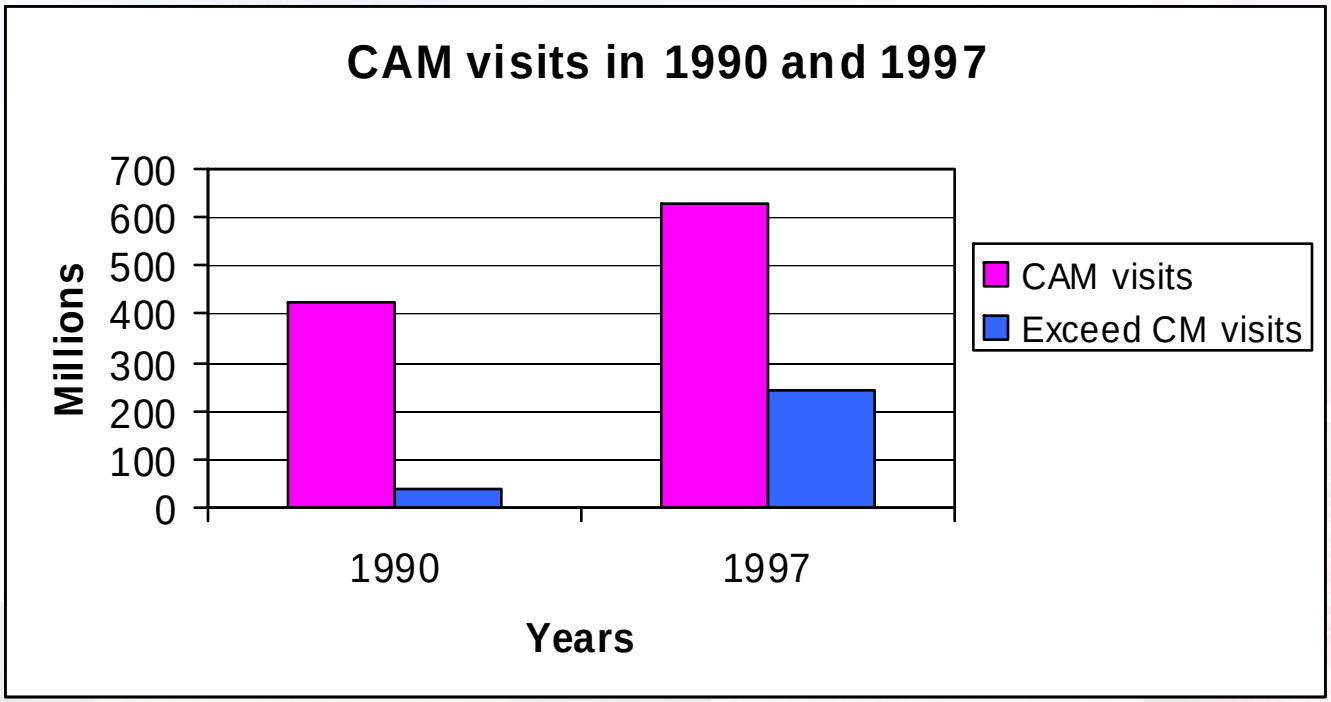
- **Identify types of practitioner-provided and self-directed CAM therapies.**
- **Describe the relationship between perceived access barriers (PAB) to conventional medicine (CM) and CAM usage.**
- **Understand modeling techniques to deal with endogenous regressors.**

Background

- **CAM – complementary and alternative medicine, unconventional medicine, unconventional therapies**
- **CM – conventional medicine, conventional health care, conventional therapy, orthodox medicine, modern medicine**

Background (cont.)

Figure 1. ***Total visits to CAM practitioners by the adult population*** **(Eisenberg et al., 1998)**

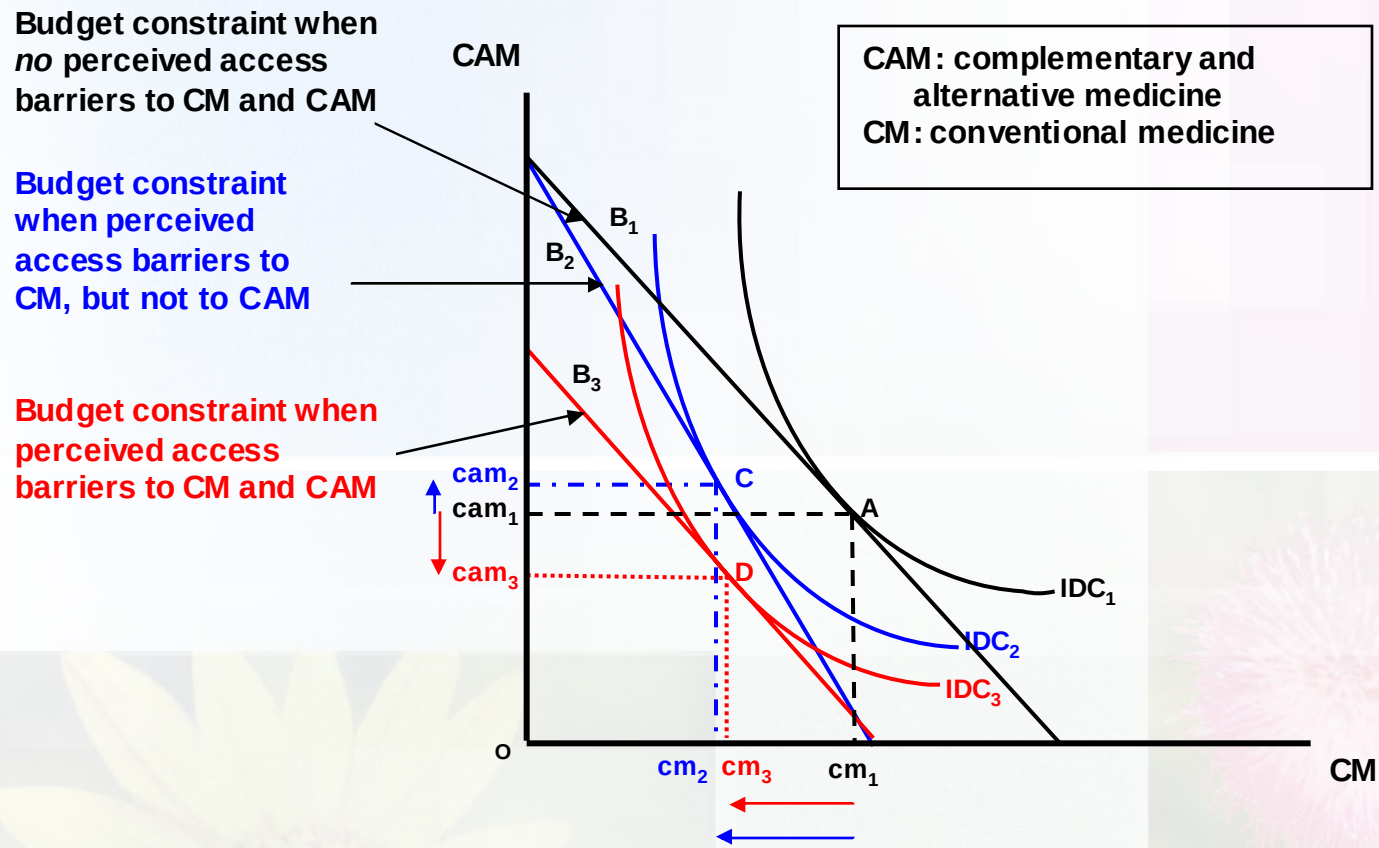


Research Question

Are perceived access barriers to CM associated with the use of CAM?

Theory

Figure 2. ***Effects of shifting budget constraints on the utilization of conventional medicine and complementary and alternative medicine***



Review of the Literature

- **CAM**
  - **Not homogenous**
- **Access**
  - **Penchansky and Thomas (1981)**
    - **the five access dimensions (availability, accessibility, accommodation, affordability, and acceptability) are distinct but interrelated.**

Methodology

Cross-sectional quantitative study

- Data
- Measures of CAM
- Measures of PAB to CM
- Analysis plans

Data

- **Target population: noninstitutionalized U.S. citizens aged 18 to 64**
- **National Health Interview Survey (NHIS) 2002 (*N*=30,801)**
- **Demographic missing data were imputed using hotdeck in Stata**

Measures of CAM

Category	2002
CAM as a whole	Every approach in the categories that follow
Practitioner-provided	Naturopathy Ayurveda Acupuncture Folk medicine Hypnosis Chelation therapy Chiropractic care Massage Energy healing therapy/reiki Biofeedback
Self-directed	Homeopathic treatment Relaxation techniques Prayer and spiritual healing Yoga/tai chi/qigong Natural herbs Special diets High-dose or megavitamin therapy

Measures of Perceived Access Barriers

Dimensions	Definitions	Questions (9 items)
Accommodation	The relationship between the manner in which the supply resources are organized to accept clients	< ...You couldn't get through on the telephone.>
		< ...You couldn't get an appointment soon enough.>
		< ...Once you get there, you have to wait too long to see the doctor.>
		< ...The (clinic/doctor's office) wasn't open when you could get there.>
Accessibility	The relationship between the location of supply and the location of clients	< ...You didn't have transportation. >
Affordability	The relationship of prices of services and providers' insurance or deposit requirements to the clients' ability to pay	< ...Prescription medicines >
		< ...Mental health care or counseling >
		< ...Dental care (including check-ups) >
		< ...Eyeglasses >

Analysis Plans

- **A simple probit model**
- **A recursive bivariate probit model**

Variables of interest

- Any PAB
- Affordability PAB
- Accommodation PAB
- Accessibility PAB

Outcome variables

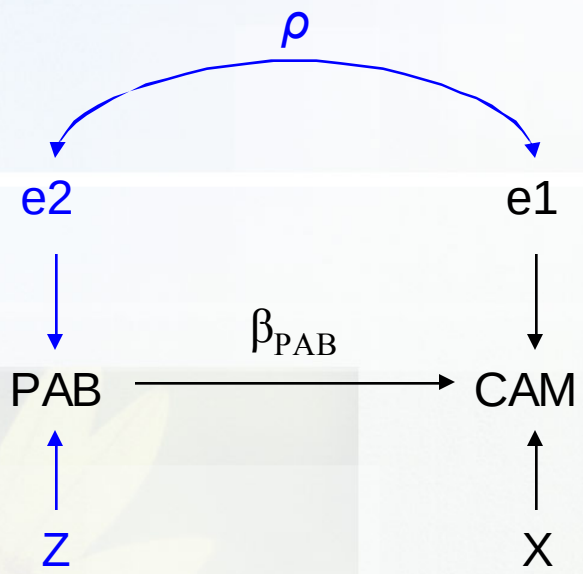
- Any CAM
- Practitioner-provided CAM
- Self-directed CAM

Simple Probit vs. Recursive BV Probit

$$CAM_i^* = \beta_0 + \beta_{PAB} PAB_i + \mathrm{B}'_X X_i + \varepsilon_{CAM_i}$$

$$PAB_i^* = \alpha_0 + \mathrm{A}'_Z Z_i + \varepsilon_{PAB_i}$$

$$\begin{matrix} \varepsilon_{PAB_i} \\ \varepsilon_{CAM_i} \end{matrix} \sim BVN(0, \Omega) \qquad \Omega = \begin{pmatrix} \delta^2_{PAB} & \rho_{PAB,CAM} \\ \rho_{CAM,PAB} & \delta^2_{CAM} \end{pmatrix}$$



Note: BV - bivariate

Result I

Table 1. Proportion of Survey Respondents in National Health Interview Survey 2002 sample adults file reported CAM usage and perceived access barriers to conventional medicine

Variables	Estimates		
	Rate	Std Error	Count
Use any CAM in the past 12 months	60.2%	0.38%	121,902,695
Self-directed	57.7%	0.38%	116,539,670
Practitioner-provided	11.8%	0.26%	23,955,013
Any perceived access barriers	19.6%	0.32%	40,043,902
Affordability PAB	13.5%	0.27%	27,690,708
Accommodation PAB	8.4%	0.21%	17,038,702
Accessibility PAB	1.3%	0.08%	2,745,947

Data Source: National Center for Health Statistics 2002 sample adults files and 2002 ALT file
Note: Standard errors are calculated using Stata version 9.2.

Result II

Table 2. NHIS 2002 - Bivariate analysis of PAB and CAM

	As a group	Subgroups	
	Use any CAM in the past 12 months	Practitioner-provided	Self-directed
Any perceived access barriers	****	****	****
Affordability PAB	****	****	****
Accommodation PAB	****	****	****
Accessibility PAB	****		****

Note: .001 - ****; .01 - ***; .05 - **; 0.1 - *

Result III

Table 3. NHIS 2002 - Results of simple probit and bivariate probit models of CAM usage with perceived access barriers

	As a group		Another subgroup			
	Use any CAM in the past 12 months		Practitioner-provided		Self-directed	
	probit coef.	BV probit coef.	probit coef.	BV probit coef.	probit coef.	BV probit coef.
Any perceived access barriers	**0.44*** **	0.01	**0.28*** **	0.10	**0.44*** **	0.14
rho		*0.24*		*0.10*		*0.16*
Affordability PAB	0.42***	-0.05	**0.25*** **	-0.17	0.42***	0.01
rho		*0.26**		*0.23*		*0.22**
Accommodation PAB	0.44***	**1.25*** **	0.27***	**0.83*** **	0.41***	**1.35*** **
rho		***-0.44****		***-0.28****		***-0.50****
Accessibility PAB	**0.47*** **	1.15	0.21	0.15	**0.49*** **	0.94
rho		*-0.28*		*0.02*		*-0.19*

note: .001 - ***; .01 - **; .05 - *;

BV: bivariate

Result IV

Table 4. NHIS 2002 - Average treatment effects (ATE) of simple probit and bivariate probit models of CAM usage with perceived access barriers

	As a group		Another subgroup			
	Use any CAM in the past 12 months		Practitioner-provided		Self-directed	
	probit ATE	BV probit ATE	probit ATE	BV probit ATE	probit ATE	BV probit ATE
Any perceived access barriers	0.16***	0.00	0.06***	0.02	0.16***	0.05
Affordability PAB	0.15***	-0.02	0.05***	-0.03	0.15***	0.00
Accommodation PAB	0.15***	0.35***	0.06***	0.23**	0.15***	0.39***
Accessibility PAB	0.16***	0.31***	0.05*	0.03	0.17***	0.29*

note: .001 - ***; .01 - **; .05 - *;

BV: bivariate

Conclusions

- **Overall, any PAB to CM will increase the probability of using any CAM by 16% on average.**
- **The associations between PAB to CM and practitioner-provided CAM and self-directed CAM are different.**
  - **Affordability PAB are not associated with self-directed CAM, but positively associated with practitioner-provided CAM.**
  - **Accommodation PAB are positively associated with both types of CAM.**
  - **Accessibility PAB are positively associated with self-directed CAM, but not associated with practitioner-provided CAM.**
- **A probit model will have biased estimates if the variable of interest is endogenous.**
- **If the outcome and the variable of interest are both dichotomous, a bivariate probit model can handle endogenous independent variable by modeling error terms in both equations together.**

Strengths

- National representative sample
- Multidimensional measures of access barriers – affordability, accommodation, and accessibility
- Heterogeneous CAM – practitioner-provided and self-directed
- Take into account endogeneity of PAB to CM

Limitations

- **No detailed availability and acceptability access barriers data**
- **Cannot test the possible impact of threshold of PAB to CM on the use of CAM**

Questions and Comments

Thank You!

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