

Lecture 7 – September 3, 2003

What explains obtaining dental care?

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Objectives

- To recognize some of the limitations of current explanations of dental utilization
- To become familiar with premises to guide the development of a model of the dental care process
- To understand the components of a model of the dental care process
- To recognize the four blocks that influence the probability of beginning an episode of care
- To be familiar with the contents (variables) within each of the four blocks
- To understand the assigned reading and how its findings relate to the model of the dental care process

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What explains obtaining dental care?

- Recent review of the literature –
- (Journal of Dental Research, April 2002)
 - Dutch government (1995) reformed the public health insurance system
 - Evaluation study was planned to study the effects of insurance reform

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What explains obtaining dental care?

- Evaluation study - the role of dental insurance in dental utilization
 - required a variable list comprised of independent explanatory variables
- No forceful theoretical argument
 - for restricting the potential explanatory variables

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What explains obtaining dental care?

- 144 articles met the study criteria
- 143 were surveys
 - 1 controlled trial
- **Resulted in a list of 538 explanatory variables**
 - Grouped into patient, dentist, and system variables

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What explains obtaining dental care?

- Comprehensive behavioral model
 - explaining dental utilization
 - has not emerged
- Knowledge of dental use is fragmented
 - across variety of health behavior models
 - many empirical investigations of dental use

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Limitations to existing studies of dental use

- Few studies have used a multidisciplinary approach
- Narrow focus of previous studies fragments understanding of dental care process
 - Economic studies have rarely considered measures of values
 - Psychologists often have failed to measure social status and have ignored economic variables

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Limitations to existing studies of dental use

- Another limitation is the descriptive nature of many past studies
 - Have repeatedly shown that use of dental services highly correlated with income, education, age, sex, perceived need, and other personal characteristics
 - Have also often reported inconsistent results

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Limitations to existing studies of dental use

- Factors important to explaining use of dental services *receive minor attention or ignored altogether*
- Perhaps most prominent neglected factor is the *provider*
 - Patients generally ignorant of their clinical oral health status
 - Providers and characteristics of their practice may have substantial influence on dental use

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Limitations to existing studies of dental use

- Another lacking element is *consumer search*
 - Unclear:
 - whether individuals search for lower fees or for providers with certain characteristics e.g., reputation for quality, or painless dentistry, a comfortable office, or other considerations

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Limitations to existing studies of dental use

Consumer search (cont.)

- Some evidence that influenced by individual's *social network*
 - The notion of "shopping" (the seeking of care from different providers) among group-approved providers
 - Others have described the role of the "lay referral system" in locating a usual source of care

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Premises to guide development of model of dental care process

- Empirically supported causal models of *obtaining dental care* are rare
- 1) Must reflect fundamental choices regarding use of professional dental care
 - asymptomatic individuals
 - symptomatic individuals
- 2) Use of dental services regarded not just as outcome
 - rather as a decision-making process

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Premises to guide development of model of dental care process (cont.)

- 3) For those who visit the DDS
 - episode of care becomes the basic unit of analysis (a sequence of dental services in a period for health maintenance)
- 4) Provider can influence individual's use of dental services
 - throughout the decision-making process

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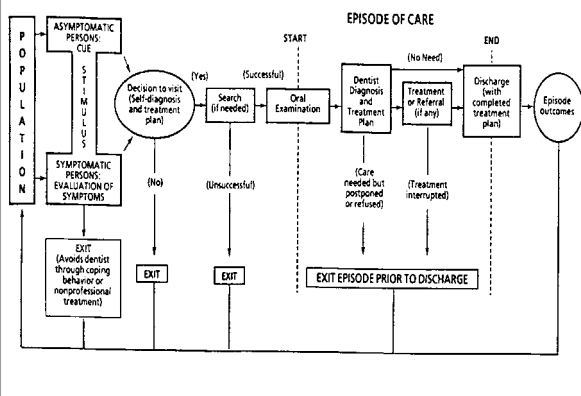
Premises to guide development of model of dental care process (cont.)

- 5) Dental care processes take place within a larger social structure
 - Can place constraints on that process
- 6) Main reason for dental visits
 - Maintain or improve oral health and quality of life
 - Not to purchase dental services

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FIGURE 1 The Dental Care Process



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Model of dental care process

- Key to developing a comprehensive model - View use/nonuse of professional dental services as a decision-making process
 - With distinct, identifiable beginning & end points
 - Composed of multiple stages
 - Episode of dental care is just one part of the process
 - Path one takes is determined largely by the interdependent decisions of the individual (parent/guardian) and the provider

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Model of dental care process

- For any member of any population process initiated by some form of stimulus (or cue)
 - Varies for symptomatic and asymptomatic individuals
 - For asymptomatic
 - Cue might be recall reminder from DDS
 - Toothpaste commercial reminding to brush regularly
 - Habit
 - For symptomatic
 - Cue is primarily the detection of a dental symptom & its evaluation
 - Establishes the meaning & significance of the illness

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Model of dental care process

- Assessment of symptoms – decision to go to DDS
 - A social process
 - Small % of symptoms actually reach the DDS
 - Two levels of measurement in the presence of dental symptoms:
 - 1) Those that are clinically observed & measured
 - 2) Those which are perceived and self-reported
 - Perceived symptoms are a key variable
 - constitute a major determinant of self-care
 - or provider-based care
 - 20% of urban males sample in Norway did not go to DDS because thought symptoms would go away spontaneously

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Model of dental care process

- Eventually both symptomatic & asymptomatic individuals decide *whether or not to visit the dentist*
- For asymptomatic - decision to visit DDS
 - weigh potential benefits against potential costs
 - in terms of time, money, pain, other factors
 - if perceived benefits outweigh perceived costs, probably make appt for oral exam

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Model of dental care process

- Symptomatic individual –decision to visit DDS
 - If individual can cope with the symptom
 - Or if nonprofessional treatments are available (modified diet, aspirin)
 - Influenced by social/ethnic group beliefs
- May decide *not* to go the dentist
 - Process of seeking professional dental care ends

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Model of dental care process

- If either asymp or symp indiv lacks usual provider of care – or if new provider is desired
- Must search for a source of care
 - Individuals can influence future treatments:
 - thru self-diagnosis
 - thru search for DDS capable of providing services the individual wants
- Success of search may be determined partially by the provider
 - such as DDS' rejection of low-income Medicaid children

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Model of dental care process

- Although search occupies only one cell in Figure 1, can occur virtually at any point in the process:
 - Person without a usual source of care searches for a dentist
 - Patient dissatisfied with a treatment plan may search for another dentist
- Episode of care formally begins when the “patient” presents for an oral exam

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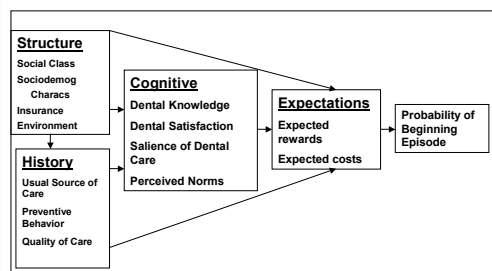
Probability of beginning episode of care

- Organized into 4 interrelated blocks:
 - Structure
 - History
 - Cognition
 - Expectation

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Probability of beginning an episode of dental care



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Probability of beginning episode of care Block 1 - Structure

Sociodemographic Characteristics
Age, Gender, Race/ethnicity

Social class
Income, occupation, education, SES

Insurance

Environment
Geographic, Community vars

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Probability of beginning episode of care – Structural - sociodemographic variables

■ Age

- Used as an explanatory variable in a large number of studies
- Studies typically report utilization patterns falling in an inverted U-shaped curve
 - With the very young and the very old seldom using dental services
 - Adolescents and young adults having the highest use of services
 - Moderate decline in use observed in middle age

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Probability of beginning episode of care – Structural - sociodemographic variables

■ Gender

- Used as an explanatory variable in a large number of studies
- Studies typically report a larger portion of females than males saw a dentist during past year
- These findings have not been considered in a theoretical perspective

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Probability of beginning episode of care – Structural - sociodemographic variables

■ Race and ethnicity

- Used as an explanatory variable in a large number of studies
- The most consistent finding is that a larger proportion of whites than non-whites use dental services
- Studies have found differences according to ethnicity as well

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Probability of beginning episode of care Block 1 - Structure

Sociodemographic Characteristics
Age, Gender, Race/ethnicity

Social class
Income, occupation, education, SES

Insurance

Environment
Geographic, Community vars

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Probability of beginning episode of care – Structural – social class variables

■ Income

- Perhaps the most frequently reported explanatory variable
- Considered a primary barrier to seeking care
- Initially thought to be the key variable associated with utilization
 - on assumption that if income equalized by providing financial assistance, barriers to utilization diminished
- This finding not confirmed
 - has led to considerably more investigation of other social/demographic/ psychological factors affecting utilization

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Probability of beginning episode of care –
Structural – social class variables

Occupation

- One of the most measurable dimensions of SES – has received considerable study in utilization research
- Available findings indicate:
 - lower use among the unskilled and semi-skilled population than among those in higher level populations..
 - with highest utilization rate found among professional/ exec level occupations

Probability of beginning episode of care –
Structural – social class variables

Education

- Another SES variable frequently used in studies of dental utilization
- Generally utilization increases as the level of education increases
 - Gaps in utilization between the very poorly educated and those with moderate education larger..
 - than differences in utilization among other educational groups such as high school and college graduates

Probability of beginning episode of care –
Structural – social class variables

SES (socioeconomic status)

- SES as composite measure of income, occupation, and education hypothesized to be related to use
- Not frequently used in research because is difficult to measure
- Numerous studies have found that utilization of dental services increases as social status increases

Probability of beginning episode of care
Block 1 - Structure

Sociodemographic Characteristics
Age, Gender, Race/ethnicity
Social class
Income, occupation, education, SES
Insurance
Environment
Geographic, Community vars

Probability of beginning episode of care –
Structural - insurance variable(s)

Insurance

- Private dental insurance
 - By reducing the cost of care, increases the probability of visiting the dentist
- Medicaid dental insurance has not reduced disparities in dental care use

Probability of beginning episode of care
Block 1 - Structure

Sociodemographic Characteristics
Age, Gender, Race/ethnicity
Social class
Income, occupation, education, SES
Insurance
Environment
Geographic, Community vars

Probability of beginning episode of care – Structural - environment variables

Geographic location

- Frequently studied variable in utilization research
- Proportion of persons visiting the dentist varies in different regions
- Other factors: urban vs. rural, inner city vs. other urban, large vs. small towns, density of population influence patient utilization

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Probability of beginning episode of care – Structural – environment variables

■ Community variables

- Several variables, other than size, influence dental service utilization:
 - among the most significant of these is community water fluoridation
- Utilization found to be lower in those areas where water is fluoridated
 - Healthier teeth?
 - Indicator of the preventive orientation of the community?

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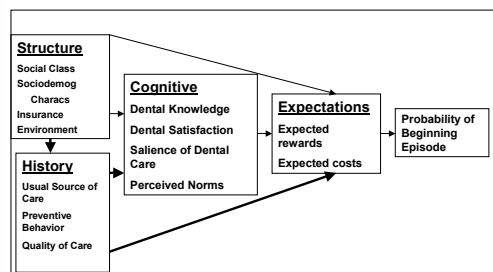
Probability of beginning episode of care Block 1 – Structure – (In reading) (Noting signif vars. in bivariate analyses)

Child
Age, Gender
Mother
Marital status
Race
Educational level
Years lived in the US
Number of children & adults in family
Family income

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Probability of Beginning an Episode of Dental Care



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History block Usual source of care

- Having a usual source of care eliminates the cost of search
 - Thereby increasing the probability of entering an episode of care
- Having a regular provider also has direct effects on the cognition block
 - by increasing the saliency of dental care

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History block Past preventive behavior

- 1) Continuity of care
 - Places past experience on a continuum ranging from regular preventive visits to avoidance of dental care over an extended period
 - There is evidence that dental behavior determines dental attitudes and not *vice versa*
- 2) Oral self-care
 - Similarly dental values are formed by experience with health behaviors, such as brushing and flossing

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History block

Quality of care/oral health stock

- **Quality of care**
Assessment of past outcomes –physiological, functional, quality of life, economic, durability
Can influence cognition and expectation blocks
- **Oral health stock**
Individuals inherit an initial “stock” of oral health that depreciates over a lifetime
Person’s oral health shapes perceptions about the salience of dental care and expected rewards and costs (e.g., in terms of pain necessary to restore oral health)

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Probability of beginning episode of care

Block 2 – History – (In reading)

(Noting signif vars. in bivariate analyses)

School absence due to family problems

Physician visit for preventive checkup

Child visits to the physician (e.g. for regular checkup, illness, accident)

Recent child medical problems

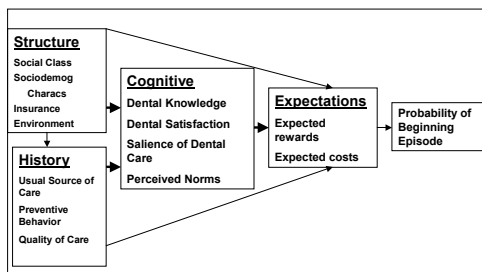
Mother’s oral health excellent (mother’s estimate)

Child’s oral health status (oral exam)

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Probability of beginning an episode of dental care



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Cognition block

- Dental knowledge
- Dental satisfaction with past episodes of dental care
- Perceived salience of dental care
 - Perceived symptoms
 - Valuation of oral health

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Cognition block (cont.)

Perceived norms

Expectations about health behavior - such as the frequency considered acceptable for seeing a health provider

Perceived norms may be influenced by the social environment – the family can be important

Perceived norms may be influenced by the dentist

- use of recall systems
- ways DDS signal expectations to patients regarding appropriate preventive behavior

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Probability of beginning episode of care

Block 3 – Cognition – (In reading)

(Noting signif vars. in bivariate analyses)

Child oral health beliefs

Regular dental checkups for children important

Importance of fluoride treatment for children

Treat baby teeth only when they hurt

Mother’s satisfaction with dental care

Dental care accessible

Availability of dental care

Expense of dental care

Continuity of dental care important

Overall satisfaction with dental care

Pain control in dental care

Quality of dental care

Overall access to dental care (access, availability, expense)

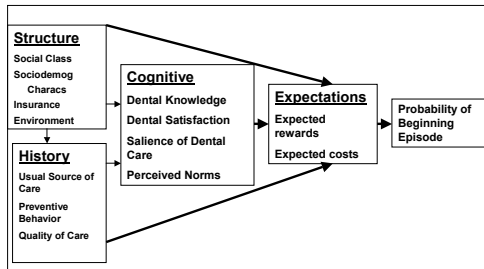
Mother’s dental fear

Child behavior problems

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Probability of beginning an episode of dental care



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Expected rewards and costs

Expected rewards

For the symptomatic individual

- belief or faith that services will result in eliminating or reducing the symptom
- also the reward of "having done the right thing" and social approval of family and friends

For the asymptomatic individual making a preventive visit

- belief that regular checkups will prevent future problems from occurring
- if motivated by esthetics, belief that services will improve appearance

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Expected rewards and costs

Expected costs

Time, money

Perceived ability to afford an episode of care in terms of fees and time

Social costs

- *Anxiety* about the dental episode – expected pain, fear, anxiety
- *Self-esteem* – the perceived "social distance" between provider and patient
- *Cost of search* – especially for individuals without a usual source of care

- Level of uncertainty associated with any of the above:
 - greater uncertainty about the costs/more confidence in the rewards...
 - could lead to increased probability of beginning an episode

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Probability of beginning episode of care Block 4 – Expectations – (In reading) (Noting signif vars. in bivariate analyses)

Dental insurance (mother and child)
 Child covered by dental insurance
 Child dental fear
 Child dental fear – (child estimate)
 Child's oral health excellent (mother estimate)
 Child needs a dental visit (mother estimate)
 Regular source of dental care (mother)
 Child care
 Time costs
 Travel time
 Time delay
 Waiting time

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Model for dental utilization for any reason - Block 1– Structure– (In reading)

Final model

Child
 Age, Gender
Mother
 Marital status
 Race
 Educational level
 Years lived in the US
 Number of children & adults in family
 Family Income

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Model for dental utilization for any reason - Block 2 – History– (In reading)

Final model

School absence due to family problems
 Physician visit for preventive checkup (OR=2.23)
 Child visits to the physician (e.g. for regular checkup, illness, accident)
 Recent child medical problems
 Mother's oral health excellent (OR=3.04)
 Child's oral health status (oral exam)

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Model for dental utilization for any reason-Block 3-Cognition– (In reading)

Final model

Child oral health beliefs
Regular dental checkups for children important
Importance of fluoride treatment for children
Treat baby teeth only when they hurt

Mother's satisfaction with dental care
Dental care accessible
Availability of dental care
Expense of dental care
Continuity of dental care important
Overall satisfaction with dental care
Pain control in dental care
Quality of dental care
Overall access to dental care (access, availability, expense)

Mother's dental fear
Child anxiety
Child behavior problems

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Model for dental utilization-Block4-Expectations– (In reading)

Final model

Dental insurance (mother and child)
Child covered by dental insurance
Child dental fear
Child dental fear – (child estimate)
Child's oral health (mother estimate)
Child needs a dental visit (mother estimate)
Regular source of dental care (mother)
Child care
Time costs
Travel time
Time delay
Waiting time

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Summary

- Based on the close association of income and patterns of utilization
 - might predict that cost is the leading barrier in not seeking care
- Has seldom, if ever, been the predominant self-reported reasons given
 - When cost barriers removed in low income groups
 - the utilization rate does not necessarily rise unless some other form of motivation, such as dental health ed given

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Summary (cont.)

- There is a clear need for more research to determine
 - how actual dental need influences perceived need
 - and how both of these affect action
- In order to increase utilization of dental services results of research suggest need to direct attention at both beliefs and actions
 - The belief system needs to be one that incorporates concept that oral disease has consequences and that taking action alters these consequences
 - Interventions need to be based on an UNDERSTANDING OF THE MULTIPLE FACTORS influencing utilization

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