What explains obtaining dental care?

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

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

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

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

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
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

- 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

- 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

- 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

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

3) Use of dental services regarded not just as outcome
   – rather as a decision-making process
4) Provider can influence individual’s use of dental services
   – throughout the decision-making process

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

Model of dental care process

- A social process
  - Includes
    - the dentist
    - the patient
    - sometimes other family members
    - insurers as well

Model of dental care process

- Initiated by some form of stimulus
  - Asymptomatic cues
  - Symptomatic – e.g., toothache
- Patients influence future treatment
  - Self-diagnosis
  - Search for DDS capable of providing services that patient desires

Probability of beginning episode of care

- Organized into 4 interrelated blocks:
  - Structure
  - History
  - Cognition
  - Expectation
Probability of beginning an episode of dental care

- **Structure**
  - Sociodemographic Characteristics
    - Age, Gender, Race/ethnicity
  - Social Class
    - Income, occupation, education, SES
  - Insurance
  - Environment
    - Geographic, Community vars

- **History**
  - Usual Source of Care
  - Preventive Behavior
  - Quality of Care

- **Cognitive**
  - Dental Knowledge
  - Dental Satisfaction
  - Salience of Dental Care
  - Perceived Norms

- **Expectations**
  - Expected Rewards
  - Expected Costs

- **Probability of Beginning Episode**

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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

- **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

- **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
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

**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

**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 hs and college graduates

**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 – Structural – social class variables

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

<table>
<thead>
<tr>
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<tbody>
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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

**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 county?

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

Child
- Age, Gender
- Mother
- Marital status
- Race** (p<.01)
- Educational level
- Years lived in the US* (p<.05)
- Number of children & adults in family
- Family income

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 salience of dental care

Probability of Beginning an Episode of Dental Care

History block
Usual source of care
**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.

**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).

**Probability of beginning episode of care**

Block 2 – History – (In reading)

(Noting signif vars. in bivariate analyses)

- School absence due to family problems** (p=.01)
- Physician visit for preventive checkup (p=.001)
- Child visits to the physician (e.g., for regular checkup, illness, accident)
- Recent child medical problems
- Mother’s oral health excellent (mother’s estimate) (p=.001)
- Child’s oral health status (oral exam)

**Probability of beginning an episode of dental care**

<table>
<thead>
<tr>
<th>Structure</th>
<th>Social Class</th>
<th>Socioeconomic Status</th>
<th>Chronic Disease</th>
<th>Insurance</th>
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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

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

Expected rewards and costs

- **Expected rewards**
  - For the symptomatic individual
    - Associated with 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
    - Expected rewards defined mainly by the individual’s belief that regular checkups will prevent future problems from occurring
    - If motivated by esthetics, belief that services will improve appearance

- **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

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
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

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

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

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

- 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)

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

- 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

Model for dental utilization for any reason - Block 4 – Expectations – (In reading)

- 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