



UNIFORMED SERVICES UNIVERSITY
of the Health Sciences

Graduate School of Nursing

Sigma Theta Tau International's 23rd International Nursing Research Congress

***“Variations in Utilization of Clinical Preventive
Services in Older Adults with Near Universal
Health Coverage”***

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Promoting health and well being in a growing population of older adults is a **Major Global Health Goal.**

- Use of clinical preventive services is key to achieving this goal.
 - Variations in use of clinical preventive services in older adults in developed economies are attributed primarily to variations in health coverage (health insurance, regular place of care) and social determinants of health (income, education, race, ethnicity, or geographical location).
 - Despite progress in eliminating financial and structural (health insurance, regular place of care) access barriers to care, variations in use of clinical preventive services by older adults with near universal health coverage (financial and structural access to care) continue to exist.

Construct of Access to Care

Access is defined as "actual use of personal health services and everything that facilitates or impedes their use"
(Andersen & Davidson 2007).

Financial

Structural

Personal

Economic

Potential

Realized

Equitable

Inequitable

Effective

Efficient

Multiple Factors Determine the Health of Older Adults

Population	Economics	Health Status	Health Risks & Behaviors	Health Care
# of older adults	Poverty	Life expectancy	Vaccinations	Use of health care services
Racial & ethnic composition	Income	Mortality	Mammography	Health care expenditures
Education attainment	Source of income	Chronic health conditions	Dietary Quality	Prescription drugs
Living arrangements	Net worth	Sensory impairments & oral health	Physical activity	Sources of health insurance
Older veterans	Participation in labor force	Memory impairment	Obesity	Out of pocket health care expenditures
	Housing expenditure	Depressive symptoms	Cigarette smoking	Sources of payment for health care services
		Disability	Air quality	Veterans health care
		Respondent assessed health status		Nursing home utilization
				Residential services
				Care giving and assistive device use

Source: *Older Americans Update. (2008 & 2010) Federal Interagency Forum on Aging Related Statistics*

Current Characterizations of the Relationship between Access to Care and Use of Clinical Preventive Services are Inadequate in EXPLAINING Continuing Variations; even in populations with **Near Universal Health Coverage**.

- To address this gap we explored the impact of non-social determinant related factors on use of clinical preventive services in older adults. We:
 - Adapted Aday & Andersen's (1981) Framework for the Study of Access to Care to develop a Population Health Framework;
 - Identified potential moderators of access (population characteristics, health status, health risks & behaviors) from the literature;
 - Developed a conceptual map of theorized relationships between access, these potential moderators and use of clinical preventive services;

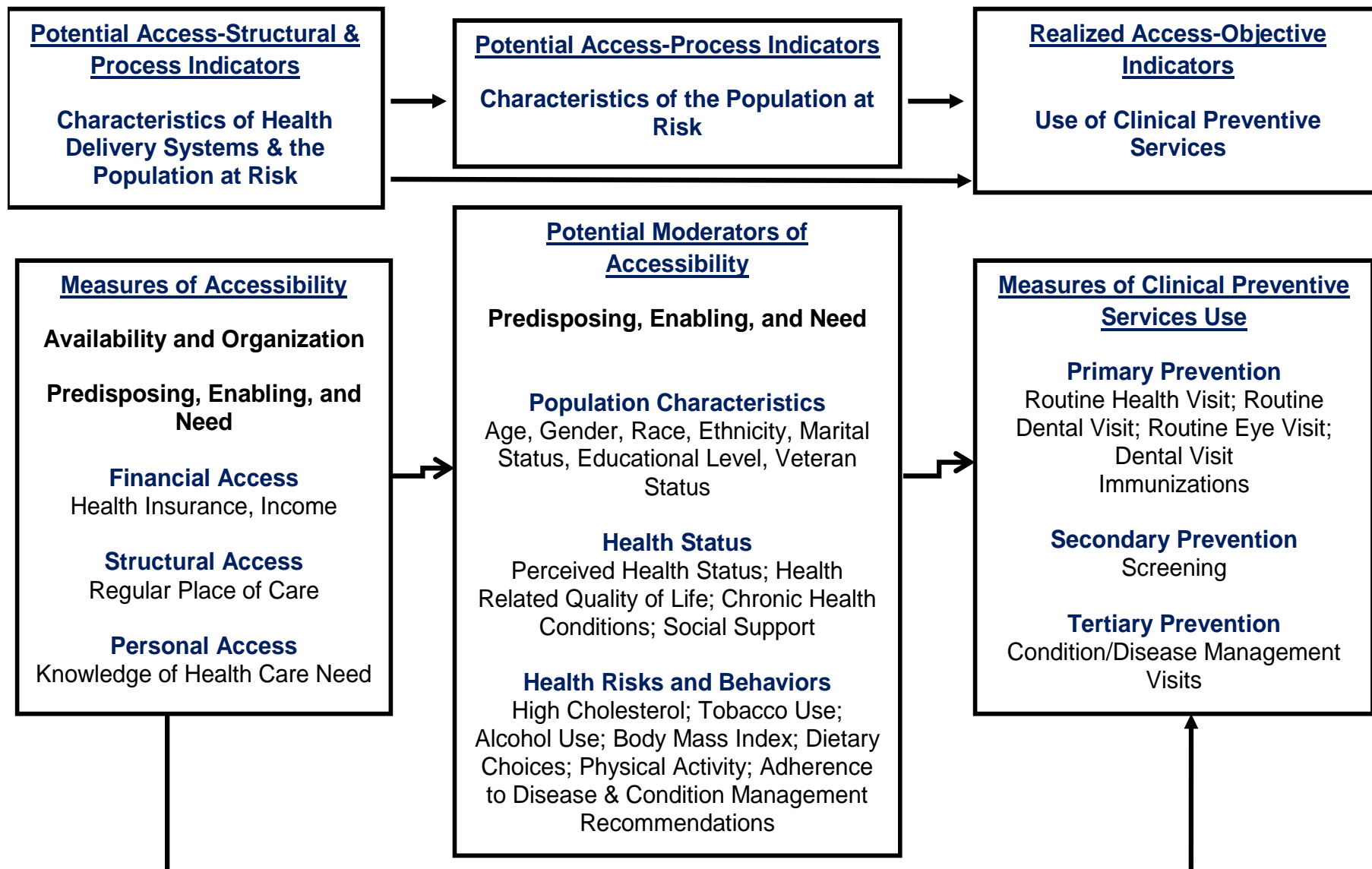
Concepts, theorized relationships, definitions, and measures used in the Population Health Framework for this study are based on concepts and definitions outlined in:

- Aday & Andersen. Medical Care, Vol XIX (12) Supplement: December 1981; 4-27,
- Healthy People 2010: Understanding and Improving Health (DHHS, 2000),
- The 2007 and 2008 Behavioral Risk Factor Surveillance System (BRFSS) survey, and
- Older Americans Update 2008: Key Indicators of Well-being (Federal Interagency Forum on Aging Related Statistics [FIFARS], 2008).

Major Concept	Variable	Conceptual Definition	Operational Definition	Behavioral Risk Factor Surveillance System Questions Related to:
Potential Access <u>Structural Indicators</u> Characteristics of the Health Delivery System	Availability Organization	Volume and distribution of health care resources; entry into the system; whom the individual sees after entry.	Structural Access	Primary source of care; availability of primary services; availability of preventive services
Potential Access <u>Process Indicators</u> Characteristics of the Population at Risk	Predisposing Mutable and Immutable Factors	Propensity to use services; exists before the onset of illness episodes and includes demographic characteristics and values concerning health and illness.	Population Characteristics Health Risks and Behaviors	Age, gender, race, ethnicity; educational level; marital status; Veterans status Awareness of signs & symptoms of cardiovascular disease; high cholesterol; tobacco use; alcohol use; body mass index; dietary choices; physical activity; adherence to disease & condition management recommendations
	Enabling Mutable and Immutable Factors	Means available for the use of services.	Financial Access	Insurance coverage; Insurance coverage for preventive services; income; cost prevented use of services
	Need Perceived and Evaluated	Illness level (most immediate cause of health service use); includes both perceived by the individual and/or evaluated by the health delivery system.	Personal Access Health Status	Knowledge of health need; concerns about discrimination Perceived health status; quality of life; mental disability; physical disability; depressive symptoms; chronic health conditions; sensory and memory impairment
Realized Access <u>Objective Indicators</u>	Use of Clinical Preventive Services	Use of primary (health promotion), secondary (disease prevention), and tertiary (condition/ disease management) clinical preventive services (CPS).	Use of Clinical Preventive Services	Questions about use of primary (health promotion), secondary (disease prevention), and tertiary (condition/ disease management) clinical preventive services (CPS).

Theorized Relationships between Potential Access and Realized Access in Older Adults

(Adapted From: Aday & Andersen. *Medical Care*, Vol XIX (12) Supplement: December 1981; 4-27)



Importance of Population Health Framework to Nursing

- The role of nursing is multifarious...practice, research, education, and advocacy; management of patient and/or health systems; and participation in shaping health policy (International Council of Nursing [ICN] 2010).
- A **population health** approach provides nursing with an opportunity to examine utilization of CPS through a lens that addresses multiple determinants of health.
- A **population health** lens creates an avenue for nursing to acknowledge the interface between health and economics, while considering population health improvement interventions that address nursing practice, research, education, and/or policy.

Purpose

In this two phase study we:

- 1) established a database of population characteristics, health status, health risks and behaviors, chronic illness conditions, and clinical preventive services utilization patterns for older adults who had health insurance coverage for at least 12 months;
- 2) determined the relationships between potential moderators (population characteristics, health status, health risks & behaviors) of access (financial, structural, personal) and utilization of clinical preventive services in a homogeneous (race, income, education, place of residence) sample of older adults with near universal health coverage (health insurance, regular place of care).

Methodology

- **Design**

- Descriptive, exploratory
- Human Subjects/Institutional Review Board Approval

- **Setting/Sample**

- Convenience sample; 202 older adult residents of two privately owned/managed military independent living retirement communities
- Community residents were: 1) 65 years of age or older; 2) eligible for Medicare; 3) likely to have health insurance coverage including pre-paid plans (as the result of military/government retirement) or Medicare and a supplement; 4) likely to have had health insurance coverage for at least 12 months; 5) had a regular source of income; and 6) lived in and maintained individual homes

Methodology

- **Instrumentation**

- **Behavioral Risk Factor Surveillance System** (BRFSS) questions are in the public domain; permission to use questions is granted on the BFRSS web site.
- The **BRFSS** is a collaborative project of the Centers for Disease Control and Prevention (CDC) and US states and territories.
- Questionnaire has three parts: 1) the core component; 2) optional modules; and 3) state-added questions. The *core* includes queries about current health-related perceptions, conditions, and behaviors, as well as demographic questions.
- Most of the core questions have been identified as at least moderately reliable and valid, and many have been identified as highly reliable and valid.

Methodology

- **Data Collection**

- Data were collected:
 - across two years (2007 to 2009); each participant was interviewed once.
 - on site and without identifiers in a private room or in the participants' homes.
- Data collectors were part of the research team and were trained in data collection techniques by the principal investigator.
- To increase comprehension and address potential issues associated with vision impairment both the informed consent and each question on the questionnaire, was read out loud, to each participant.
- Interviews averaged 45 to 60 minutes in length.

Methodology

- **Data Analysis**

- Completed questionnaires were coded.
- Nominal, ordinal, and scale level data entered into statistical spreadsheet. SPSS version 16.0 was used to conduct all analyses.
- Descriptive statistics (frequencies, measures of central tendency) were used to describe and summarize the variables. The summary index of unhealthy days was calculated by combining the number of days in which mental health and physical health were not “good” for the “last 30 days”, for a maximum of 30 days (National Center for Chronic Disease Prevention and Health Promotion 2010).

Methodology

- **Data Analysis**

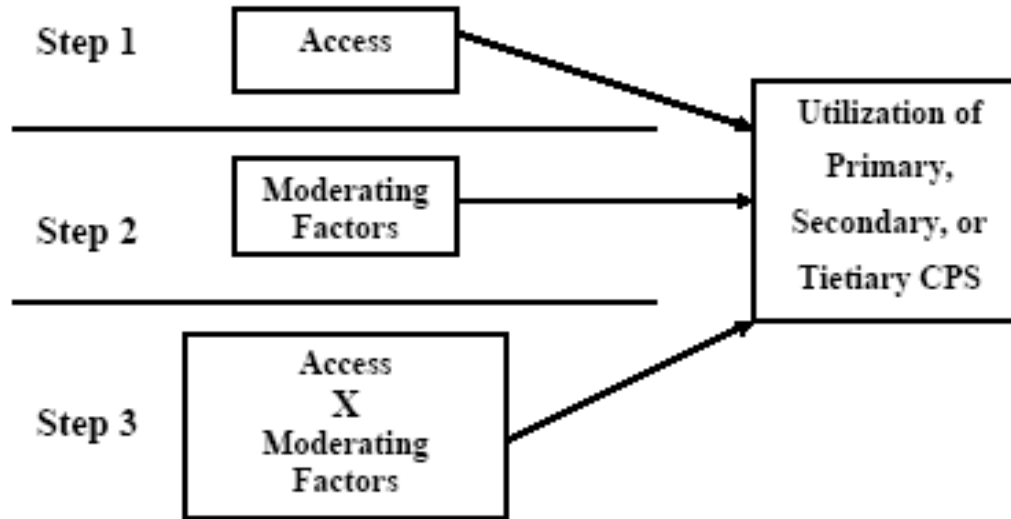
- Exploratory bivariate analyses...conducted to examine the relationships between moderating factors; and between moderating factors and utilization of CPS. **Homogeneous Group** (Near Universal Health Coverage (financial and structural access.
- Using Baron & Kenny's (1986) approach to Moderator Analysis.....Hierarchical logistic regression...conducted on all personal access and moderating factor variables to explore the extent to which interactions between personal access variables and theorized moderating factor variables affected utilization of CPS.
- Categorical independent and moderator variables... dummy coded for regression analysis. The dependent variables were coded as a dichotomous.

Methodology

- **Sample Size**

- All residents at both communities were invited to participate in this exploratory study.
 - A total of 202 of 596 or 34% of the residents across both communities participated in the study.
- For hierarchical logistic regression...models with one personal access variable and one moderating factor, were considered, yielding one interaction term for a total of three independent variables in each logistic regression model.
 - To achieve stable estimates, at least 10 “events” are required per independent variable where an event is defined as “absence” of the characteristic being measured. Our sample size estimates were based on the assumption that 30% of the observations would correspond to an event. The required sample size was $10 \times 3 / .3 = 100$ (Peduzzi, et al. 1996).

Statistical Model of Moderator Affect



In **step 1** the independent variable is entered into the model as a predictor of the dependent variable (utilization of CPS).

In **step 2** the moderating factor is entered into the model as a predictor of the dependent variable (utilization of CPS).

In **step 3** interaction terms (the products of the independent variable and moderating factor) are entered into the model as predictors of the dependent variable (utilization of CPS).

Demographic Summary

- **Participants were:**
 - predominantly White (98%)
 - predominantly female (65.3%)
 - one-hundred (49.5%) were married
 - 48% (97) were widowed
 - the mean age was 84.22 (SD 5.23)
 - 100% had Near Universal Health Coverage

Moderator Analysis

- 126 different hierarchical logistic regression models were constructed and conducted.
- A moderator effect was determined to be present if statistically significant improvement in the regression model was achieved by adding the interaction terms (independent variable X moderating factor), after the main effects of the independent variable and moderating factor were removed.

Logistic Regression Models with Statistically Significant ($p < .05$) Improvement in the Fit by Adding Interaction Terms

Moderator Analysis Model (Independent, Moderator, & Dependent Variables)	Interaction Terms (Measures)	Dependent Variable (Measures)	Pseudo R Square	Statistical Findings (Model Moderator Affect at Step 3)
Personal Access, Population Characteristic, Primary Prevention	Advised to lose weight x Gender	Check up last 12 months	Cox & Snell - .047 Nagelkerke - .084	$X^2(3, N=193) = 9.376$, $p = .025^*$
Personal Access, Health Status, Primary Prevention	Advised to lose weight x Perceived Health Status	Check up last 12 months	Cox & Snell - .049 Nagelkerke - .087	$X^2(3, N=193) = 9.639$, $p = .022^*$
Personal Access, Health Risk, Primary Prevention	Advised to lose weight x BMI ≥ 30 kg/m ²	Check up last 12 months	Cox & Snell - .062 Nagelkerke - .107	$X^2(3, N=183) = 11.659$, $p = .009^*$
Personal Access, Health Risk, Primary Prevention	High Blood Pressure x BMI ≥ 30 kg/m ²	Check up last 12 months	Cox & Snell - .041 Nagelkerke - .071	$X^2(3, N=191) = 7.981$, $p = .046^*$
Personal Access, Health Status, Secondary Prevention	Advised to lose weight x Perceived Health Status	Had colonoscopy/ sigmoidoscopy	Cox & Snell - .042 Nagelkerke - .104	$X^2(3, N=193) = 8.353$, $p = .039^*$
Personal Access, Health Status, Secondary Prevention	High Cholesterol x Perceived Health Status	Had colonoscopy/ sigmoidoscopy	Cox & Snell - .044 Nagelkerke - .121	$X^2(3, N=198) = 9.008$, $p = .029^*$

*Significant $p < .05$

Limitations

- Self Report
- Selection Bias
- Methodological Design
- Limited Generalizability

Summary of Findings

- Theorized relationships in PH framework were validated; and the existence of moderators of personal access were found.
- The level of participation in primary and secondary prevention activities exceeded all targets set by Healthy People 2010....supports other research findings that older adults with health insurance and a regular place of care are more likely to participate in CPS.
- Analyses support the existence of variations in utilization of CPS in older adults with near universal health coverage.

Implications

- When intervening with populations to improve utilization of clinical preventive services, nurses should consider the multidimensionality of access to health care and the potential moderating effect of multiple determinants of health.
- Studying the impact of non-social determinant of health moderators of potential access on realized access (actual use of clinical preventive services), may yield more insight into variations in utilization of CPS than studying the impact of health insurance coverage alone.
- Primary and secondary analyses studies should be conducted across various types of population groups with varying levels of financial and structural access to care to determine the extent to which the potential moderators identified in this study impact use of clinical preventive services.

Acknowledgements

- Acknowledge the support of:
 - Associate Investigator: Dr. Diane Padden;
 - Research Associate: Ms. Wakettia Ferguson; and
 - Research Assistants during Phase II Data Collection (Students in MSN Program): Jean Barido, Shawn Kelly, Linda Nunn-Pridgen, and Michelle Weddle
- This research was supported by an Intramural Research Grant from the Uniformed Services University (C061JR).
- Bibb, S. C., Padden, D., & Ferguson, W. (2012). Moderators of access and utilization of clinical preventive services in older adults. *Journal of Advanced Nursing*, 68(2), 335-348.



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QUESTIONS?

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