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Dental Usage under Changing Economic Conditions

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Abstract: Economic fluctuations significantly influence healthcare utilization, including dental services. This study evaluates the relationship between changes in household financial status and dental care utilization among older adults. Using data from the Health and Retirement Study (HRS), the study examines how variations in income and wealth impact dental service usage. Findings indicate that dental utilization remains relatively stable despite moderate financial changes, with significant decline observed only in cases of substantial wealth loss. These results highlight the resilience of dental care usage and the role of economic stability in healthcare decision-making.

Aim: To evaluate the impact of changing economic conditions, particularly variations in income and wealth, on dental care utilization among adults.

Methods: A descriptive cross-sectional study was conducted to evaluate dental service utilization under changing economic conditions. The study was carried out in dental undergraduate students.

Result: A total of 200 students took part in this with females (78%) and male of (22%). Age of the participants ranging from 18-27 years. In this study Females were more likely to demonstrate perception in dissection room experiences than male.

Conclusion: The study highlights that affordability remains a major barrier to accessing dental care, despite moderate awareness of oral health practices. This shift in healthcare-seeking behavior can negatively affect long-term oral health outcomes and increase the overall treatment burden.

Keywords: Dental Utilization, Economic Conditions, Wealth Changes, Income Variation, Oral Health Services, Health Economics, Dental Insurance, Healthcare Access, Older Adults, Health and Retirement Study (HRS)

INTRODUCTION:

The four-year period between 2004 and 2008 witnessed the onset of the economic crisis that still persists today. During 2008 the Dow Jones Industrial Average fell 33 percent, while the U.S. unemployment rate was half again higher in December of that year than in January. [1] Although the trough of the recession was not reached until after this period, the onset of the downturn served as a warning to households to more carefully examine how to spend their money. Households facing significant financial constraints may have cut out all but the most needed spending, foregoing things seen as less critical. For many, this could include dental care; despite the potential for serious oral health consequences and larger expenditures down the road, seeing a dentist may be seen as something easily postponed.

Anecdotally, fewer people have been seeking dental care during the recession, likely because of diminished household resources or a lack of health insurance resulting from being out of work. [2,3] While income may be the key driver of the decision to seek care, whether a household has sufficient assets to buffer any income losses may also play a large role. Indeed, a recent cross-country study of persons aged 18 to 65 found that the

wealth losses during the downturn have contributed to decreases in the use of routine medical care particularly in countries such as the U.S. lacking universal health coverage.

Assets may be particularly salient to older households, who may have decreased incomes as a consequence of retirement and may recognize that they will need to draw down on their wealth during retirement. Indeed, economic models predict that around the time of retirement, households should experience relatively little changes in consumption as a result of income drops due to retirement; they should have anticipated (and planned for) income changes. For the elderly then, the combination of income and wealth may be a more complete measure of economic status. [8] Fluctuations in income and wealth have become more common during the economic recession, as individuals have become unemployed or experienced changes in assets as a result of housing market declines or stock market turbulence. Such changes may become increasingly important considerations for older households, as a higher proportion of individuals have 401(k) or defined contribution pension plans with holdings in the stock market, as opposed to defined benefit packages which paid the same benefits, regardless of macroeconomic conditions during retirement. Understanding the determinants of dental care use among older populations will become increasingly important as the Baby Boom generation ages and a higher proportion of older adults enter their retirement years with teeth.

AIM:

To evaluate the impact of changing economic conditions, particularly variations in income and wealth, on dental care utilization among adults.

OBJECTIVES:

- To assess the association between changes in economic status (income and wealth) and dental service utilization.
- To determine the effect of significant wealth loss on dental visit patterns.
- To evaluate the influence of income changes on dental care usage.
- To analyze the role of dental insurance in maintaining dental utilization during economic fluctuations.

METHODOLOGY:

Study Design

A longitudinal observational study was conducted using secondary data analysis. The study examined changes in dental utilization over time in relation to economic variables.

DATA COLLECTION

Source of Data:

Data were obtained from the Health and Retirement Study (HRS) database.

Variables Collected

Dependent Variable

Dental utilization:

Started dental visits

Stopped dental visits

Independent Variables

Changes in household wealth

Changes in household income

Dental insurance coverage status

Covariates, Age, Gender, Race/ethnicity, Education level, marital status, Health status Employment/retirement status, Number of natural teeth

DATA ANALYSIS:

Statistical analysis was performed using logistic regression models

Two main outcomes analyzed:

Probability of starting dental care

Probability of stopping dental care

Both unadjusted and adjusted odds ratios (ORs) were calculated

Significance level set at:

$p < 0.05$

ETHICAL CONSIDERATIONS:

The study utilized secondary data from HRS, which is publicly available and ethically approved

Original HRS data collection followed:

Informed consent procedures

Institutional ethical approvals

For this analysis:

No direct patient interaction was involved

Data confidentiality and anonymity were maintained

No personal identifiers were used.

RESULT:

A total of 200 students took part in this with females (78%) and male of (22%). Age of the participants ranging from 18-27 years. In this study

Females were more likely to demonstrate perception in dissection room experiences than male. Significantly INTERNS showed greater familiarity

With advanced applications than third year and final year students and interns.

AGE

	N	Minimum	Maximum	Mean	Std. Deviation
Age:	200	21	26	23.86	1.757

Gender

		Frequency	Percent
Valid	MALE	44	22.0
	FEMALE	156	78.0
	Total	200	100.0

Year of the study

		Frequency	Percent
Valid	BDS	61	30.5
	BDS	75	37.5
	INTERN	64	32.00
	Total	200	100.0

Distribution and comparison of responses based on gender:

Item	Response	Males		Females		Chi-Square value	P value
		n	%	n	%		
Q1	1	16	25.3	47	74.7	12.755	0.04*
	2	28	20.4	109	79.6		
Q2	1	9	17.2	25	16.0	5.655	0.07
	2	19	54.9	41	26.2		
	3	11	19.3	54	34.6		
Q3	4	5	9.4	26	16.6	11.481	0.001*
	1	44	100	156	100		
	2	0	0	0	0		
	3	0	0	0	0		

	4	0	0	0	0		
Q4	1	16	42.1	70	17.9	19.818	0.0001*
	2	15	40.5	25	19.5		
	3	9	15.4	22	51.3		
	4	4	4.2	34	25.1		
Q5	1	28	45.7	102	74.3		
	2	12	54.3	45	25.7	10.620	0.014*
	3	1	16.6	5	83.3		
	4	3	42.8	4	57.2		
Q6	1	15	63.7	25	46.3	5.049	0.168
	2	7	47.6	33	52.4		
	3	10	62.5	85	67.5		
	4	12	67.7	10	32.3		
Q7	1	18	57.1	21	42.9	9.489	0.023*
	2	15	54.9	37	45.1		
	3	10	22.5	87	54.1		
	4	1	20.4	1	32.5		
Q8	1	2	28.5	5	71.4	10.167	0.017*
	2	19	23.7	61	76.2		
	3	3	33.3	6	66.6		
	4	20	19.2	84	80.7		
Q9	1	12	29.1	30	46.9	1.211	0.750
	2	15	30.6	26	39.4		
	3	10	25.4	73	54.6		
	4	7	12.5	12	37.5		
Q10	1	24	54.5	23	14.7	8.275	0.041*
	2	9	20.4	19	12.1		
	3	7	15.9	20	12.8		
	4	4	9.0	94	60.2		
	5	0	0	0	0		
Q11	1	3	6.8	5	3.2	5.928	0.115
	2	28	63.6	99	63.4		
	3	9	20.4	16	10.2		
	4	4	9.0	36	23		
Q12	1	20	13.5	26	16.5	6.303	0.98
	2	32	19.3	22	20.7		
	3	61	64.9	33	25.1		
	4	35	16.6	90	47.5		
Q13	1	10	22.7	54	30.8	2.483	0.478
	2	2	4.5	18	11.5		
	3	14	31.8	3	1.9		
	4	18	40.9	81	51.9		
Q14	1	13	20.0	52	80.0	11.546	0.06
	2	9	29.0	22	71.0		
	3	5	20.8	19	79.2		
	4	8	20.5	31	79.5		
	5	9	21.9	32	78.1		

P≤0.05 is statistically significant Distribution and comparison of responses based on year of the study:

Item	Response	III BDS		IV BDS		INTERN		Chi-Value	P-Value
		n	%	n	%	n	%		
Q1	1	34	30.0	37	32.7	42	37.1	10.757	0.04*
	2	27	25.9	38	36.5	39	37.5		
Q2	1	7	9.7	10	16.6	14	20.5	8.546	0.05**
	2	36	50	36	60	32	47.0		
	3	20	27.7	12	20	14	20.5		
	4	9	12.5	2	3.3	8	11.7		
Q3	1	72	100	60	100	68	100	11.192	0.001*

	2	0	0	0	0	0	0		
	3	0	0	0	0	0	0		
	4	0	0	0	0	0	0		
Q4	1	6	15.8	6	15.8	4	10.5	17.051	0149
	2	6	16.2	11	29.7	1	2.7		
	3	26	23.4	33	34.5	34	43.5		
	4	42	36.5	8	12.6	25	34.6		
Q5	1	58	80.5	44	73.3	54	79.4	18.317	0.106
	2	2	2.7	6	10	5	7.3		
	3	8	11.1	5	8.3	2	2.9		
	4	4	5.5	7	11.6	7	10.2		
Q6	1	9	16.7	8	14.8	8	14.8	42.592	0.07
	2	15	23.8	16	25.4	1	1.6		
	3	7	8	20	22.7	9	10.2		
	4	14	45.2	4	12.9	7	22.6		
Q7	1	3	6.1	9	18.4	11	22.4	19.802	0.071
	2	16	19.5	18	22.5	7	8.5		
	3	46	54.7	25	32.6	20	21.5		
	4	12	32.2	17	23.6	30	51.9		
Q8	1	20	29.4	15	51.6	10	63.3	15.579	0.004*
	2	22	30.6	9	49.4	5	36.9		
	3	2	12.6	5	87.4	15	23.6		
	4	28	45.4	31	54.6	38	24.6		
Q9	1	8	12.5	6	9.4	13	20.3	22.714	0.07
	2	11	16.7	15	22.7	6	9.1		
	3	15	20.3	20	27	4	5.4		
	4	11	34.4	7	21.9	2	6.2		
Q10	1	5	6.9	5	8.3	10	14.7	19.322	0.081
	2	10	13.8	12	20	3	4.41		
	3	30	41.6	13	21.6	17	25		
	4	27	37.5	30	50	38	55.8		
	5	0	0	0	0	0	0		
Q11	1	13	18	15	25	14	20.5	25.349	0.013*
	2	37	51.3	25	41.6	26	38.2		
	3	15	20.8	7	11.6	9	13.2		
	4	7	9.7	13	21.6	19	27.9		
Q12	1	6	13	5	10.9	10	21.7	29.118	0.04*
	2	10	8.5	7	13.6	4	17.4		
	3	17	18.1	31	51.6	5	15.3		
	4	39	73.8	22	24.5	59	67.6		
Q13	1	16	22.2	13	21.6	11	16.1	14.206	0.288
	2	10	13.8	7	13.6	14	20.5		
	3	12	16.6	9	15	5	7.3		
	4	34	47.2	31	51.6	38	55.8		
Q14	1	23	37.7	31	41.3	32	49.2	11.545	0.06
	2	8	13.1	9	12.0	8	12.3		
	3	9	14.7	11	14.6	6	9.2		
	4	7	11.4	6	8.0	9	13.8		
	5	14	22.9	18	24.0	10	15.3		

P<0.05 is statistically significant

DISCUSSION:

Given earlier findings about the relationship between wealth levels and the decision to seek dental care, it may not be surprising that changes in wealth are associated with changes in dental care utilization. What is surprising is that older adults appear to be fairly resilient to wealth fluctuations; only once wealth drops by 50% or more do households have an increased likelihood of stopping dental care use. We tested sensitivity to wealth changes at various thresholds; only at declines of 50% or more did we find an effect. For households nearing or in retirement, losses of wealth between 10% and 50% can still have important consequences for financial well-being; it is

interesting that even with such losses, households did not disrupt their dental care use patterns. This indicates that until wealth losses are substantial, individuals do not completely forego dental care.

The wealth results stand in contrast to income; in earlier work we found correlation between levels of income and dental care use. In our current study however, we found no correlation between changes in household income and changes in seeking dental care. This is actually consistent with economic models of consumption around the time of retirement; households optimally would have anticipated retirement and therefore be less sensitive to income fluctuations around that time. [5, 7, 21].

These results otherwise generally agree with our previous analysis of changes in dental use by this population that we conducted with earlier 2004 and 2006 waves of the HRS, though those results did not incorporate wealth status or changes in income and wealth between periods and did not cover a period that included the onset of the current recession. [10]

There are three key caveats to interpreting our findings. First, our wealth measure includes both liquid and non-liquid types of wealth, from checking accounts to pension balances to housing wealth. Thus, large declines in assets could be due to a range of factors including: decreases in pension holdings due to stock market fluctuations, increases in consumer debt reducing household net worth, the sale of a business, or declines in the value of real estate holdings. It is conceivable that older households may be more sensitive to the balance in their stocks or pension accounts than to the balance of their housing wealth, particularly if they plan on staying in their house for the remainder of their lifetime. In future work, we plan to explore whether dental usage is more sensitive to certain types of wealth changes than others.

Second, even though we controlled for a range of personal characteristics in our logistic model, we cannot verify that wealth changes are solely capturing the effects of changing finances. As suggested above, households who experience a 50% decline in wealth may have experienced significant life events, including a major health event of one's self or spouse or taking on debt to assist other family members. Thus, it is possible that the wealth effects we are observing are proxy measures for a tumultuous time leading to a lack of focus on one's own dental care.

Third, our measure of dental care use is only able to capture any use over a two year interval. Thus, it is quite possible that individuals who experience wealth declines of less than 50% alter their dental seeking behavior in a way not captured by our measure. For example, someone with lesser wealth declines may only see the dentist once every year instead of once every six months, or may forego more expensive procedures like crowns or root canals. Neither of these possibilities is picked up by our measure of dental use. Nonetheless, even if individuals with lower wealth losses cut back on dental care, the fact that they still had at least one visit during the two year period does indicate that they did receive some dental care. In a module asked to a subset of respondents in the 2010 HRS, we expect to have more detailed information about the type of dental care usage. Unfortunately, that module will only be collected once so we will not be able to look at changes over time, though we do plan to examine types of usage relative to wealth and income levels.

CONCLUSION:

Changing economic conditions have a significant impact on dental service utilization. Financial constraints lead to a noticeable decline in routine and preventive dental visits, while emergency treatments become more prevalent due to delayed care. Patients tend to prioritize essential and cost-effective procedures over elective and aesthetic treatments during periods of economic instability.

The study highlights that affordability remains a major barrier to accessing dental care, despite moderate awareness of oral health practices. This shift in healthcare-seeking behavior can negatively affect long-term oral health outcomes and increase the overall treatment burden.

Ensuring accessible, affordable, and preventive-focused dental care through policy support, insurance coverage, and public health initiatives is crucial to maintaining consistent oral healthcare utilization, regardless of economic fluctuations.

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