

Patient Attitudes and Emotions Predict Health Outcomes: Evidence from the National Health and Wellness Survey

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Background

Many predictors of health outcomes are well-established in the RWE literature, spanning from physiological predictors (e.g., disease severity, lab values, genotype), to treatment patterns (e.g., duration of treatment, type of treatment, adherence), to social determinants of health (e.g., race, income, health insurance status).¹

However, less is known about how patient attitudes (e.g., resilience) and emotions (e.g., emotions resulting from social support) predict health outcomes and affect burden of illness (BOI).²

Establishing empirical associations between specific patient attitudes, emotional processes, and health outcomes may engender:

- A. A more comprehensive understanding of the predictors of health outcomes.
- B. Empirically-driven hypotheses about the way specific attitudes and emotional processes predict different types of health outcomes (i.e., mental and physical).
- C. The development of more informed and effective health interventions that aim to reduce BOI by targeting particularly potent attitudes and emotional processes.

Objective

We assessed the association between patient attitudes, emotional processes, and health outcomes in a nationally representative general population real-world dataset.

Methods

Data from the 2024 US National Health and Wellness Survey (NHWS), a cross-sectional, nationally representative, general population survey, were used. Data included responses from respondents with diagnosed health conditions as well as those without any diagnoses.

Associations between demographics, self-reported patient attitudes (e.g., resilience), emotional processes (e.g., emotions resulting from social support), and health outcomes (e.g., healthcare resource use) were assessed with phi coefficients, as well as point biserial, rank biserial, and Spearman correlations without adjustment for covariates.

Key respondent attitudes assessed included:

- A. Patient Activation Measure (PAM)
- B. Brief Resilience Scale (BRS)
- C. Prioritization of HCP attentiveness
- D. Prioritization of frequent HCP contact
- E. Preference for apps over doctor/pharmacist to manage medications

Respondent emotional processes assessed included:

A. Modified Medical Outcomes Study Social Support Survey (mMOS-SS)

Key respondent health outcomes assessed included:

- A. Healthcare resource use (HRU): Number of HCP visits, ER visits, and hospitalizations in the past 12 months
- B. Work productivity and activity impairment (WPAI): absenteeism, presenteeism, and activity impairment
- C. Health-related quality of life (HRQoL): EQ-5D-5L index score, EQ-VAS, RAND-36 physical score, RAND-36 emotional score, and RAND-36 social score
- D. Mental Health: GAD-7 score (anxiety) and PHQ-9 score (depression)
- E. Sleep: sleep difficulties in past 12 months
- F. Stress: stress in past week

Results

Analyses were conducted on a sample of 75,013 respondents: mean (SD) age 48.55 (17.62) years, White (68.9%), female, (52.5%), income <\$100,000 (58.3%), university-educated (52.8%), non-rural (89.5%), food secure (79.7%) (**Table 1**).

- Associations between (key) demographics, attitudes, emotions, emotional processes, and health outcomes are presented in a correlation matrix heatmap format (**Table 2**).
- The following cut points were used to determine the strength of each association (absolute correlation coefficient): 0-0.19 (very weak), 0.20-0.39 (weak), 0.40-0.59 (moderate), 0.60-0.79 (strong), 0.80-1.00 (very strong).
- As there was no adjustment for covariates and these analyses were conducted on a general population sample, which included both respondents with diagnosed health conditions as well as those without diagnoses, most correlations were weak-moderate in magnitude. However, there was still meaningful heterogeneity among observed associations. Noteworthy findings are delineated below.

Table 1. Demographics

		N	%
Age (Mean, SD)		48.55	17.62
Race	White	51666	68.9%
	Non-white including multiracial	23347	31.1%
Sex	Male	35657	47.5%
	Female	39356	52.5%
Income	≤\$99,999	43715	58.3%
	>\$100,000	28981	38.6%
	Decline to answer	2317	3.1%
Education	University education or higher	39607	52.8%
	Less than university education	35149	46.9%
	Decline to answer	257	0.3%
Residence	Rural	7892	10.5%
	Non-rural	67121	89.5%
Food insecurity	Yes	13508	18.0%
	No	59773	79.7%
	Decline to answer	1732	2.3%

Demographics

- Older age was associated with more HCP visits, whereas it was associated with fewer ER visits and hospitalizations. Older age was also associated with less WPAI, better emotional HRQoL, better social HRQoL, less anxiety, less depression, and less stress.

Emotions

- Social support (and emotions resulting from social support) were associated with less WPAI, better HRQoL, less anxiety, less depression, and less stress.

Attitudes

- PAM was associated with less WPAI, better HRQoL, less anxiety, and less depression.
- Resilience was associated with less WPAI, better HRQoL, less anxiety, less depression, and less stress.
- Prioritization of HCP attentiveness and prioritization of frequent HCP contact were associated with more HCP visits.
- A preference for health apps over HCP/pharmacist interactions was associated with more WPAI, worse HRQoL, more anxiety, more depression, and mores stress.

Table 2. Associations between patient demographics, emotional processes, attitudes, and health outcomes

	HRU			WPAI			HRQoL					Mental Health		Sleep	Stress
	HCP visits past 12 months	ER visits past 12 months	Hospitalizations past 12 months	Absenteeism	Presenteeism	Activity impairment	EQ-5D index	EQ-VAS	RAND-36: physical	RAND-36: emotional	RAND-36: social	GAD-7 (anxiety)	PHQ-9 (depression)	Sleep difficulties in past 12 months	Stress in the past-week
Demographics															
Age	0.3183	-0.1199	-0.1405	-0.2758	-0.2029	-0.1000	-0.0540	-0.0367	0.0852	0.2540	0.3218	-0.3567	-0.3330	-0.0256	-0.2034
Emotional Processes															
Social support (mMOS-SS)	0.1662	-0.0494	-0.0481	-0.1621	-0.1975	-0.1903	0.1162	0.1410	0.1629	0.1967	0.2536	-0.2199	-0.2273	-0.0189	-0.1766
Attitudes															
Patient Activation (PAM)	0.0920	-0.0164	-0.0185	-0.1220	-0.1679	-0.1952	0.1530	0.2079	0.1704	0.1727	0.1858	-0.1690	-0.1883	-0.0263	-0.1115
Resilience (BRS)	0.0668	-0.1642	-0.1612	-0.3440	-0.4038	-0.3727	0.2739	0.2618	0.3009	0.3903	0.4829	-0.4975	-0.4847	-0.1014	-0.4134
Prioritization of HCP attentiveness	0.2851	0.0247	0.0249	-0.0563	-0.0629	-0.0585	0.0009	0.0427	0.0331	0.0879	0.1050	-0.1138	-0.1017	0.0037	-0.0656
Prioritization of frequent HCP contact	0.2579	0.0637	0.0629	0.0208	0.0199	0.0163	-0.0304	0.0089	-0.0219	0.0284	0.0234	-0.0448	-0.0346	0.0030	-0.0186
Preference for apps over HCP/pharmacist	0.0262	0.1139	0.1650	0.1950	0.2587	0.1785	-0.0689	-0.0008	-0.1270	-0.1960	-0.2432	0.2506	0.2708	0.0343	0.1905

Correlations include phi coefficients, as well as point biserial, rank biserial, and Spearman correlations without adjustment for covariates. HRU=healthcare resource use; WPAI=Work Productivity and Activity Impairment; HRQoL=health-related quality of life; HCP=healthcare professional; ER=emergency room; EQ-5D index =Euroqol-5D index; EQ-VAS=Euroqol visual analogue scale; RAND=Research and Development; GAD=generalized anxiety disorder; PHQ=Patient Health Questionnaire; mMOS-SS=Modified Medial Outcomes Study Social Support Survey; PAM=Patient Activation Measure; BRS=Brief Resilience Scale.

Conclusion

- Specific demographics, emotional processes, and attitudes were associated with different health outcomes.
- Social support, PAM, and resilience were associated with a multitude of better health outcomes, although they were more closely associated with emotional, social, and mental health outcomes than with physical health outcomes. This suggests that interventions that aim to improve non-physical aspects of BOI may benefit from targeting these specific emotional and attitudinal mechanisms.
- A preference for health apps over HCPs and pharmacists was associated with worse health outcomes, indicating the need for communicating the importance of in-person visits to target populations.
- Physical health typically deteriorates with age.³ However, older age was *paradoxically* associated with better emotional, social, and mental health outcomes. This finding speaks to a generational mental health crisis among younger respondents in the US and highlights the need for interventions in younger populations.
- These results underscore the importance of specific attitudes and emotional processes in predicting different types of health outcomes and may inform strategies for improving future health interventions.⁴

References

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