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Relationship of anxiety, depression and alcohol use disorders to persistent high utilization and potentially problematic under-utilization of primary medical care

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Abstract

Psychiatric disorders in primary medical care are prevalent, frequently undetected, under-treated, and costly. Studies report that psychiatric disorders are associated with high utilization of healthcare, but the stability of high utilization has not been systematically examined. Medical records data for 500 primary care patients in Connecticut, USA, representing high and modal utilization levels were examined over a 2-year period. In multi-variate analyses, only anxiety disorders were associated with *persistent* high utilization of primary care, as well as with inconsistent attendance. Alcohol use disorders were inversely associated with persistent high utilization, and positively related to inconsistent attendance and low complexity services (determined by evaluation and management coding). Depression was associated with low complexity primary care services and inconsistent attendance. Anxiety disorders and mixed anxiety–depression disorders warrant attention as potential contributors to persistent high or inconsistent utilization of primary healthcare. Alcohol use disorders may be under-treated in primary care due to inconsistent attendance, few visits, and low complexity services.

Keywords: Outpatient healthcare utilization; Psychiatry; USA

Introduction

An estimated one in three adult primary care patients has a psychiatric disorder (Carbone et al., 2000). The psychiatric disorders of primary care patients often are undetected and under-treated (Lefevre et al., 1999), resulting in patients who are functionally impaired (Sherbourne, Wells, Meredith, Jackson, & Camp 1996), prone to somatization (Katon, Sullivan, & Walker, 2000), and often high utilizers of healthcare (Buck, Teich, & Miller, 2003; Ford, Trestman, Tennen, Steinberg, & Allen, 2004; Haas, Spendlove, Silver, & Holmberg 1999; Pearson et al., 1999).

Fewer studies have investigated *persistent* utilization of healthcare (i.e., over 2 or more years). One in four older adult HMO patients were classified as consistent high utilizers over a 6-year period, and compared to low users, the high users tended to be older, more medically ill, more psychologically distressed, and to have four times higher outpatient care costs (Freeborn, Pope, Mullooly, & McFarland, 1990). Henk, Katzelnick, Kobak, Greist and Jefferson (1996) found that

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depression combined with persistent (two consecutive years) high utilization best predicted higher healthcare costs. Non-depressed high utilizers had variable costs over a 3-year study period, but depressed high utilizers had stable high costs (Henk et al., 1996). These studies' findings suggest that psychological distress may be associated with persistent high utilization of healthcare, and that the combination of persistent high utilization and depression may lead to particularly high healthcare costs. However, several questions concerning the correlates and impact of persistent high utilization remain unanswered. In particular, replication and extension of these studies is needed to determine if the prevalence of *persistent* high utilization of healthcare is in the 25% range and if specific psychiatric disorders (including but not limited to depression) are associated with persistent high utilization.

The present study therefore was designed with new analyses of data collected for a case–control investigation that used a stringent definition of high utilization (i.e., at or above the 95th percentile for annual number of primary care visits), in which we found that high utilization for 1 year prospectively predicted medical and psychiatric morbidity, and psychiatric morbidity predicted other healthcare utilization independent of the effect of primary care high utilization (Ford et al., 2004). Analyses in the present report are based on a newly identified sub-sample of *persistent* high primary care utilizers, in order to distinguish them from transient high utilizers. Our goal was to determine if persistent high utilizers had different patterns of depressive, anxiety, and alcohol use disorders, medical comorbidity, and potentially problematic healthcare utilization, compared to the patterns identified for a mixed group of transient and persistent high utilizers in the prior study (Ford et al., 2004). We included both a measure of problematic utilization from the original study (i.e., irregular attendance) and a new measure designed to assess incongruence between the complexity of clinical problems and the complexity of primary care services (i.e., the provision of "low complexity services" for patients with comorbid medical and psychiatric diagnoses, see below for definition).

Method

Procedure and sample

The study was conducted in accordance with procedures approved by the Institutional Review Board of the University of Connecticut Health Center (UCHC). As described in greater detail by Ford et al. (2004), outpatient internal medicine patients with at least one visit (excluding patients with only one annual checkup) during 1998 were identified, and 500 patients were randomly selected after stratifying for gender and utilization (i.e., high [>8 visits for women; >7 visits for men] versus mid-range [2 visits; the central tendency of primary care visits for women, Mdn = 1.5, $M = 2.6$, and men, Mdn = 1.3, $M = 2.5$]). Participants' ages ranged from 17 to 103 years (Mdn = 63 for women, 66 for men), and most (90%) were White (5% Hispanic, 3.5% Black, 1% Asian-Pacific Islander). Most participants were retired (49%) or employed or students (35%); 16% were unemployed or disabled. Most had public sector (Medicare, 53%; Medicaid, 8%) or private (37%) health insurance.

Primary care utilization data from the next full year (1999) were used to develop a categorization of stable high utilization. No low utilizer patients in 1998 became high utilizers in 1999. Therefore, a *modal utilizer* (MU; $N = 374$) group was identified, including: (a) stable low utilizers in both 1998 and 1999 ($N = 223$), or (b) low utilizers in 1998 with more than two primary care visits in 1999 ($N = 44$; 1999 $M = 4.0$ visits, SD = 1.4, range = 3–6 visits), or (c) high utilizers in 1998 who became low utilizers in 1999 ($N = 107$). The remaining 126 participants (25% overall) were *consistent high utilizers* (CHU): high utilizers in both years ($N = 24$) or 1998 high utilizers with more than a modal number of primary care visits in 1999 ($N = 102$; 1999 $M = 5.0$ visits, SD = 1.5, range = 3–10 visits).

Measures

Although potentially subject to bias due to clinician under- or over-reporting, we chose to use archival data in order to avoid response biases that compromise self-report data in older adults (Wallihan, Stump, & Callahan, 1999). The UCHC IDX computer repository for outpatient healthcare data was searched for all records from 1998 to 1999 for each study patient to obtain the following measures: (a) number of primary care (internal medicine) appointments attended (in order to classify *utilization* category; see above) and canceled or no-showed (in order to assess *inconsistent attendance*), (b) the presence or absence of ICD-9 clinician diagnosis codes for 7 chronic medical illnesses (*cancer, asthma; arthritis;* and *metabolic, cardiovascular, pulmonary,* or *gastrointestinal diseases*) and 3 categories of psychiatric disorder (*depression, anxiety disorders, alcohol use disorders*; see below); (c) healthcare insurance (*private insurance* versus *Medicaid/Medicare/uninsured*); (d) demographics (*age, race, gender, employment status*); and, (c) level of complexity of medical decision-making derived from the American Medical Association Current Procedural Coding (CP^{TM}) (https://catalog.ama-assn.org/Catalog/cpt/cpt_home.jsp), classified as *Straightforward/low complexity* (minimal or limited) or *moderate/high complexity* (multiple or extensive)

based on three criteria (i.e., number of diagnoses or management options, amount or complexity of information, and risk of complications and/or morbidity or mortality).

Psychiatric disorders included: anxiety disorders (panic with or without agoraphobia, social phobia, generalized anxiety, post-traumatic stress, obsessive compulsive, and anxiety disorder related to medical condition; 5% prevalence), depression (major depressive episode, dysthymia, depression related to medical condition; 11% prevalence), and alcohol use disorders (alcohol dependence or abuse; 5% prevalence). These prevalence levels are comparable to those reported in other primary care samples (Carbone et al., 2000; Lefevre et al., 1999). Depression often co-occurred with anxiety disorders (8 cases; 32%), but less often with alcohol use disorders (5 cases; 21%). Few depression cases had comorbid anxiety (14%) or alcohol use disorders (9%). Other psychiatric disorders also were diagnosed and recorded in the archival dataset, but occurred too infrequently to permit meaningful inclusion in study analyses: bipolar disorder (1% prevalence), schizophrenia (0.6% prevalence), eating disorders (0.8% prevalence), and other substance use disorders (0% prevalence).

Statistical analyses

Data were analyzed with the statistical package for the Social Sciences for Windows (Version 6.0). Bivariate logistic regression analyses were conducted to obtain the odds ratios and 95% confidence intervals (CI) comparing CHU vs. MU on each demographic, insurance coverage, and medical or psychiatric diagnosis variable, followed by a multi-variate logistic regression including all demographic and psychiatric variables and all medical illnesses that were significantly related to CHU in univariate analyses. Next, multi-variate linear (continuous variables) or logistic (dichotomous variables) regressions were conducted to determine if depression, anxiety, or alcohol use disorders were associated with irregular primary care attendance, receiving low complexity primary care, or use of specialty or emergency services, after accounting for persistent high utilization, demographics, insurance coverage, and the presence of the seven chronic physical illnesses (i.e., medical morbidity).

Results

CHU prevalence (25%) was almost identical to that (26%) reported by Freeborn and colleagues (1990). On a univariate basis, the CHU and MU groups differed in age (M[SD] = 56[20] vs. 63[19]; $t[1,498] = 7.8$, $p < .001$) but not in ethnicity, gender, employment, or alcohol use disorder prevalence. In addition to being younger, CHU patients were more likely than MU patients to be diagnosed with depression, an anxiety disorder, or five chronic medical illnesses, and to be insured by Medicaid or Medicare or uninsured (see Table 1). Compared to MU patients, CHU patients also more often cancelled or no-showed for primary care appointments (M[SD] = 13[14] vs. 5[9]; $t[1,498] = 7.3$, $p < .001$) and had specialty care medical visits (M[SD] = 17[6] vs. 6[4.5]; $t[1,498] = 22.0$, $p < .001$).

On a multi-variate basis (Table 2), CHU status was strongly related to being diagnosed with an anxiety disorder, arthritis, metabolic, gastrointestinal, cardiovascular, or pulmonary disease. CHU patients were *less* likely than modal or low utilizers to have an alcohol use disorder on a multi-variate basis. In the multi-variate regression, CHU status was unrelated to depression and all demographic variables, and marginally associated with having publicly subsidized or no healthcare insurance. To clarify why age no longer was related to

Table 1
Univariate logistic regression analyses comparing consistent high vs. modal utilizers

Measure	Consistent high utilizers (CHU) $n = 126$ (%)	Modal utilizers (MU) $n = 374$ (%)	Odds ratio	95% Confidence interval (CI)
Depression	19	9	1.9*	1.1–3.4
Anxiety disorder	12	3	3.5*	1.5–7.8
Alcohol disorder	5	5	.99	.4–2.5
Metabolic	42	16	6.1*	3.9–9.5
Pulmonary	64	30	4.5*	2.9–6.5
Cardiovascular	76	35	5.8*	3.6–9.1
Gastrointestinal	68	36	3.9*	2.5–5.9
Arthritis	53	30	3.0*	2.0–4.6
Hypertension	66	38	3.0*	2.0–4.6
Cancers	15	8	2.0*	1.1–3.6
Private health insurance (vs. public or self-pay)	45	20	3.1*	2.0–3.8

*$p < .05$.

Table 2
Multi-variate logistic regression analyses predicting risk of persistent high utilization

	B	*S.E.*	Wald *F*	*df*	*p*	Odds ratio	95% CI
Gender (Male)	−.414	.253	2.679	1	.102	.661	.403–1.085
Age (<62 vs. 62+)	−.403	.257	2.467	1	.116	.664	.404–1.105
Insurance (none/medicare/medicaid)	−.749	.384	3.812	1	.051	2.114	.997–4.487
Ethnicity (Caucasian)	.341	.462	.545	1	.461	1.406	.569–3.479
Employed	−.216	.345	.395	1	.530	.805	.410–1.582
Cancer	−.062	.370	.028	1	.868	.940	.455–1.941
Metabolic disorder	.915	.280	10.072	1	*.001*	2.497	1.443–4.321
Cardiovascular disorder	.696	.288	5.881	1	*.015*	2.010	1.143–3.533
Pulmonary disorder	.751	.269	7.776	1	*.008*	2.119	1.250–3.593
Gastrointestinal disorder	.735	.258	8.133	1	*.003*	2.085	1.258–3.455
Arthritis	.783	.257	9.231	1	*.004*	2.188	1.320–3.627
Depression	.483	.376	1.658	1	.173	1.621	.777–3.382
Anxiety disorder	1.622	.492	10.717	1	*.001*	5.063	1.917–13.370
Alcohol use disorder	−1.263	.588	4.617	1	*.013*	.283	.009–.895
Constant	1.452	1.089	1.779	1	.182		

Note: 95% CI = 95% Confidence interval; *p* values in *italics* refer to $p<.05$.

CHU in the multi-variate logistic regression, we examined the relationship between age and the medical illnesses that were related to CHU on a multi-variate basis. Participants with chronic medical morbidity consistently were younger than those without a chronic medical illness: cardiovascular (M[SD] = 57.5[19.7] vs. 64.5[19.6]; $t[1,498] = 4.0$, $p<.001$), lung (M[SD] = 57.5[20] vs. 63[19.5]; $t[1,498] = 3.5$, $p<.001$), gastrointestinal (M[SD] = 56[20] vs. 63[19.5]; $t[1,498] = 3.6$, $p<.001$), and metabolic (M[SD] = 57[20] vs. 64[19]; $t[1,498] = 2.6$, $p<.001$).

In separate multi-variate analyses controlling for CHU status as well as demographics, insurance coverage, and medical morbidity, each of the psychiatric diagnoses was associated with increased primary care cancellation/no-shows ($F = 12.3$, $df = 12,485$, $p<.001$): anxiety (Standardized $B = .10$, $p = .013$) depression (Standardized $B = .11$, $p = .008$) and alcohol use (Standardized $B = .11$ $p = .009$). Depression (OR = 6.45, 95% CI = 2.54–16.41) and alcohol use disorders (OR = 13.11, 95% CI = 3.41–50.49), but not anxiety disorders, were associated with low complexity primary care visits. There was no association between any psychiatric disorder and specialty or emergency healthcare utilization.

Discussion

Our findings almost exactly replicate the prevalence estimate (25%) of *persistent* high utilizers of primary healthcare reported by Freeborn and colleagues (1990), although the timeframe in our study was shorter (2 years vs. 6 years). Only half the patients initially identified as primary care high utilizers over a 1 year period continued to use more than modal levels of primary care services in the next year, suggesting that high utilization is a transient phenomenon for many patients but stable for as many as *one in four* primary care patients. Further, we found that no patient classified as a low utilizer in the study's first year became a high utilizer in the second year. A few initial low utilizers increased their primary care attendance in the study's second year sufficiently to become modal utilizers, but most remained low utilizers. Thus, low utilization appears to be relatively stable among adult primary care patients, while high utilization can be either stable over time or transient. While these findings require replication in other healthcare systems and populations, they suggest that the research findings concerning the predictors and impact of high utilization warrant re-examination to determine if putative "high utilizers" identified in studies are stably utilizing high levels of primary care services or only transiently doing so. The findings also suggest that further research is needed over longer periods of time to document temporal patterns in the course of high utilization.

Several similarities but also several differences are noted when comparing the findings from our earlier analyses using a 1-year time frame to identify high utilizers (Ford et al., 2004) with those from the present analyses in which we used an expanded 2-year time frame and applied a more stringent criterion for persistent high utilization. The current findings replicate our previous results (Ford et al., 2004) and findings from other studies that measured high utilization in a relatively brief (i.e. $\leqslant 1$ year) period (Carbone et al., 2000; Sherbourne et al., 1996), thus showing that not

only transient but also *persistent* high utilization is associated with medical morbidity, and with anxiety (but not depressive or addictive) disorders. Anxiety disorders also appear to make a unique contribution to problematic primary care utilization, because even after controlling for the effects of persistent high utilization the presence of an anxiety disorder was associated with inconsistent primary care attendance. These findings indicate that anxiety disorders, while affecting relatively few (5%) primary care patients, require identification and effective treatment to reduce two interrelated problems in primary care: persistent high utilization and inconsistent attendance. Patients who persistently use high levels of primary care services tend also to cancel or no-show for primary care visits, so the finding that patients with anxiety disorders are particularly likely to exhibit both of these problematic patterns of primary care attendance underscores the importance of anxiety disorder management and treatment in order to reduce inefficiency and provider burden in primary care services.

Although in both sets of analyses we found anxiety disorders rather than depression to be the primary psychiatric contributor to high primary healthcare utilization, a new finding in the present analyses was that depression was associated with both inconsistent primary care attendance and with low complexity primary care services. A further difference was that, when persistent high utilization was separated from transient high utilization and specifically controlled for in our current analyses, depression was no longer related to specialty medical care utilization. These findings, in concert with those of Henk et al. (1996), suggest that depression may not necessarily play a causal role high utilization of primary or specialty healthcare, but may have an adverse impact on healthcare costs that is distinct from that of high utilization per se. Depression was associated not only with inconsistent attendance but also with relatively brief visits that cannot address complex medical or psychiatric issues (i.e., low complexity services) and may not promote a strong doctor–patient relationship (Emanuel & Dubler, 1995). In contrast, anxiety disorders were not associated with low complexity primary care services. Depressed patients may be more difficult and less satisfying for primary care providers to treat than patients with anxiety problems (Pearson et al., 1999). Less frequent and less complex services may reduce provider stress, but may also inadvertently contribute to the persistence of major depressive episodes (which, if untreated, often last 6 months or longer).

Moreover, it may be that neither depression nor anxiety alone distinguish the most challenging and costly primary care cases, but instead a combination of anxiety and depression (Sherbourne et al., 1996). We did not formally test this hypothesis, but we did find that depression was associated with a twofold increase in likelihood of persistent high utilization on a univariate basis. The absence of this relationship in our multivariate results suggests that, while depression may contribute to persistent high utilization, other factors related to depression (e.g., co-occurring anxiety) may better account for persistent high utilization than depression per se. Anecdotal support for this possibility is found in the results of post hoc descriptive analyses contrasting the number of no-show/cancellations for sub-groups of patients with depression or anxiety diagnoses. Patients with comorbid anxiety and depression diagnoses ($N = 8$) had twice as many cancellation/no-shows ($M = 8$) as patients with only an anxiety ($M = 4$) or depressive ($M = 3.5$) disorder, and four times as many as other patients ($M = 2$). Thus, comorbid anxiety/depressive disorders may be especially related to inconsistent attendance. The present sample was limited in size and provided a relatively small number of psychiatric cases; further studies with larger numbers of psychiatric cases are needed to better elucidate the separate and interactive roles of anxiety and depressive disorders in primary care utilization.

Consistent with prior research (Polen, Green, Freeborn, Mullooly, & Lynch 2001), but distinct from our prior finding of a univariate relationship between alcohol use and high utilization (Ford et al., 2004), we found that alcohol use disorders either were not associated with persistent high utilization on a univariate basis (Table 1) or were associated with *low or modal* utilization on a multi-variate basis (Table 2). The emergence of the latter relationship suggests that the effects of alcohol use disorders on utilization may be masked unless the influence of other demographic, psychiatric, or medical factors on utilization are simultaneously controlled. We also replicated our finding that patients with alcohol use disorders were likely to inconsistently attend primary care services, and added a new finding that patients with alcohol disorders (like those with depression) tended to receive low complexity primary care services. Rather than persistently utilizing high levels of healthcare, primary care for patients with alcohol use disorders may instead be problematic due to *low* or *inconsistent* utilization and *under-treatment* (Cherpitel, 1999). Although other substance use disorders may affect healthcare utilization, our findings are limited to alcohol use disorders because no patients in the sample received a diagnosis for another substance.

Another new finding in the present analyses was that, when persistent high utilization of primary healthcare was controlled for in multi-variate analyses, no psychiatric disorder was associated with utilization of either specialty or emergency healthcare services. Our earlier report, after controlling for transient high utilization, that depression was associated with specialty care

utilization and alcohol use disorders with emergency care utilization (Ford et al., 2004). In both analyses, the presence of each of several chronic medical illnesses (e.g., arthritis, cardiovascular or pulmonary disease) also contributed to specialty and emergency care utilization. Taken together, these findings suggest that psychiatric disorders may exert an influence on specialty or emergency care utilization over and above that attributable to transient high utilization, but that when utilization is *persistently* high the presence of a psychiatric disorder no longer affects specialty or emergency care utilization. Thus, addressing medical morbidity and persistent high utilization appears to be more important than treating psychiatric disorders in reducing the use of both specialty and emergency services.

The multi-variate analyses permitted us to test effects of anxiety, depressive, and alcohol use disorders in relation to persistent high primary healthcare utilization while controlling for the effects of demographic factors, including age, gender, employment and insurance status, and ethnocultural background. Consistent with our prior findings (Ford et al., 2004), no demographic variable except (younger) age was associated with persistent high utilization, and the association with age no longer existed when the effects of medical morbidity were controlled for in the multi-variate analysis. The inverse relationship between age and high utilization is at odds with findings from other studies, in which older age usually is associated with increased likelihood of high utilization (Freeborn et al., 1990; Haas et al., 1999; Parslow, Jorm, Christensen, Jacomb, & Rodgers, 2004). However, a limitation of our study was that our sample differed from others in that the patients were older on average and had greater degrees of chronic medical morbidity in mid-life than older patients. The sample was representative of the patient population served at the medical center-site, which tended to include many older adults in relatively good health who were receiving primarily routine primary care, and a sub-sample of younger and mid-life adults with chronic illnesses. Thus, our results cannot be generalized to other primary care settings where older patients are in poorer health. Also, it is unlikely that younger age per se is associated with high utilization, but instead that it is the greater medical morbidity of mid-life patients in our sample that accounts for high utilization. Consistent with this explanation, recent research indicates that young and mid-life (<45 years old) adults' frequency of healthcare visits may be more influenced by their health status than older (45+ years old) adults (Lima & Kopec, 2005). In addition, older high utilizers may have been artifactually under-represented in the sample as the result of their higher risk (compared to younger high utilizers) of dying during the study period. Age and high utilization thus may be differentially related depending upon the age groups sampled and their levels of medical morbidity.

Our finding that gender was not associated with persistent high utilization is consistent with prior studies (Green & Pope, 1999; Parslow et al., 2004) and does not rule out the possibility that other factors (e.g., perceived health status, marital status and social support) may moderate the effect of gender on healthcare utilization (Parslow et al., 2004). However, additional analyses (not reported, available from the first author) indicated that the interaction of gender and age did not contribute to or alter the multi-variate logistic regression findings. Further, the principal study findings remained consistent when analyzed separately for men and women, although there were exceptions. The association between anxiety disorders and alcohol use disorders with persistent high utilization was weaker for men than for women—the relationship was still present among men in the multi-variate regression, but not statistically significant. Also, alcohol use disorders were associated with inconsistent primary care attendance only among women, and anxiety disorders only among men. These findings are not reported in detail because they may be artifacts of the reduced power in the gender-specific analyses, but they do suggest that further research is needed to elucidate potentially different relationships in psychiatric disorders and healthcare utilization between men and women.

The study sample included a mixture of suburban, urban, and rural residents, but was primarily Caucasian (5% Latino, 4% Black, 1% Asian–American) and mid-range socioeconomic status (8% medicaid, 16% unemployed). Although recent research suggests that ethnocultural background may have less impact on primary care utilization than on specialty healthcare utilization (Blais & Maiga, 1999), our findings should not be generalized to minority or lower-income populations.

Implications

In conclusion, the new findings in this report both replicate and extend those of our prior report (Ford et al., 2004) by suggesting that: (1) anxiety disorders uniquely contribute both to persistent and inconsistent primary healthcare high utilization, (2) depression and alcohol use disorders separately contribute to inconsistent and low complexity primary healthcare but not to persistent high use of primary healthcare per se, and (3) alcohol use disorders are particularly associated with low (and therefore *potentially* under-) utilization of primary care. The fact that these findings are independent of the strong effects of medical morbidity on healthcare utilization indicates that psychiatric disorders play a role in persistent high healthcare utilization that is

distinct from medical illness per se, thus supporting the continued development of enhanced services to address psychiatric disorders in primary and specialty healthcare (e.g., Katon et al., 2000; Pearson et al., 1999).

High utilization cannot be assumed to be a fixed characteristic of patients who transiently use high levels of primary healthcare. In order to maximize the effectiveness of practitioner clinical monitoring and treatment, the efficiency and cost-containment achieved by healthcare organizations, and the validity and utility of healthcare research, it appears important to empirically distinguish between transient and persistent high utilization, and to identify and address the potential psychiatric (and demographic) factors that shape (and may serve as a basis for prospectively influencing) each of these types of problematic utilization separately.

More specifically, the findings suggest potential strategies to enhance the integration of behavioral health with primary care (Katon et al., 2000; Pearson et al., 1999). Anxiety disorders may lead to persistent high utilization if patients return to their primary care provider for reassurance about generalized or specific worries and fears affecting their perceived health but that are not directly addressed by treatment of medical illness. Offering education materials that explain anxiety clearly, introduce evidence-based anxiety management self-help methods, and guide patients to mental health colleagues in the same clinic who specialize in evaluating and treating anxiety disorders, are strategies that show promise for both anxiety and high utilization (Katon et al., 2000).

When depression (Pearson et al., 1999) or alcohol use disorders (Cherpitel, 1999) are comorbid with medical illness, strategies for establishing meaningful communication and trust in the doctor–patient relationship (Emanuel & Dubler, 1995) may be essential to engage the patient sufficiently to provide consistent medical care and to engage the patient in specialized mental health or addictions treatment. If signs of depression or alcohol use problems are identified by the primary care provider or noted in the medical record by other providers, this also should prompt to shift from routine care with low complexity medical decisions to moderate or high complexity biopsychosocial evaluation and decisions, in order to fully address the comorbid illnesses and the potential risk of psychiatric and medical morbidity or mortality with appropriate multi-disciplinary management options.

Persistent high utilization of primary healthcare is costly, but may appropriately reflect the need for ongoing monitoring and effective medical treatment of chronic medical illnesses, especially with older adult patients (Freeborn et al., 1990; Haas et al., 1999). However, when anxiety disorders (Sherbourne et al., 1996) contribute to persistent high utilization, or when depression (Pearson et al., 1999) or alcohol use disorders (Polen et al., 2001) are not treated with complex medical decision-making, the final common pathway may be inconsistent attendance and ineffective healthcare. The cost and effectiveness of healthcare was not investigated in this study, but our findings do suggest a need for further clinical and scientific assessment of potential pathways from untreated psychiatric illness in primary care to high, low, and inconsistent primary care utilization, and ultimately to both excess costs and compromised effectiveness in healthcare.

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