Mental Health Status, Need, and Unmet Need for Mental Health Services Among U.S. Pacific Islanders

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Objective: This study examined the mental health status, need for services, and unmet need of community-dwelling Native Hawaiian and other Pacific Islanders (NHPI).

Methods: Survey data were collected from 223 NHPI adults of Samoan or Marshallese heritage. Surveys were translated into Samoan and Marshallese by using back-translation, with feedback from cultural experts. Severity of depression, anxiety, and alcohol use were measured, as were perceived need for and avoidance of, or delay in, seeking mental health services. Logistic regressions calculated adjusted odds ratios for past-year perceived need for services and avoidance or delay of needed services, controlling for depression, anxiety, and alcohol use.

Results: Participants' screened prevalence of major depression, generalized anxiety disorder, and alcohol use disorder was 21%, 12%, and 22%, respectively. In the past year, 35% and 26% of participants reported needing services and avoiding or delaying needed services, respectively. Urban Samoan and rural Marshallese participants did not differ significantly in measures of depression, anxiety, or alcohol use, even though the groups had significant demographic differences. Female gender and greater familiarity-contact with persons with mental illness were significant predictors of both reporting service need and reporting avoiding or delaying services.

Conclusions: Community-dwelling NHPIs reported a heavy burden of depression, anxiety, and alcohol use, and high perceived need for services, yet low levels of help-seeking. The large unmet need in the sample suggests that a gap may exist between service need and engagement in U.S. NHPI communities that could be targeted with culturally tailored approaches that promote engagement in care.

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Native Hawaiians and other Pacific Islanders (NHPI) are one of only seven federally designated U.S. racial-ethnic groups and are the third fastest growing in size (increasing 40.1% from 2000 to 2010) (1). Although more than 1.4 million NHPIs reside in the United States (1) and more than 10 million in the Pacific Islands (2), little is known about NHPIs' health status (e.g., heart disease and cancer), and even less is known about their mental health—especially among NHPI adults—except that they appear to be at high risk of problems such as depression, substance use disorders, and suicide (3–9).

Despite this risk, extant data suggest that NHPIs are underrepresented in mental health services (3, 10–14). For example, national admissions data indicate that NHPIs and Asian Americans collectively seek substance use disorder treatment at half the rate of other racial-ethnic groups (5.3% versus 10.4% for non-NHPIs and non–Asian Americans) and account for only 1% of admissions (15) even though NHPIs and Asian Americans collectively constitute 7% of the U.S. population (1). In Los Angeles County, which has a large and growing NHPI population of over 65,000 (1), few NHPIs have been reported to enter public treatment (.09% in 2011 and .07% in 2015) (13), and only four individual NHPIs enrolled in an NHPI-specific county integrated care program over a 2-year period (14). Because of NHPI adults' suspected resistance to mental health services and research participation, we know little about NHPI communities' mental health burden or their need for services.

HIGHLIGHTS

- Little is known about mental health in Pacific Islander communities.
- Pacific Islander participants reported high levels of depression, anxiety, and alcohol use.
- Among the 223 survey respondents, 36% needed services, yet 26% of all respondents delayed obtaining them.

NHPIs are a diverse racial population, consisting of more than 15 subgroups originating from the Pacific Islands (e.g., Hawaii, Samoa, and Guam). These subgroups share cultural elements that emphasize collectivism; closeness to the natural world; reverence for the past via legends, chants, and storytelling shared over generations; and a hierarchical social order led by chiefs or elders. As with indigenous American Indians and Alaska Natives, NHPI populations have been radically altered by U.S. colonialism. For instance, the U.S. overthrow of the Hawaiian monarchy caused profound Native Hawaiian cultural loss and continued social, economic, and political marginalization in Hawaii (16), and the U.S. military's extensive nuclear testing in the Marshall Islands—equaling 7,200 Hiroshima-sized bombs (17)—contaminated generations of Marshallese people, lands, and food sources in radioactive fallout (17, 18). Accordingly, NHPIs suffer from legacies of adverse colonization and historical traumatization that may contribute to a heightened risk of mental illness.

With support from the National Institute of Mental Health, we conducted one of the first studies to quantify mental health status and the level of need among community-dwelling NHPI adults. Our aim was to identify the key contributors of NHPIs' perceived need for and avoidance of, or delay in, obtaining mental health services to better understand how to engage them in care. We surveyed urban-dwelling Samoans in Los Angeles County because they represent the largest NHPI community in the continental United States and rural Marshallese in Northwest Arkansas because they represent the fastest-growing NHPI community. Although all NHPI subgroups share cultural similarities, Samoans and Marshallese are among the most divergent NHPI subgroups across numerous characteristics that could affect their mental health, including immigration patterns and status, colonization experiences, and U.S. context (e.g., urban versus rural and West versus South region), rendering the groups ideal for comparison.

METHODS

Conceptual Model of NHPI Mental Health Help Seeking

Underserved racial-ethnic minority populations are believed to seek help along pathways different from those taken by non-Hispanic whites, because of their differing cultural factors and context (19). Therefore, we drew from existing models of racial-ethnic minority help seeking by Cauce and colleagues (19) and Eiraldi and colleagues (20) to create an NHPI-specific conceptual model of mental health help seeking. Our conceptual model guided our study by outlining several factors that may predict NHPIs' perceived need for and avoidance of, or delay in, obtaining services. For the conceptual model, we drew from existing models and from literature on help seeking by non-NHPI populations, coupled with feedback from NHPI experts.

Our model posits that an NHPI individual's perceived need for services reflects the person's recognition that he or she has a mental health problem that requires treatment—a recognition labeled "problem recognition" in the help-seeking literature (19–21). In our model, NHPI problem recognition (characterized by the variable "perceived need for services") may be influenced by a variety of factors, including demographic characteristics (e.g., age, gender, and formal school education) (21), cultural factors (e.g., nativity and acculturation to the Pacific Islands or to the United States) (19, 22, 23), presence and severity of mental health symptoms, and familiarity with NHPIs with mental health problems (19, 23, 24). Similarly, our model posits that these same demographic, cultural, mental health, and familiarity variables will also influence an individual's decision to seek or avoid or delay help—a component of help seeking distinct from problem recognition. It is important to note that this NHPI help-seeking model focuses on individual factors and not service system factors (such as a lack of culturally responsive services), which are likely to interact with individual-level factors to affect help seeking by NHPIs.

This exploratory study's purpose was to characterize community NHPIs' mental health status and need for services. The mental health literature is sparse regarding whether depression, anxiety, and alcohol use disorder are problematic in NHPI communities (3, 5, 9). However, existing literature indicates that depression, anxiety, and alcohol use disorder are the most prevalent mental health and/or substance use problems affecting the U.S. general population (25, 26). Therefore, we anticipated that the screened prevalence of depression, anxiety, and alcohol use disorder would be high in our study sample. However, because NHPIs are underrepresented in treatment (13–15), we expected that their perceived need for mental health services would be low and that many would report avoiding or delaying needed services.

Procedures

Procedures were approved by the Institutional Review Board at the University of California, Riverside. Data were collected from October 2017 to January 2018 from community-dwelling Samoan and Marshallese adults (ages 18 years and older) in Los Angeles County and Northwest Arkansas, respectively. Because our populations were hard to reach, probability sampling was not feasible. To establish our sampling frame, we systematically applied a non-probabilistic, respondent-driven sampling approach that was successfully used in prior mental health services research with hard-to-reach minority populations (27, 28) to collect our data. Specifically, to obtain as representative a community sample as possible, we trained community members in research, and these individuals then purposively recruited participants of various ages and genders—guided by a preset recruitment table—from diverse settings (e.g., churches of different denominations, women's groups, and cultural organizations for younger NHPIs). Participants

were recruited in person or through referral, and they completed informed consent and surveys in their preferred language (English, Samoan, or Marshallese) via self-report or interview, receiving $15 gift cards for their time.

Measures

For translation, measures were reviewed by NHPI experts for cultural content validity, translated from English to Samoan and Marshallese by experienced translators, and back-translated to English by additional translators blinded to the original measures. Original and back-translated measures were compared for discrepancies, which were resolved through consensus discussion between investigators, experts, and translators.

Past-year perceived need for mental health services and avoidance or delay of services were determined by using two well-established items with strong reliability (26) from the Agency for Healthcare Research and Quality's national Medical Expenditure Panel Survey (29): "In the past 12 months, was there a time when you wanted to talk with or seek help about stress, depression, or problems with emotions?" and "Did you delay or not get the care you thought you needed?"

Demographic and cultural factors of age, gender, formal education, nativity (Pacific Islands versus United States), and acculturation were measured. On the basis of feedback from NHPI cultural experts, U.S. nativity was defined as being raised in the United States since age 4. NHPI and U.S. acculturation levels were measured by using the PIACCULT scale (30), a 22-item scale—adapted from the General Ethnicity Questionnaire (31)—shown to be associated with many NHPI social and health outcomes (32, 33). Internal consistency was good for the 11-item NHPI-specific scale (α=0.81) and 11-item U.S.-specific scale (α=0.83).

Depression symptomology was evaluated via nine-item Patient Health Questionnaire (PHQ-9) (34), a tool with strong reliability and validity with diverse cultural groups (35) that assesses the presence in the past 2 weeks of cardinal depression symptoms. Anxiety symptomology was captured via the seven-item Generalized Anxiety Disorder scale (GAD-7) (36), a well-validated measure of general anxiety symptoms experienced in the past 2 weeks. The PHQ-9 and GAD-7 are cumulatively scored with a 10-point screening diagnostic threshold for major depressive disorder and generalized anxiety disorder, respectively (37–39). Alcohol use disorder was screened for with the Alcohol Use Disorders Identification Test–Concise (AUDIT-C) (40), a widely used three-item measure for identifying alcohol-related problems in adults. Scoring is cumulative with diagnostic cutoffs for alcohol use disorder of $\geq$4 for men and $\geq$3 for women. Internal consistencies for the PHQ-9, GAD-7, and AUDIT-C were strong with α values of 0.86, 0.88, and 0.89, respectively.

Familiarity or contact with persons with mental illness was measured via the Level of Contact Report (41, 42), which presents 12 situations of varying degrees of intimacy with people with severe mental illness (e.g., "I have a relative with mental illness"). Participants were rank-scored (1–12) by the most intimate situation endorsed (41, 42), ranging from lowest ("I have never observed a person that I was aware had a severe mental illness", scored 1) to highest familiarity or contact ("I have a severe mental illness", scored 12).

Statistical Analyses

Analyses were performed in SPSS, version 24 (43). Nonnormal variables were logarithmically transformed. Descriptive statistics calculated sample frequencies, means, standard deviations, and 95% confidence intervals. Chi-square and independent t tests examined differences between Samoan and Marshallese groups. Two logistic regression models were run. Dependent variables were past-year need for mental health services and avoidance or delay of needed services. Predictor variables for both models included the following three groupings of variables adhering to our help-seeking model: age, gender, formal education, nativity, and acculturation; severity of depression, anxiety, and alcohol use; and level of familiarity–contact with persons with mental illness.

RESULTS

Participant characteristics are presented in Table 1. Among the 223 NHPI participants, the mean age was 40.9, 57% were women, and 55% were Samoan. Mean scores on the PIACCULT scale indicated that NHPI acculturation exceeded U.S. acculturation ($p<.05$). Scores on the Level of Contact Report reflected a mean level of familiarity–contact with persons with mental illness consistent with working with someone with severe mental illness.

Mean scores indicated that depression and anxiety severity were high; 21% (N=45) and 12% (N=26) of participants exceeded the 10-point diagnostic thresholds for major depression and generalized anxiety disorder, respectively. Eight percent (N=16) exceeded both diagnostic thresholds, suggesting comorbid major depression and generalized anxiety disorder. For alcohol use, 22% of participants (N=50) met diagnostic thresholds for alcohol use disorder: 29% (N=27) of men and 18% (N=23) of women. Comorbidity of alcohol use disorder with major depression was 4% (N=8), and with generalized anxiety disorder it was 2% (N=5). No gender differences in the severity of depression and anxiety were noted; however, alcohol use was significantly higher among men compared with women (AUDIT-C mean$\pm$SD score=2.27$\pm$2.93 versus 1.18$\pm$2.18; t=–.27, df=217, $p<.01$).

Over the past year, 35% of participants reported needing services and 26% reported delaying services. Among those with positive screens, need for services was reported as follows: depression, 59% (N=26); generalized anxiety disorder, 54% (N=14); and alcohol use disorder, 35% (N=17).

Compared with Samoan participants, Marshallese participants were younger and had significantly ($p<.05$) lower

TABLE 1. Characteristics of total sample and subgroups and descriptive statistics for significant differences between the subgroups

Variable	Total sample (N=223)		Samoan (N=123)		Marshallese (N=100)		Test statistic	df	N	p
	N	%	N	%	N	%				
Female	127	57	76	62	51	52				
Formal education										
Less than high school	30	14	5	4	25	26				
High school	95	44	49	40	46	48				
Some college	69	32	477	39	22	23				
College graduate or higher	24	11	21	17	3	3				
U.S. nativity	82	41	65	59	17	18	χ^2=34.27	1	202	<.05
Needed care in past year	78	35	36	29	42	43	χ^2=4.85	1	221	<.05
Avoided or delayed care in past year	56	26	24	20	32	33	χ^2=4.88	1	218	<.05
	M	SD	M	SD	M	SD				
Age	40.87	16.01	44.66	16.68	36.30	13.93	t=3.95	214		<.01
Acculturation[a]										
Pacific Islander	46.25	5.89	46.55	5.55	45.84	6.34				
United States	40.30	7.19	42.82	5.63	37.02	7.69	t=6.40	214		<.01
Depression (PHQ-9)[b]	5.87	5.10	5.20	4.93	6.72	5.21				
General anxiety (GAD-7)[c]	4.72	4.38	4.16	3.92	5.44	4.84	t=−2.16	216		<.01
Alcohol (AUDIT-C)[d]	1.64	2.58	1.81	2.53	1.43	2.64				
Level of Contact Report[e]	5.83	3.68	5.27	3.69	6.53	3.57				

[a] Measured with the PIACCULT scale. Possible scores range from 0 to 55, with higher scores indicating greater Pacific Islander and U.S. acculturation, respectively.
[b] Possible scores on the nine-item Patient Health Questionnaire (PHQ-9) range from 0 to 27, with higher scores indicating greater depressive severity.
[c] Possible scores on the seven-item Generalized Anxiety Disorder scale (GAD-7) range from 0 to 21, with higher scores indicating greater anxiety severity.
[d] Possible scores on the Alcohol Use Disorders Identification Test–Concise (AUDIT-C) range from 0 to 12, with higher scores indicating greater heavy/hazardous alcohol use.
[e] Possible scores range from 0 to 12, with higher scores indicating greater familiarity with persons with mental illness.

levels of formal education (e.g., 26% of Marshallese had not graduated from high school, compared with 4% of Samoans), U.S. nativity (18% versus 59%), and U.S. acculturation. No significant differences were found in mean scores on measures of depression, anxiety, or alcohol use; however, compared with Samoans, a significantly higher proportion of Marshallese participants reported needing past-year services ($p<.05$) and avoiding or delaying services ($p<.05$).

To inform future approaches to NHPI service engagement, logistic regression analyses explored which demographic, cultural, mental health, and other key variables accounted for participants' high past-year perceived need for and avoidance or delay of services.

Table 2 presents adjusted odds ratios (AORs) for past-year perceived need for services. Compared with men, women were 4.4 times more likely ($p<0.01$) to report a need for services in the past year. Participants who had some college education were significantly less likely than those who had not competed high school to report a past-year need (AOR=0.2, $p<0.05$). In addition, a 1-point increase in PHQ-9 score (indicating greater depression severity) was associated with a greater likelihood of reporting past-year need (AOR=1.2, $p<0.01$), as was a 1-point increase in the familiarity-contact scale (AOR=1.2, $p<0.01$).

Table 3 presents AORs for past-year avoidance or delay of services. Compared with men, women were nearly three times more likely to report avoidance or delay of services (AOR=2.9, $p<0.05$). Compared with participants who had not completed high school, those who completed high school were less likely to report avoidance or delay (AOR=0.1, $p<0.01$), as were those who completed college (AOR=0.1, $p<0.05$). A 1-point increase in the familiarity-contact scale was associated with a greater likelihood of reporting avoidance or delay (AOR=1.3, $p<0.01$).

DISCUSSION

As hypothesized, although the presence of depression, anxiety, and alcohol use disorder was high in our sample, mental health help seeking was relatively low. One of every four participants reported avoiding or delaying needed services in the past year, indicating a high degree of community unmet mental health need.

Unsurprisingly, having more years of formal education was associated with lower likelihood of avoiding or delaying needed services, suggesting that formal education may be a useful tool for increasing help seeking among NHPIs. In contrast, female gender and greater familiarity or contact with persons with mental illness were both associated with greater likelihood of avoiding or delaying services. Therefore, individuals with these characteristics may be at especially high risk of having unmet mental health need.

In particular, NHPI women were far more likely than men to avoid or delay services, even though women reported

TABLE 2. Logistic regression analyses of variables as predictors of perceived need for mental health services in the past year among 223 Native Hawaiian and other Pacific Islanders

Variable	AOR	95% CI
Demographic		
Age	.66	.43–1.01
Female (reference: male)	4.35**	1.73–10.93
Formal education (reference: Less than high school)		
High school	.22*	.06–.78
Some college	.17*	.04–.76
College graduate or higher	.32	.06–1.59
Cultural and acculturation		
Pacific Island nativity (reference: U.S. nativity)	.53	.18–1.58
Pacific Islander acculturation	1.03	.95–1.11
United States acculturation	.99	.95–1.11
Symptoms[a]		
Depression (PHQ-9)	1.18**	1.05–1.32
General Anxiety (GAD-7)	.92	.80–1.04
Alcohol (AUDIT-C)	1.07	.90–1.28
Familiarity-contact with persons with mental illness	1.23**	1.09–1.39

[a] PHQ-9, nine-item Patient Health Questionnaire; GAD-7, seven-item Generalized Anxiety Disorder scale; AUDIT-C, Alcohol Use Disorders Identification Test–Concise.
*p<.05, **p<.01.

a greater perceived need for services. Because many cultures (including NHPIs) are more accepting of women expressing emotional distress and using emotion-focused coping (19, 44), NHPI women may be recognizing the need to seek help for their mental health problems (i.e., problem recognition) more readily than NHPI men; however, the women may be relying on the greater array of informal emotional coping options afforded NHPI women (e.g., mobilizing social support and women's groups) in lieu of formal care.

TABLE 3. Logistic regression analyses of variables as predictors of avoiding or delaying needed services in the past year among 223 Native Hawaiian and other Pacific Islanders

Variable	AOR	95% CI
Demographic		
Age	.86	.54–1.39
Female (reference: male)	2.89*	1.03–8.06
Formal education (reference: Less than high school)		
High school	.14**	.04 –.55
Some college	.22	.43–1.07
College graduate or higher	.14*	.02–1.01
Cultural and acculturation		
Pacific Islands nativity (reference: U.S. nativity)	3.65	.96–13.84
Pacific Islander acculturation	1.05	.96–1.15
United States acculturation	1.02	.94–1.10
Symptoms[a]		
Depression (PHQ-9)	1.11	.99–1.25
General Anxiety (GAD-7)	1.02	.89–1.17
Alcohol (AUDIT-C)	1.17	.95–1.43
Familiarity-contact with persons with mental illness	1.30**	1.12–1.50

[a] PHQ-9, nine-item Patient Health Questionnaire; GAD-7, seven-item Generalized Anxiety Disorder scale; AUDIT-C, Alcohol Use Disorders Identification Test–Concise.
*p<.05, **p<.01.

Similarly, although increased contact with persons with mental illness was associated with greater perceived need for services, it was also associated with greater avoidance or delay of services. This seemingly contradictory finding may help to explain the push-and-pull pattern noted among our participants, who reported high perceived need but low help seeking. The finding suggests that gaining greater mental health awareness through exposure to persons with mental illness may be a double-edged sword for NHPIs. That is, boosting mental health awareness may make NHPI individuals more aware that their mental health problems require formal help (19, 22, 23) while also making more salient the risk of encountering stigma and discrimination (45, 46) associated with seeking help—thereby suppressing help seeking. Given that increasing mental health awareness and contact is an important element in many antistigma interventions, further research is needed to clarify the role of mental health stigma and awareness in NHPI help seeking.

With regard to NHPIs' mental health burden—while keeping in mind that we did not assess a probability sample—a large number of participants screened positive for major depression, generalized anxiety disorder, or alcohol use disorder. Compared with the U.S. adult general population, participants screened positive at three times the national rate for major depression (47), over two times the national rate for generalized anxiety disorder (37), and four times the national rate of alcohol use disorder (48). Thus, our community NHPI populations appear to be more comparable to clinical primary care populations (36) than to the general population.

Yet not all disorders elicited help seeking equally. A relatively smaller proportion of NHPIs who screened positive for alcohol use disorders perceived a need for services, compared with NHPIs who screened positive for major depression or generalized anxiety disorder. Although this may be partly due to our perceived need item not specifically referencing alcohol use disorder treatment, some of this discrepancy likely stems from NHPI cultural norms that are generally accepting of risky drinking (49, 50), which may lead to a lower perceived need for treatment among NHPIs for what is considered problem alcohol use in U.S. populations. Unfortunately, because alcohol use disorders have many "downstream" effects, including heightened risk of fatal and nonfatal accidents, domestic violence, and suicide (51–53), the implications of participants' high rates of alcohol use disorder but low perceived need for services could have broad social and health consequences for U.S. NHPIs.

No significant differences were found between the Samoan and the Marshallese subgroups in levels of depression, anxiety, and alcohol use, even though we found significant differences between the groups in many of the factors that we anticipated might influence mental health, such as age, formal education, nativity, and acculturation. Our findings of

similar depression, anxiety, and alcohol use problems in these highly divergent NHPI subgroups living in very different parts of the U.S support exploring the mental health needs of other NHPI subgroups (e.g., Native Hawaiians and Chuukese) for commonalities that may inform the development of generalizable interventions for NHPIs.

From our findings, we offer two thoughts for addressing NHPIs' unmet need. First, among NHPI participants who screened positive for alcohol use disorder, few perceived a need for services, which underscores the importance of tailoring alcohol prevention interventions to NHPIs so that fewer treatment services are needed. This may include interventions that combat NHPI myths about alcohol use (e.g., education about normal versus binge drinking) (54, 55) or training NHPIs to resist alcohol offers from relatives and friends (56, 57). Second, participants' resistance to seeking needed services suggests that conventional engagement approaches may not be effective with community-dwelling NHPIs. The presence of many systems-level barriers, including a lack of NHPI-tailored outreach and engagement (e.g., absence of interpreters) likely creates an unwelcoming atmosphere for NHPIs who wish to seek services—thereby contributing to limited NHPI help seeking. Therefore, we recommend that public-sector settings develop and implement culturally grounded engagement approaches for NHPIs (58–60). This may be accomplished by first establishing relationships with NHPI leaders and organizations to access community-dwelling NHPIs, then training lay NHPIs as community health workers and peer navigators (61–63) to deliver mental health education and antistigma interventions in community settings.

As one of the first community studies of NHPI mental health, several limitations should be noted. First, use of respondent-driven sampling to recruit two hard-to-reach populations may have introduced bias, potentially reducing generalizability of our findings to the overall Samoan, Marshallese, and NHPI populations. Second, we did not screen for all mental health problems that may be affecting NHPIs, including nonalcohol substance use disorders and suicide. Third, we did not test all possible model relationships, including the potential relationship between perceived need for services and avoidance or delay of services. Finally, although we carefully prepared our measures for these specific populations, measurement error may have occurred with regard to symptom under- or overreporting. However, despite these limitations, we believe our data are compelling because so little is known about NHPI mental health and their rates of problems appear so high in our data that even with some estimate errors, the prevalence of mental health problems are likely to remain elevated among NHPIs compared with the general population.

CONCLUSIONS

Our findings indicate considerable mental health burden and high unmet need among individuals from two large NHPI communities. Developing culturally tailored engagement approaches may decrease this unmet need. Our exploratory study is among the first to rigorously quantify this burden within NHPI communities, and more research is needed to identify best practices for engaging these underserved communities in care. This includes investigating other community-dwelling NHPI populations and exploring the major service barriers (e.g., stigma) that engagement interventions must address to reduce NHPI communities' heavy unmet need.

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First-Person Accounts Invited for Column

Patients, family members, and mental health professionals are invited to submit first-person accounts of experiences with mental illness and treatment for the Personal Accounts column in *Psychiatric Services.* Maximum length is 1,600 words.

Material to be considered for publication should be sent to the column editor, Jeffrey L. Geller, M.D., M.P.H., at the Department of Psychiatry, University of Massachusetts Medical School (e-mail: jeffrey.geller@umassmed.edu). Authors may publish under a pseudonym if they wish.