

Use of Complementary and Integrative Medicine Among Low-Income Persons With Mental Health Disorders

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Abstract

Objective: To evaluate the use of complementary and integrative medicine (CIM) among a low-income population with mental health diagnoses and to assess differences in social determinants of health (SDOH) on the basis of CIM use.

Patients and Methods: We surveyed patients with mental health diagnoses and/or substance use disorders during outpatient evaluations between August 11, 2020, and November 18, 2021, at a community behavioral health center in Rochester, MN. We measured knowledge of current CIM, interest in future use of CIM, and SDOH. Differences in mean number of SDOH risk factors were compared by use or nonuse of any CIM.

Results: Among 102 patients, depression (87%) and anxiety (85%) diagnoses were common. Moreover, 72% of patients used at least 1 CIM. The 3 most common modalities were prayer (41%), spirituality (37%), and music (36%). CIM use had perceived benefits for mood (49%), stress (49%), and sadness (43%). One-third of patients added CIM to conventional treatments, and 19% reported that traditional medical treatments did not work well for their symptoms. More than two-thirds had not discussed their use of CIM with their physicians. Social isolation and loneliness were common. The number of SDOH risk factors did differ by use of CIM.

Conclusion: Prayer, spirituality, and music are frequently used by patients with mental health disorders and were perceived to be helpful in relieving symptoms. CIM use was not related to SDOH risk factors. Integrating CIM therapies may be beneficial for improving mental health in this population.

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Complementary and integrative medicine (CIM) encompasses health systems, practices, and products that are not typically considered part of conventional medicine.¹ The National Institutes of Health defines complementary therapies as those used in addition to standard treatments, whereas alternative therapies are used as a substitute for conventional care. Integrative medicine brings together conventional and complementary approaches in an evidence-based coordinated way, focusing on treating the whole person, not just 1 organ or system. Types of CIM are categorized as nutritional

(plant-based diets, dietary supplements, herbs, and probiotics), psychological (mindfulness and nature therapy), physical (massage and spinal manipulation), and combinations (yoga, tai chi, acupuncture, and Reiki).² The 2017 National Health Interview Survey reported increased use of CIM (specifically yoga and meditation) in the United States, but use among minorities and those with lower income or education was less common.²⁻⁴ A study among an underserved population in Texas reported a high level of interest in the use of prayer (85%), relaxation (54%), special diets (29%), meditation (19%), and

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massage (18%).⁵ Particular social determinants of health (SDOH), lack of adequate knowledge, and cost were reported as deterrents to use.

Some preliminary data suggest potential efficacy of several CIM therapies, but, to our knowledge, no data have been reported regarding the current use of CIM among underserved populations with mental health diagnoses and whether use or nonuse is affected by SDOH. The prevalence of mental health disorders in the United States is high (20% of adults) and was further increased by the COVID-19 pandemic; thus, it is urgent to assess the potential benefits of holistic therapies incorporating CIM for patients with mental health disorders.⁶⁻¹¹ The aim of this study was to evaluate the use of CIM among a population of low-income patients with mental health diagnoses and determine whether CIM use was influenced by SDOH. We hypothesized that these patients would be interested in use of CIM because of its lower cost and availability within the community compared with medical institutions and that the burden of SDOH would influence CIM use.

PATIENTS AND METHODS

Study Design

This was an anonymous survey study of consecutive patients undergoing an evaluation at Zumbro Valley Health Center (ZVHC) in Rochester, which provides community behavioral health services in southeast Minnesota. The clinic's mission is to promote healthy minds, bodies, and communities with a person-centered, integrated approach. It serves predominantly underserved populations comprising low-income, Medicaid-eligible and Medicare-eligible, and public assistance populations.

ZVHC introduced a metabolic psychiatry clinic in 2020 to reduce and prevent chronic diseases in those with mental health diagnoses (eg, metabolic risk factors, smoking, and stress). This study was approved by the Mayo Clinic Institutional Review Board (#20-006621). Because the survey instrument included no patient identifiers, informed consent was considered exempt.

Patient Population

Between August 11, 2020, and November 18, 2021, all adult patients (aged 18 years or older) with outpatient visits at ZVHC were invited to participate in the survey when checking in for their appointments. Patients were given the option to decline and were included only if they were willing and able to complete the survey and able to speak, read, and understand English. There were no specific exclusion criteria. No compensation or other benefits were provided for completion of the survey.

If the patient agreed to participate, they were given a packet containing the paper survey, a cover letter explaining the purpose of the survey, and a process for returning it on completion or for returning it without completing it if they changed their mind. Because of COVID-19 and telehealth restrictions, surveys were unable to be dispensed until November 20, 2020.

Survey Instrument

The 23-question paper survey (Appendix, available online at <http://www.mcpiqjournal.org>) was developed in collaboration with the Mayo Clinic Survey Research Center. Items on the survey had face validity and had been pilot tested previously. The survey addressed 6 specific areas: (1) basic demographic information, (2) current symptoms, (3) previous, current, or future interest in use of CIM, (4) symptom benefit with CIM use, (5) nicotine and substance use, and (6) SDOH. The survey instrument took approximately 15 to 20 minutes to complete. The response categories varied, depending on the specific questions asked. Possible responses for questions about symptoms were none, mild, moderate, or severe; for questions related to symptom improvement, options were not applicable, improved, worsened, or no change.

For questions related to SDOH, we used and modified the Accountable Health Communities Health-Related Social Needs Screening Tool (AHC-HRSN) developed by the Center for Medicare and Medicaid Innovation.¹² Written consent for using questions from the AHC-HRSN was obtained from the Protocol for Responding to and Assessing

Patients' Assets, Risks and Experiences team. We added the number of yes responses on the SDOH questions for each patient (each yes was given a score of 1) to determine the total burden of SDOH (risk score).

Statistical Analyses

Patient characteristics were summarized as frequency (percentage) for categorical variables and mean (SD) for continuous variables. Survey items of interest were reported with frequencies and percentages. The mean (SD) SDOH risk score was compared between patients who did and did not use various CIM therapies by using the Kruskal-Wallis test. $P < .05$ was considered significant. All analyses were completed with SAS software version 9.4 (SAS Institute).

RESULTS

Demographic Characteristics

The survey was completed by 102 patients who had an outpatient appointment at ZVHC during the study period. Demographic data of the participants are summarized in Table 1. The mean (SD) age of the respondents was 45.5 (13.0) years, and 55% were female. In addition, most respondents were of White race (84%). Approximately one-third of patients (34%) reported cigarette use, with 14% reporting use of e-cigarettes. Use of alcohol was common (70, 74%); marijuana and cannabidiol products were used by 60% and 39%, respectively. The prevalence of diagnoses of depression (87%) and anxiety (85%) were high. Approximately one-third of patients reported a diagnosis of obesity, hyperlipidemia, or hypertension (Table 1).

Patient-Reported Symptoms and Perceived Response to CIM

Patients reported various types of symptoms. The combined prevalence of moderate and severe symptoms of stress (56%), tiredness/fatigue (55%), and loneliness (42%) were high (Table 2). Overall, 73 patients (72%) reported current use of at least 1 CIM. Previous or current use of CIM was associated with some perceived benefit for all symptoms: stress and low mood improved in 49% of patients, sadness in 43%, sleep in 40%, pain in 39%, tiredness/fatigue in 39%, and loneliness in 39% of patients (Table 3).

Use and Knowledge of CIM Therapies

Most respondents (93 patients, 91%) had previously used CIM, 8 patients had never used

TABLE 1. Patient Characteristics

Characteristic	Value (N=102) ^a
Age, y	45.5 (13.0)
Gender	(n=99)
Female	54 (55)
Male	45 (45)
Race	(n=98)
African American	7 (7)
American Indian/Alaska Native	1 (1)
Asian	8 (8)
White	82 (84)
Current smoker	33 (34) (n=98)
Current e-cigarette use	13 (14) (n=93)
Substance use (current or previous)	
Alcohol	70 (75) (n=94)
Marijuana	56 (60) (n=94)
Cannabidiol products	34 (39) (n=88)
Opioids	35 (40) (n=98)
Cocaine	32 (36) (n=88)
Methamphetamine	30 (33) (n=92)
Psychiatric and medical diagnoses ^b	
Depression	89 (87)
Anxiety	87 (85)
Alcohol use disorder	23 (23)
Substance use disorder	21 (21)
Schizophrenia	19 (19)
Obesity	35 (34)
Hyperlipidemia	32 (31)
Hypertension	33 (32)

^aValues are mean (SD) or No. of patients (%).

^bPatients could have >1 diagnosis.

TABLE 2. Symptoms Reported^a

Symptom	None	Mild	Moderate	Severe
Pain (n=99)	27 (27)	37 (37)	20 (20)	15 (15)
Sleep difficulty (n=99)	30 (30)	29 (29)	27 (27)	13 (13)
Low mood (n=100)	17 (17)	42 (42)	27 (27)	14 (14)
Tiredness/fatigue (n=100)	15 (15)	30 (30)	36 (36)	19 (19)
Stress (n=99)	13 (13)	30 (30)	28 (28)	28 (28)
Sadness (n=100)	25 (25)	39 (39)	23 (23)	13 (13)
Loneliness (n=97)	25 (26)	31 (32)	27 (28)	14 (14)

^aValues are No. of patients with level of symptom severity (% of those with that symptom).

TABLE 3. Perceived Impact of Complementary and Integrative Medicine on Symptoms

Symptom	Improved ^a	Worsened ^a	No change ^a	Not applicable ^a
Pain (n=74)	29 (39)	8 (11)	16 (22)	21 (28)
Sleep difficulty (n=73)	29 (40)	6 (8)	22 (30)	16 (22)
Low mood (n=75)	37 (49)	7 (9)	18 (24)	13 (17)
Tiredness/fatigue (n=74)	29 (39)	8 (11)	25 (34)	12 (16)
Stress (n=73)	36 (49)	5 (7)	19 (26)	13 (18)
Sadness (n=73)	31 (43)	3 (4)	23 (32)	16 (22)
Loneliness (n=72)	28 (39)	6 (8)	21 (29)	17 (24)

^aValues are No. of patients reporting various effects on symptoms (% of those responding regarding that symptom).

CIM, and 1 patient reported no previous knowledge of any CIM. The most common CIM modalities currently used by patients were prayer (41%), spirituality (37%), music (36%), stress management (33%), pet therapy (31%), and meditation (30%) (Figure). Future interest in CIM was highest for the use of massage, chiropractic therapy, and acupuncture (Figure). Additionally, reasons for using CIM among 97 respondents were “interest in adding CIM to traditional treatments” (36, 37%);

“traditional treatments did not work well” (19, 20%); “concerned about adverse effects of traditional treatments” (10, 10%); “traditional treatments are expensive” (8, 8%); “I feel a better sense of control with using other treatments” (8, 8%); and other reasons (16, 16%). More than two-thirds of patients (62/89, 70%) had not discussed their use of CIM with their physician.

Social Determinants of Health

Among 86 respondents in our patient population, 92% reported mental health problems, 85% lacked family and community support, and 84% felt lonely or isolated (Supplemental Table). The SDOH risk score per patient reported a normal frequency distribution; 77% of patients had between 3 and 6 SDOH risk factors (Supplemental Table). The mean (SD) SDOH risk score did not differ between patients who did and did not currently use particular CIM therapies, for any of the therapies assessed (all $P>.05$) (Table 4).

DISCUSSION

In our study among a cohort of outpatients of low socioeconomic status at a behavioral health clinic, CIM use was high (72%). The most commonly used modalities were prayer, spirituality, and music. Depression and anxiety levels were high, and CIM use was associated with some perceived benefit for all symptoms. The use of CIM did not seem to be related to the burden of SDOH. Patients reported high levels of loneliness and social isolation. Furthermore, two-thirds of patients had not disclosed CIM use to their physicians.

Relatively few CIM modalities are available to low-income patients, and few studies have evaluated the benefits of CIM in this population for improving mental health. Previous studies have shown that underserved populations use CIM, especially mind-body therapies, and are interested in using these services, but professional guidance is lacking.^{5,13,14} The large percentage of our patients using CIM (72%) is much higher than the national average of 33.2% in the US adult population.³ The reason for the high use of CIM use may be that low-income populations tend to use professional care less often, and CIM is used as a substitute for conventional care

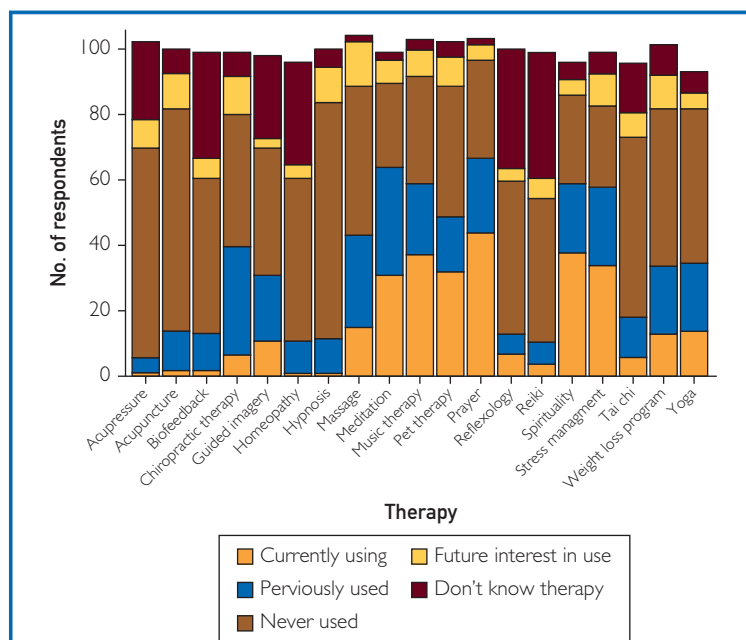


FIGURE. Use and knowledge of complementary and integrative medicine (CIM). Participants reported their current, previous, and interest in future use of CIM or lack of knowledge of CIM.

when access to care is not available or is limited.¹⁵

Prayer, spirituality, and music were used most commonly in our population, which may reflect that these modalities have no cost and can be used alone without other support. Spirituality allows people to manage day-to-day life issues, enabling the realization of one's full potential, meaning and purpose in life, and fulfillment from within.¹⁶ In fact, 84% of the world's population reports a religious affiliation, and 68% of unaffiliated persons believe in a higher power.¹⁷ Among 89,708 women aged 30 to 55 years who participated in the Nurses' Health Study, attendance at religious services once per week or more was associated with an approximately 5-fold lower rate of suicide. Positive religious coping is associated with substantial improvement in mental health, with reductions in depression and anxiety and increases in well-being.¹⁸⁻²⁰ Our findings parallel the increased awareness in the community about the potential therapeutic benefit of spirituality in mental health care. A recent study among 510 adults participating in the Longitudinal Study of Generations in young adults found that religious students generally reported better mental health when they reached adulthood.²¹ This highlights the importance of integrating spiritual support in health care.^{22,23} Notably, a whole health system of care that addresses forgiveness, coping, spiritual anchors, and diverse approaches to spiritual practices has been recently implemented in the Veterans Health Administration program. These changes are associated with increased engagement in psychotherapy among veterans with depression, anxiety, and/or posttraumatic stress disorder.²⁴

Interestingly, CIM use in our population was reported as providing some improvement for all symptoms, with the greatest benefit perceived for mood, stress, and sadness. This may indicate that use of CIM provides the ability to gain a sense of control over one's circumstances along with perceived benefits in symptom improvement. These findings are encouraging given the psychosocial barriers among patients with mental health disorders that could potentially affect engagement with CIM therapies.

TABLE 4. SDOH Risk Score for Patients Who Did and Did Not Use Various CIM Therapies (n=86)

CIM therapy	Mean (SD) risk score (n)		P ^a
	Not used	Used	
Meditation	4.4 (1.9) (n=59)	5.1 (1.6) (n=27)	.08
Music	4.4 (1.9) (n=54)	4.9 (1.7) (n=32)	.17
Prayer	4.5 (1.8) (n=47)	4.8 (1.8) (n=39)	.32
Spirituality	4.6 (1.8) (n=53)	4.7 (1.9) (n=33)	.63
Stress management	4.4 (1.9) (n=56)	4.9 (1.6) (n=30)	.20
Pet therapy	4.5 (1.8) (n=58)	4.9 (1.8) (n=28)	.38

^aKruskal-Wallis test.
CIM, complementary and integrative medicine; SDOH, social determinants of health.

In this study, approximately three-fourths of participants reported experiencing some degree of chronic pain. CIM use was reported to provide pain relief in 39% of our cohort. Our data reflect the high burden of chronic pain in the United States adult population.²⁵ Furthermore, populations with lower socioeconomic status have increased prevalence of chronic pain, with less access to pain management, poorer outcomes, and higher risk of fatal opioid overdose.²⁶ Opioid fatalities are associated with lower socioeconomic status; this makes access to nonpharmacologic pain care options a priority in underserved communities where the burden of health care costs is also greater.²⁷ Patients in our study found a high interest in the future use of massage, acupuncture, and chiropractic care. Modalities requested by our patients indicate that pain levels may be high and are unaddressed. Limiting factors to implementing these specific CIM methods are a lack of reimbursement and financial support.

AADDOPT-2 (Acupuncture Approaches to Decrease Disparities in Pain Treatment) was a randomized comparative effectiveness trial of acupuncture for chronic pain in an urban, low-income area serving a primarily Black and Hispanic population. Patients receiving individual acupuncture or group acupuncture valued the pain relief, improved quality of life, and relaxation experienced during acupuncture.²⁸ Integrating acupuncture, and potentially other CIM, in behavioral health clinics may facilitate improvement in pain and a reduction in substance use. The Ithaca Free

Clinic has been successfully providing free multidisciplinary health services including CIM.²⁹ Experience suggests that establishment of such community health clinics in areas with large uninsured or underinsured populations, with integration of CIM services, may be helpful in the development of healthier communities.

Overall, the current data suggest a benefit of CIM to improve loneliness, which was reported by 84% of our participants. Loneliness has been associated with a higher rate of substance use, depression, and chronic diseases, with detrimental effects on health as well as on social cohesion and community trust. Marital status, living arrangement, and social network are the strongest predictors of loneliness.^{30,31} Increasing evidence suggests that addressing unmet health-related social needs such as stress, homelessness, hunger, illicit drug use, and loneliness can also address harm to health.³² Social prescribing may promote greater social interactions and support and can be embedded within health care systems.³³

Results of the AHC-HRSN may inform the development of future programs that may be beneficial for improving well-being and health.¹² Most of our study group reported stress, and use of CIM was reported to relieve stress in approximately half the cohort. Our clinic consistently collects SDOH information and provides support to patients to address these needs through group classes and staff support. The lack of association between CIM use and SDOH in this study may be due to the relatively small sample size of our study, which may have resulted in the inability to show an association. Our findings contrast with those of a study in a Japanese population that reported correlation between SDOH and use of CIM.³⁴

In this study, only 30% of patients disclosed their use of CIM to their physicians. The rate of disclosure of CIM to clinicians remains a challenge and provides an opportunity to improve patient care and satisfaction given their reported interest in future use. Consistent with our data, a meta-analysis and systematic review reported a 33% disclosure rate for biologically based CIM.³⁵ We recommend that CIM use be systematically recorded in electronic health records. This

will allow evidence-based data to be generated. Such data could help coordinate programs, with benefit for patients and reimbursement for CIM therapies from insurance companies, as well as allow for providing optimal integration of complementary and conventional care.

The primary limitation of our study is that it was conducted at a behavioral health clinic in the Midwest with a small, predominantly White, population of patients. This limits the generalizability of our findings. Nevertheless, to our knowledge, it is the first study in the United States to evaluate CIM use and SDOH in an underserved population with mental health problems. This represents early work on this important topic.

CONCLUSION

The human and financial burdens of mental health continue to increase despite advances in pharmacotherapy. The COVID-19 pandemic has highlighted the global increase in mental health concerns and led to an opportunity to innovate mental health care. As federal, private, and academic stakeholders invest billions of dollars into mental health services, novel approaches that incorporate CIM should be explored and embedded into mental health facilities. Ultimately, the model of mental health care must be revised to lower costs and improve patient well-being. This is an opportune time to highlight the efficacy of providing a holistic approach to health, focusing on a biopsychosocial spiritual model.¹¹ We speculate that plant-based diets, social prescribing, nature therapy, and spirituality may be low-cost approaches to reducing morbidity and mortality. Telemedicine may improve access and has been reported to be an effective modality for delivering services for those requiring mental health care.³⁶ It is imperative that vulnerable populations have equal access.

POTENTIAL COMPETING INTERESTS

Dr A. Prasad reports honoraria from UpToDate. Dr Wahner-Roedler reports royalties from Cerner. Dr Bauer's time was funded in part by support from the HEAD Foundation, Singapore. All other authors report no conflicts of interest.

ETHICS STATEMENT

This study was approved by the Mayo Clinic Institutional Review Board (#20-006621). Because the survey instrument included no patient identifiers, informed consent was considered exempt.

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SUPPLEMENTAL ONLINE MATERIAL

Supplemental material can be found online at <http://www.mcpiqjournal.org>. Supplemental material attached to journal articles has not been edited, and the authors take responsibility for the accuracy of all data.

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Abbreviations and Acronyms: AHC-HRSN, Accountable Health Communities Health-Related Social Needs Screening Tool; CIM, complementary and integrative medicine; SDOH, social determinants of health; ZVHC, Zumbro Valley Health Center.

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