

Promoting Whole Health in the MI Population – Literature Review

The Oregon Rural Practice-based Research Network (ORPRN) at OHSU with support from Oregon Health Authority (OHA) will offer three virtual educational opportunities – from January to May 2019 – on Reducing Emergency Department Use in the Mental Illness (MI) Population. This educational series will include 1) a virtual learning collaborative focusing on “CCO Systems Improvement for MI Populations”; 2) a virtual learning collaborative on “Behavioral & Physical Health Integration”; and 3) webinars on “Promoting Whole Health in the MI population.” This literature review informs the curriculum for “Promoting Whole Health in the MI Population” webinar series.

Background

The U.S. Office of Disease Prevention and Health Promotion (ODPHP) notes there are many dimensions of health disparities in the United States. A health disparity exists whenever a health outcome is seen to a greater or lesser extent between populations [1]. This is true for people who experience mental illness compared to the general population. Adults living with serious MI die, on average, 13 to 30 years earlier than other Americans. The causes of these premature deaths are similar to the leading causes of death for the general population: cancer, heart diseases, and respiratory, lung, and cerebrovascular diseases [2]. OHA has observed health disparities for those with serious mental illness (SMI) in Oregon. 2016 Oregon Health Plan (OHP) claims data showed 15.4% of members with SMI had a diabetes diagnosis, compared to 9.1% of other members. Oregonians with SMI across all CCOs visit the ED more frequently and for different reasons than the general population. There are 12.8 ED visits per 1,000 member months in the SMI population compared to 1.2 ED visits in the non-SMI population.

In response to physical health disparities between OHP populations with and without mental illness, OHA created a new incentive metric in 2018 called “Disparity measure – ED utilization of members with mental illness.” The denominator for the measure is, “1,000 member months of the adult members enrolled with the organization, who are identified with mental illness” and the numerator is the “number of emergency department visits when the member is enrolled with the organization” [3]. Over four sessions, “Whole Health in the MI Population” webinars will offer relevant didactics and case examples to an audience of CCO-contracted clinicians with the goal of improving health among members experiencing mental illness. A focus on whole health and preventive care may contribute to fewer ED visits for this population. The topic areas explored below—access to health care, pain management, dental/oral health, and sustaining provider satisfaction—were selected, in part, through consultation with the webinar’s lead expert, Lynnea Lindsey, PhD, MSCP. Dr. Lynnea Lindsey is Director of Behavioral Health Services at Legacy Health.

Access to Health Care

Individuals with MI experience adverse physical health conditions more frequently than the general population. These include cardiovascular diseases and stroke, obesity, diabetes, COPD and respiratory infections, alcohol disorders, drug toxicity, substance misuse, infectious diseases, dementia, cancer, surgical and gynecological emergencies, and poor oral/dental health [4]. There is evidence that factors impacting poor health outcomes among MI populations are psychotropic medications (e.g., antipsychotics, antidepressants, and mood stabilizers), individual behaviors (e.g., smoking, diet), psychiatric symptoms, and disparities in health care [5]. Many authors have argued health care access, utilization, and health care provision contribute to poor physical health for individuals with MI [5-7].

Hert et al. (2011) attribute inequities of health care access and provision to patient and illness-related factors, treatment-related factors, mental health provider-related factors (e.g., placing attention on the patient’s mental health and possibly overlooking how that intersects with their physical health), physician-

related factors (e.g., stigmatization of those with mental illness), and service-related factors (e.g., financial barriers, separation of the physical and mental health systems of care) [6]. In a literature review on barriers to high quality health care for those with MI, Chadwick et al. (2012) found some consensus across study findings. Health-related social circumstances like homelessness, living alone/social isolation, and transportation difficulties influenced the health care service users with MI. The environments of health care settings and experiences interacting with health care clinicians were also impactful. For example, disrespectful or non-caring behavior on the part of clinicians, poor interpersonal skills on the part of clinicians, lack of follow up, a hurried atmosphere, and diagnostic overshadowing were all found to be barriers to health care for those with MI [7].

Diagnostic overshadowing is an especially important topic for patients with mental illness. That is, the possibility of clinicians attributing patient symptoms or behaviors to their mental health instead of recognizing the role of a physical comorbidity [8]. For instance, when patients with MI have a rapid heart rate, it is frequently assumed as a behavioral symptom of agitation or anxiety. If a patient has an elevated temperature and agitation, those symptoms may be attributed to their mental illness history rather than to a diagnosis of delirium [9]. For adults with MI, it has been estimated that 35% have an undiagnosed medical illness [10]. Symptoms of mental illness and prior trauma experiences are also conflated by health professionals. One study found that the average number of traumatic events among the population with severe MI was 3.5 per person. But this trauma history may also be overshadowed or go unaddressed [11]. These types of challenges are intertwined with stigma toward those with MI, as well. As Lawrence & Kisely (2010) point out, “The stigma of mental illness pervades all aspects of society, including the health care system” (p. 64). Some clinicians label patients with MI as disruptive or difficult, viewing “abnormal behavior” as an individual characteristic instead of a symptom of illness [12].

To improve access to quality health care for this population, authors have recommended including patient perspectives when creating interventions [13-15]. According to Godwin-Lamontagne et al. (2018), “Involving service users in intervention design is also important so that their preferences for location, frequency and type of support can be identified and targeted” (p. 7) [13]. One study used participatory action research (PAR) to engage MI patients in the creation of a guide for chronic disease management among those patients. Researchers found including patients in that work was both acceptable and feasible [14]. Another study used qualitative methods with patients experiencing MI to better understand their needs surrounding patient-provider engagement. There were three themes that emerged as crucial to establishing trust and collaboration between patients and clinicians: mattering, being perceived as capable and credible, and working together. “Mattering” was described by patients as clinicians caring, showing concern for them, accepting them without judging them, treating them with respect, hearing them, reassuring them, and treating them with empathy. Patients most appreciated being seen as capable and credible when they perceived their clinicians also demonstrated qualities of competence. They thought clinicians were capable and credible when the office appeared clean and organized, when staff acted in an efficient way, and when medical records were maintained in good condition. Finally, working together was important to the patient experience. This meant having trusting exchanges, feeling informed about health care options, receiving validating feedback, having an informed say, and getting a result [15].

Of course, it is clear that the integration of behavioral health into primary health care and vice versa is crucial for patients with MI [16]. As the second virtual learning collaborative will specifically address this topic with local case studies, the webinar on health care access for the MI population will likely place more emphasis on strategies to improve patient-clinician relationships, and how to recognize and address some of the social needs of patients experiencing mental illness.

Pain & Mental Illness

According to OHA, nine of the top 15 primary diagnoses for ED visits among the SMI population were pain-related in 2016, compared to five of the top 15 for non-SMI OHP members. The top four reasons for ED visits among the SMI population were pain-related (“other chest pain,” “chest pain, unspecified,” “headache,” and “unspecified abdominal pain”) [3]. It is important that CCO-contracted clinicians have access to nuanced information about what pain is, the relationship between pain and mental illnesses, intersections with opioid use disorder, and implications for practice.

Pain is complex and often misunderstood. It exists when neural circuits warn us that there is danger requiring action [17]. The International Association for the Study of Pain (IASP) defines pain as, “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” [18]. Chronic pain affects roughly 100 million U.S. adults, and costs \$560-635 billion each year in lost productivity and direct medical treatment [19]. Biological (illness, injury, stress), psychological (anxiety, fear, guilt), and social (criticism, work demands, family attitudes) factors all shape an individual’s experience of pain (Institute of Medicine, 2011) [19-20].

A large body of evidence links the experience of pain with MI. At a global level, IASP conducted a study in 2008 in which they found a pattern of strong associations between different forms of pain and psychiatric disorders in diverse cultures. Due to the consistency of their findings across geographies, the authors concluded, “diffuse pain and psychiatric disorders are generally associated, rather than diffuse pain representing an idiom for expressing distress that is specific to particular cultural settings or diffuse pain solely representing a form of masked depression” (p. 83) [21]. Many other studies and reviews have also argued for the connection between MI and pain [22-28]. In a meta-analysis, Stubbs et al. (2015) found individuals with bipolar disorder had over twice the relative risk of pain than controls [23]. Head pain is consistently associated with anxiety and depression [24-25]. Bener et al. (2013) reported that individuals with low back pain (LBP) had a higher prevalence of anxiety, depression, and somatization than those without LBP [26]. Working with patients entering the ED with non-cardiac chest pain, Webster et al. (2013) concluded sustained chest pain is related to psychological distress and poor quality of life [27]. Finally, there is a relationship between post-traumatic stress disorder and chronic pain [28].

Given the extent to which pain is experienced by those with mental illness, it follows that MI individuals may suffer disproportionately from opioid use disorder (OUD), and other substance use disorders (SUDs). According to Davis et al. (2017), “16% of Americans who have mental health disorders receive over half of all opioids prescribed in the U.S.” (p. 407) [29]. The Trends and Risks of Opioid Use for Pain (TROUP) study reported that chronic use of prescription opioids for non-cancer pain conditions was much higher and growing more rapidly for patients with mental health disorders and SUDs [30]. Cheatle (2011) highlighted the connections between depression, chronic pain, and suicide by opioid overdose [31].

For people experiencing both MI and pain, positive relationships with their health care teams to manage complex comorbidities is important. In a study using simulated patient-clinician interactions, researchers found patients reported lower levels of pain intensity as their feelings of similarity and trust with their clinicians increased. Authors recommended clinicians seek common ground with their patients to support the mitigation of pain intensity [32]. Likewise, Buchman et al. (2016) interviewed chronic pain patients and physicians to explore the role of patient-clinician trust. They concluded perceived trustworthiness with clinicians is important for negotiating tensions related to subjective pain symptoms, addiction, and prescription opioid use. They said “an attitude of epistemic humility may help both clinicians and patients cultivate a trustworthy clinical environment, manage the challenges associated with uncertain testimony, place trust wisely, and promote optimal pain care” (p. 1394) [33]. As stigma toward patients with MI on the part of clinicians is common [34], this topic should be addressed in the webinar.

Oregon Health Authority offered a webinar in November 2017 on “Resources and Innovative Interventions in Medicaid for Managing Patient Pain.” The Oregon Pain Management Commission also provides many training opportunities to health care professionals. The proposed webinar for this series will reinforce information about pain management, and expand on that work by focusing specifically on unique aspects of pain for OHP members experiencing mental illness.

Dental/Oral Health & Mental Illness

The topic of dental and oral health among populations with MI will overlap with the first two webinars on access to health care and pain. Sun et al. (2015) used quantitative and qualitative methods to study the determinants of ED utilization for dental/oral health in Oregon. From a sample of 25 hospitals in the state, they reported 2.5% of all ED visits were due to non-traumatic dental problems (15,081 visits). Dental visits were the second-most-common discharge diagnosis for adults between the ages of 20 to 39. 32.8% of these visits were from Medicaid patients. Both dental visitors and ED clinicians said dental care in the ED was palliative. When patients were not able to afford treatment from a dentist, they gradually started to rely on the ED for acute pain management. The authors concluded that “socioeconomically vulnerable individuals undergo repeat ED dental visits because of the inability to access definitive dental treatment” (p. 950) [35]. Discussed above, people with MI are often socioeconomically vulnerable.

Noting the increased attention on physical health in populations with MI, Kisely (2016) pointed out oral health is still under recognized as an important component of physical health for patients with MI. The article described bidirectional associations between oral health and MI. For example, about 50% of all dental patients have some anxiety about dental visits, and some have dental phobia [36]. This fear and anxiety can inhibit regular dental visits, leading to worse dental problems and more fear about anticipated “disgusting of threatening interventions” [37]. Also, regardless of the degree of oral pathology, individuals with MI may perceive more dental pain than non-MI patients [36]. Again, this has potential implications for substance use disorders (SUDs) in general, and opioid use disorder (OUD) in particular. Sun et al. (2015) found 56% of ED dental visits resulted in an opioid prescription [35]. While they did not explicitly make the link between MI and SUDs, a systematic review by Baghaie et al. (2017) reported patients with SUDs are less likely to have received dental care, and more likely to have dental caries and periodontal disease than the general population [38].

Other articles have reported oral health disparities for those with MI. Worse oral health outcomes are attributed to comorbid SUDs (e.g., tobacco, alcohol), poor nutrition, oral hygiene, frequent consumption of sugary drinks, and financial and other barriers to dental care. Kisely (2015) found in a systematic review that people with severe mental illness had 2.8 the odds of having lost all their teeth compared to controls. Further, those with SMI had significantly higher decayed, missing, and filled teeth [39]. Hert et al. (2011) reported specifically on underutilization of dental care in MI individuals. They noted one study in which 15% of a mixed psychiatric population had not been to a dentist in 2 years, and another in which 31% of schizophrenia patients had not been to a dentist in three years [5]. There are many reasons Medicaid patients with MI may not go to the dentist as frequently. Looking at this population, Hall (2018) identified cost, perception of need, uncertainty about coverage, fear, and transportation issues as the primary barriers for accessing dental care [40].

Dental/oral health is also an important topic because of its connection to other diseases. A presentation by Matt Sinnott from Willamette Dental Group on CCO dental metrics (2018) highlighted associations with heart disease, diabetes, pregnancy health, asthma, kidney disease, and COPD [41]. Published scholarship supports relationships between periodontal disease and systemic health [42-43]. There is also evidence that oral health impacts the social wellbeing of people with MI (e.g., their ability to communicate, and stigma for poor oral health) [36, 44].

Given overlapping relationships with access to care and pain, dental/oral health will be an appropriate topic for the third webinar in this series. While the second virtual learning collaborative on “Behavioral and Physical Health Integration” will include case studies of different integration models, there will not be a session dedicated to integration or coordination with dental/oral health in that series. Further, it is timely that OHSU’s community dentistry program is currently working to address OUD in patients seeking dental/oral health care. Beyond working toward the EDMI metric, OHSU’s research has indicated oral health ED visits are extremely costly for health care systems (roughly \$402 per visit and an estimated \$11 million in overall hospital costs) [35]. This review indicates the webinar should underscore barriers and facilitators to preventive oral health care, as well as treatment, for adults with MI. At least one Oregon example of oral health integration, including challenges and lessons learned, will be important, too.

Sustaining Clinician Satisfaction

The wellbeing of health care clinicians is linked to the wellbeing and health outcomes of patients. Expanding upon the work of Don Berwick and colleagues on their creation of the Triple Aim—improving population health, enhancing the patient experience, and reducing health care costs—Bodenheimer and Sinsky (2014) introduced a fourth aim of improving the work life of clinicians and health care staff. They said that addressing a “Quadruple Aim” is crucial for population health [45]. Burnout is a major problem among U.S. physicians. A 2012 study with responses from 7,288 physicians found 45.8% reported at least one symptom of burnout [46]. Physicians at the front line of care access (e.g., family physicians, general internists, and emergency physicians) had a higher prevalence of burnout symptoms. Although many factors impact clinician work satisfaction, RAND Corporation (2014) highlighted the importance of physicians’ perceptions of delivering high quality care to patients. Physicians in their study said barriers to providing high-quality care were sources of professional dissatisfaction [47].

Patients with MI, and especially SMI, have less access to health care and more morbidity and mortality than those without mental illness. Further, medically complex patients may face social challenges that exacerbate their health conditions. Therefore, some researchers have argued clinicians need training that specifically addresses how to offer quality care to these populations. One article provided case studies of two such residency training programs, both of which addressed the following topics in their curriculums: psychopharmacology and substance misuse, patient-centered communication, health disparities, health literacy, interprofessional collaboration, ethical issues, and physician resilience. This final content area included developing self-reflection skills, managing caregiver fatigue, and personal boundaries. Residents had debriefs after emotionally difficult clinical encounters, and were encouraged to write about those experiences. When properly trained, qualitative data indicated residents “[found] meaning in serving this challenging population outside of the typical family medicine office setting” (p. 34) [48].

Health care systems can take steps to track the professional satisfaction of their workforce. Sikka, Morath, and Leape (2015) discussed how the Quadruple Aim can broadly be measured through the lenses of workforce engagement and burnout (e.g., Maslach Burnout Inventory) and safety (e.g., quantifying work-related injuries) [49]. Keeping track of clinician satisfaction may allow health care leadership to better understand where interventions are necessary. As Bodenheimer & Sinsky (2014) concluded, “If the gap continues to widen between society’s expectations for primary care and primary care’s available resources, the feelings of betrayal and the wearing down from daily stress voiced by primary care practitioners will grow.... Health care is a relationship between those who provide care and those who seek care, a relationship that can only thrive if it is symbiotic, benefiting both parties.”

Given that CCO-contracted clinicians will be a key audience for this webinar series (and for the second virtual learning collaborative), it will be important to acknowledge the challenges that sometimes exist when working with medically complex patients who experience mental illness. Strategies for addressing the Quadruple Aim of improving and sustaining provider satisfaction may be discussed at the provider, clinic, and/or CCO levels.

Conclusions

This literature review is an introduction to the breadth and depth of empirical evidence that both justifies the appropriateness of each webinar session for the 4-part “Whole Health in the MI Population” series, and helps to inform what content should be introduced and emphasized. There is substantial overlap between access to care, pain, and dental/oral health in MI populations. These areas of alignment should be reinforced throughout the series as much as possible. The final session on sustaining provider satisfaction will be an opportunity to acknowledge difficulties that exist within this work (applicable to all three learning series on the EDMI metric), and why taking the time to enhance health care clinicians’ work life is also crucial for patient experiences and population health.

References

1. Office of Disease Prevention and Health Promotion. (2018). Disparities. Retrieved from <https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities>
2. Colton, C. W. & Manderscheid, R. W. (2006). Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. *Prev Chronic Dis*, 3.
3. Brake, W., Kleinschmit, S., & Stewart, V. (2018). CCO disparity measure – ED utilization of members with mental illness. Oregon Health Authority. Retrieved from <https://www.oregon.gov/oha/HPA/CSI-TC/Resources/10-10-18%20ED-Mental%20Illness%20Webinar%20Slides.pdf>
4. Byrne, P. (2018). Physical health in psychiatric patients. *Medicine*, 46(12), 725-730.
5. Hert, M. D., Correll, C. U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D., Asai, I., ... Leucht, S. (2011). Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry*, 10, 52-77.
6. Hert, M. D., Cohen, D., Bobes, J., Cetkovich-Bakmas, M., Leucht, S., Ndeti, D. M., ... Correll, C. U. (2011). Physical illness in patients with severe mental disorders. II. Barriers to care, monitoring and treatment guidelines, plus recommendations at the system and individual level. *World Psychiatry*, 10, 138-151.
7. Chadwick, A., Street, C., McAndrew, S., & Deacon, M. (2012). Minding our own bodies: Reviewing the literature regarding the perceptions of service users diagnosed with serious mental illness on barriers to accessing physical health care. *International Journal of Mental Health Nursing*, 21, 211-219.
8. Reiss, S., Grant, W. L., & Szysko, J. (1982). Emotional disturbance and mental retardation: diagnostic overshadowing. *American Journal of Mental Deficiency*, 86, 567-574.
9. Geiss, M., Chamberlain, J., Weaver, T., McCormick, C., Raufer, A. Scoggins, L., ...Edmonson, D. (2018). Diagnostic overshadowing of the psychiatric population in the emergency department: Physiological factors identified for an early warning systems. *Journal of the American Psychiatric Nurses Association*, 24(4), 327-331.
10. Zolnerek, Z. D. (2009). Non-psychiatric hospitalization of people with mental illness: Systematic review. *Journal of Advance Nursing*, 65, 1570-1583.
11. Lutton, S. S., & Swank, J. M. (2018). The importance of intentionality in untangling trauma from severe mental illness. *Journal of Mental Health Counseling*, 40(2), 113-128.
12. Lawrence, D. & Kisely, S. (2010). Inequities in healthcare provision for people with severe mental illness. *Journal of Psychopharmacology*, 24(11), 61-68.
13. Godwin-Lamontagne, F., Burgess, C., Clement, S., Gasston-Hales, M., Greene, C., Manyande, A., ...Barley, E. (2018). Interventions to increase access to or uptake of physical health screening in people with severe mental illness: a realist review. *BMJ Open*. doi:10.1136/bmjopen-2017-019412
14. Galon, P. & Graor, C. H. (2012). Engagement in primary care treatment by persons with severe and persistent mental illness. *Archives of Psychiatric Nursing*, 26(4), 272-284.
15. Pelletier, J. F., Lesage, A., Boisvert, C., Denis, F., Bonin, J. P., & Kisely, S. (2015). Feasibility and acceptability of patient partnership to improve access to primary care for the physical health of patients with severe mental illnesses: an interactive guide. *International Journal for Equity in Health*, 14. doi:10.1186/s12939-015-0200-0
16. Hasselt, F. M., Oud, M. J. T., & Loonen, A. J. M. (2015). Practical recommendations for improvement of the physical health care of patients with severe mental illness. *Acta Psychiatrica Scand*, 131, 387-396.

17. Butler, D. S. & Moseley, G. L. (2003). *Explain pain*. Adelaide, Australia: NoiGroup Publications.
18. International Association for the Study of Pain. (2012). *Classification of Chronic Pain, Second Edition (Revised). Part III: Pain Terms*. Retrieved from https://s3.amazonaws.com/rdcms-iasp/files/production/public/Content/ContentFolders/Publications2/ClassificationofChronicPain/Part_III-PainTerms.pdf
19. Institute of Medicine. (2011). *Relieving pain in America: A blueprint for transforming prevention, care, education, and research*. Washington, D.C.: The National Academies Press. Retrieved from <https://www.nap.edu/catalog/13172/relieving-pain-in-america-a-blueprint-for-transforming-prevention-care>
20. Sessle, B. J. (2012). The pain crisis: What it is and what can be done. *Pain Research and Treatment*. doi:10.1155/2012/703947
21. Gureje, O., Von Korff, M., Kola, L., Demyttenaere, K., He, Y., Posada-Villa, J., ...Alonso, J. (2008). The relation between multiple pains and mental disorders: Results from the World Mental Health Surveys. *Elsevier B. V.* doi:10.1016/j.pain.2007.05.005
22. Heer, E. W., Gerrits, M. M. J. G., Beekman, A. T. F., Dekker, J., Marwijk, H. W. J., Waal, M. W. M., ...Feltz-Cornelis, C. M. (2014). The association of depression and anxiety with pain: A study from NESDA. *PLoS ONE*, 9(10). doi:10.1371/journal.pone.0106907
23. Stubbs, B., Eggermont, L., Mitchell, A. J., Hert, M. Correll, C. U., Soundy, A., ...Vancampfort, D. (2014). The prevalence of pain in bipolar disorder: a systematic review and large-scale meta-analysis. *Acta Psychiatr Scand* 131, 75-88.
24. Ligthart, L., Gerrits, M. M. J. G., Boomsma, D. I., & Penninx, B. W. J. H. (2013). Anxiety and depression are associated with migraine and pain in general: An investigation of the interrelationships. *The Journal of Pain*, 14(4), 363-370.
25. Ramezani, A., McCarron, R. M., Lashai, M., & Lenaerts, M. E. P. (2015). Head pain and psychiatric illness: Applying the biopsychosocial model to care. *Current Psychiatry*, 14(9), 13-26
26. Bener, A., Verjee, M., Dafeeah, E. E., Falah, O., Al-Juhaishi, T., Schlogl., ...Khan, S. (2013). Psychological factors: Anxiety, depression, and somatization symptoms in low back pain patients. *Journal of Pain Research*, 6, 95-101.
27. Webster, R., Norman, P., Goodacre, S., Thompson, A. R., & McEachan, R. R. C. (2014). Illness representations, psychological distress and non-cardiac chest pain in patients attending an emergency department. *Psychology & Health*, 29(11), 1265-1282.
28. Gibson, C. A. (2012). Review of posttraumatic stress disorder and chronic pain: The path to integrated care. *JRRD*, 49(5), 753-776.
29. Davis, M. A., Lin, L. A., Liu, H., & Sites, B. D. (2017). Prescription opioid use among adults with mental health disorders in the United States. *JABFM*, 30(4), 407-417.
30. Edlund, M. J., Martin, B. C., Devries, A., Fan, M. Y., Braden, J. B., & Sullivan, M. D. (2010). Trends in use of opioids for chronic non-cancer pain among individuals with mental health and substance use disorders: the TROUP study. *Clin J Pain*, 26(1), 1-8.
31. Cheatle, M. D. (2011). Depression, chronic pain, and suicide by overdose: On the edge. *Pain Medicine*, 12, S43-S48.
32. Losin, E. A. R., Anderson, S. R., & Wager, T. D. (2017). Feelings of clinician-patient similarity and trust influence pain: Evidence from simulated clinical interactions. *The Journal of Pain*, 18(7), 787-799.
33. Buchman, D. Z., Ho, A., & Illes, J. (2016). You present like a drug addict: Patient and clinician perspectives on trust and trustworthiness in chronic pain management. *Pain Medicine*, 17, 1394-1406.
34. Cohen, M., Quintner, J., Buchanan, D., Nielsen, M., & Guy, L. (2011). Stigmatization of patients with chronic pain: The extinction of empathy. *Pain Medicine*, 12, 1637-1643.

35. Sun, B. C., Chi, D. L., Schwarz, E., Milgrom, P., Yagapen, A., Malveau, S., Chen, Z., ...Lowe, R. A. (2015). Emergency department visits for nontraumatic dental problems: A mixed-methods study. *American Journal of Public Health*, 105(5), 947-955.
36. Kisely, S. (2016). No mental health without oral health. *The Canadian Journal of Psychiatry*, 61(5), 277-282.
37. Crego, A., Carrillo-Díaz, M., Armfield, J. M., & Romero, M. (2014). From public mental health to community oral health: The impact of dental anxiety and fear on dental status. *Frontiers in Public Health*, 2(16), 1-4.
38. Baghaie, H., Kisely, S., Forbes, M., Sawyer, E., & Siskind, D. J. (2017). A systematic review and meta-analysis of the association between poor oral health and substance abuse. *Addiction*, 112, 765-779.
39. Kisely, S., Baghaie, H., Laloo, R., Siskind, D., & Johnson, N. W. (2015). A systematic review and meta-analysis of the association between poor oral health and severe mental illness. *Psychosomatic Medicine*, 77, 83-92.
40. Hall, J. P., LaPierre, T. A., Kurth, N. K. (2018). Oral health needs and experiences of Medicaid enrollees with serious mental illness. *Am J Prev Med*, 55(4), 470-479.
41. Sinnott, M. Willamette Dental Group. (2018). *Dental Metrics 2018 and Beyond*. Retrieved from <https://ccooregon.org/wp-content/uploads/2018/05/Metrics-and-Scoring-Apr-20-final-draft.pdf>
42. Cullinan, M. P., Ford, P. J., & Seymour, G. J. (2009). Periodontal disease and systemic health: Current status. *Australian Journal of Public Health*, 54, S62-S69.
43. Williams, R. C., Barnett, A. H., Claffey, N., Davis, M., Gadsby, R., Kellett, M., ...Thackray, S. (2008). The potential impact of periodontal disease on general health: a consensus view. *Current Medical Research and Opinion*, 24(6), 1635-1643.
44. Ho, H.D. Satur, J., Meldrum, R. (2018). Perceptions of oral health by those living with mental illness in the Victorian Community – The consumer’s perspective. *International Journal of Dental Hygiene*, 16, e10-e16.
45. Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: Care of the patient requires care of the provider. *Annals of Family Medicine*, 12(6).
46. Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L.N., Sotile, W., Satele, D., ...Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*, 172(18), 1377-1385.
47. Friedberg, M. W., Chen, P. G., Van Busum, K. R., Aunon, F., Pham, C., Caloyeras, J., ...Tutty, M. (2014). Factors affecting physician professional satisfaction and their implications for patient care, health systems, and health policy. *Rand Health Quarterly*, 3(4).
48. Romain, A. M., Muench, J., & Phillips, J. P. (2015). Preparing family physicians for the care of patients with severe and persistent mental illness: Examples from two U.S. residency programs. *The International Journal of Psychiatry in Medicine*, 50(1), 25-35.
49. Sikka, R., Morath, J. M., & Leape, L. (2015). The Quadruple Aim. Care, health, cost and meaning in work. *BMJ Qual Saf*. doi:10.1136/bmjqs-2015-004160