Mental Health and PH: APRNs and RNs Having a Positive Effect

Lillian Hansen, MSN, MS, MEd, NP-C
Pulmonary Hypertension Nurse Practitioner and Program Manager
University of Arizona Pulmonary Hypertension Program
Banner University Medical Center
Tucson, AZ

Jacqueline Brewer, AGPCNP-BC
Nurse Practitioner and Clinical Coordinator
Pulmonary Specialty Center
Corewell Health East | Beaumont Troy
Sterling Heights, MI

Pulmonary hypertension is a complex and progressive disease. Patients suffering from pulmonary hypertension may also experience mental health issues. Screening and treatment for mental health issues in the pulmonary hypertension population is imperative but remains a challenge. Advanced practice registered nurses and registered nurses are key to overcoming these challenges.

Patients with pulmonary hypertension (PH) frequently suffer from mental health conditions, including anxiety and depression.[1] Despite the effect on health care use and treatment outcomes, a paucity of data exists on effective screening and treatment implementation strategies in caring for the mental health of PH patients.[2] This publication provides an overview of mental health concerns in patients living with PH, key factors to consider when implementing mental health screening and interventions into PH practice, and a focus on the important role of advanced practice registered nurse (APRN) and registered nurse (RN) in screening for mental health concerns in PH patients.

INTRODUCTION

PH is a chronic, debilitating disease characterized by hemodynamic abnormalities of the pulmonary vasculature and progressive right heart failure. The physical manifestations of the disease include dyspnea, fatigue, exertional intolerance, and syncope. Most patients experience a significant delay from time of symptom onset to diagnosis, up to 18 to 47 months for chronic thromboembolic PH and idiopathic pulmonary arterial hypertension, respectively.[3] Uncertainties during this delay, along with poor outlook related to a permanent and potentially fatal diagnosis, and isolation stemming from physical limitations, can be traumatic.[1,4] Patients may be unable to work, struggle financially, need to undergo frequent invasive procedures, and feel burdened by complicated treatment regimens, all of which worsen quality of life.[1]

Because of this complex nature of living with the disease, patients with PH frequently suffer from mental health disorders, commonly anxiety and depression. Anxiety and depression may be present in up to 50% of patients with PH and 3 to 8 times more common than in the general population.[1] Adjustment disorders are also seen in 38% of PH patients and may precede and evolve into anxiety and depression, stemming from diagnostic delays and the cumulative effect of the mental health issues throughout the disease course.[1,3] Many PH patients have preexisting mental illness, the symptoms of which may be exacerbated by the complexities and stress of chronic disease. In addition, patients with PH experience challenging life events, for example the death of a loved one, chronic substance abuse, and relationship issues, which may intensify anxiety and depressive symptoms.

Anxiety in PH patients has been shown to be significantly correlated with elevated pulmonary vascular resistance and reduced cardiac index.[5] The combination of PH and depression may contribute to worse mortality and need for lung transplant.[6] Despite PH therapy, the presence of anxiety and depression is strongly associated with declining New York Heart Association functional class.[2] Depression symptoms, such as fatigue, change in appetite, disturbed sleep, and concentration difficulty, often overlap with symptoms of PH. Such symptoms may be dismissed or assumed to be part of the PH disease process and not addressed separately by the health care provider.[2,7] Lack of proper training to assess and treat anxiety and depression

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Correspondence: lillian.hansen@bannerhealth.com
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in patients with PH may also contribute to delays in diagnosis or underdiagnosis of these mental health disorders.[2]

EFFECT ON HEALTH CARE USE AND TREATMENT OUTCOMES

Living with a chronic, complex, and typically progressive illness, patients with PH have high use of health care services, including outpatient, inpatient, and procedural needs.[8] In combination with chronic disease, mental health disorders like anxiety and depression further increase the need for health care services exponentially.[9] This increased health care use consequently increases health care costs, up 33% to 169% in patients with anxiety and depression.[9] In PH patients who suffer from anxiety and depression, the presence of such mental health disorders has been shown to correlate specifically with an increased demand for outpatient visits and a nearly 2-fold rise in unscheduled communication events, such as email, phone calls, and other correspondence.[10]

Mental health issues can also affect the overall treatment success in patients living with a chronic disease. For example, depression can promote low adherence to treatment regimens, which portends overall poor disease outcomes.[11] Adherence to treatment is crucial for PH patients because of the progressive nature of the disease, lack of curative therapies, and risk of unrecoverable disease worsening with lapses in therapy. A critical time to screen for depression is when a patient displays signs of nonadherence to treatment.[11] Therefore, screening for mental health issues including anxiety and depression prior to starting treatment or when displaying signs of nonadherence becomes imperative to achieve positive disease outcomes.

SCREENING FOR MENTAL HEALTH CONCERNS IN PH PATIENTS

In the overall medical community, screening for mental health issues, particularly depression, remains shockingly low at only 2.29% with clinic visits.[12] However, diagnosis of anxiety and depression requires frequent screening for symptoms throughout the disease course. For PH patients, such screening ideally should begin at the time of diagnosis for early detection and with discrimination from preexisting mental health conditions.[1,2] When screening patients, it is important to have readily available psychiatric support and crisis management teams to address acute concerns.[10]

Many screening tools exist for anxiety and depression, such as the Hospital Anxiety and Depression Scale (HADS), Patient Health Questionnaire (PHQ9), Beck's Depression Inventory (BDI), General Anxiety Disorder (GAD-7), and Beck Anxiety Inventory (BAI).[1,5] However, no standardized screening approach specific to PH patients has been developed. European Society of Cardiology and European Respiratory Society PH guidelines indicate the need for a multidisciplinary approach and adequate diagnostic screening tools for identification of patients requiring referral for psychiatric treatment and psychologic support.[13,14]

APRN AND RN ROLE IN SCREENING

The nursing role has commonly been perceived as one involving compassion, care, and human connection. The close relationship that develops between the nurse and patient is built on trust, which provides a sense of comfort to the patient and allows for open and honest dialogue on topics that may be deemed difficult, such as depression and substance abuse.[15] Both RN and APRN roles in the PH program are positioned to institute trust and openness to uncover issues surrounding mental health.

Screening for anxiety and depression in PH patients performed by RNs and APRNs often occurs casually through conversation. Such informal screening by PH RNs occurs on a regular basis through various means of conversation, including telephone triage, email or portal correspondence, and support group interactions. During clinic visits, APRNs spend a considerable amount of time focused on interpersonal communication, often more than two-thirds of the clinical time, allowing for ample opportunity for informal assessment of mental health.[16] This time and space during a PH clinic visit allow for more open disclosure of personal information such as stressors, feelings, and symptoms. Variables that may not be disclosed otherwise are often discussed with APRNs because of the "better human connection" and the perception that APRNs "translate things a little better, from the medical to the personal".[17] It has been shown that when nurse practitioners screen and manage depression in combination with chronic diseases in general, patient quality of life increases.[12]

TREATMENTS FOR MENTAL HEALTH CONCERNS IN PH PATIENTS

Once diagnosed with anxiety and depression, it is unclear what treatment interventions are best suited for PH patients and if guidelines for mental health treatment in the general population apply.[2] Pharmacotherapy in patients with PH may be underused, as only 8% to 25% of PH patients with diagnosed anxiety or depression are treated with psychopharmacotherapy.[2] PH providers, including APRNs, may consider treating their patients with pharmacotherapy or consider referring to another provider for such treatment. Outside of pharmacotherapy, several studies have investigated interventions for treatment of anxiety and depression in PH patients, with benefit noted from progressive muscle relaxation techniques, slow-paced respiration therapy, and weekly Zen integrative therapy.[5] In addition, participation in cognitive behavioral therapy, cardiopulmonary rehabilitation, and patient support groups have beneficial effects on well-being and fatigue, however there is limited evidence specific to PH patients with regard to mental health.[2,4]

Patient support groups exist worldwide for PH patients and serve to provide specific information and knowledge pertaining to the unique disease processes afflicting PH patients. Support group discussions address the burdens patients experience physically, socially, and psychologically from living with PH. Based on our experience, support from peers suffering from PH can be highly beneficial, as overall quality of life for PH patients can

decline throughout the disease process. Many patients feel overwhelmed and lonely living with a rare condition like PH, thus bonding with others who are also suffering similarly can provide a valuable social connection as well as important information about PH disease management.[2] RNs and APRNs can provide information to patients about local patient support groups and resources from the Pulmonary Hypertension Association.

Exercise plays a valuable role in the care of those suffering from PH. Physical activity can have increased beneficial effect, especially in those who also suffer from mental health issues due to the release of endorphins with exercise.[18] Studies have shown that the positive effects of exercise and physical activity can be analogous to antidepressant therapy.[18] Patients with PH, despite the physical limitations related to the disease, can still engage in some form of exercise or physical activity. The most obvious example would be enrollment in pulmonary rehabilitation, during which patients not only participate in medically supervised exercise, but also engage socially with staff and other patient participants. The exercise and social interaction that occurs during pulmonary rehabilitation can have a positive effect on overall physical and mental health and wellness.[2] APRNs or RNs can suggest or provide referrals for patients to pulmonary rehabilitation programs.

OUR EXPERIENCES WITH IMPLEMENTATION

While existing in other disciplines, such as collaborative care models in primary care and psychosocial care in oncology, the PH discipline lacks a mental health care model that integrates appropriate screening and diagnostic tools with psychosomatic support from medical and psychiatric providers.[1,10,19,20] In our busy PH practices, we have implemented a variety of strategies, highlighted in Table 1, including formal and informal screening in conjunction with on-site and community resources (Table 2), which have varied over the years depending upon staffing availability, provider interest, and team dynamics.

Table 1. Screening Strategies

Informal
Conversational
• Patient brings up concerns over anxiety or depression during clinic visit and telephone communication • Provider intentionally asks about symptoms of anxiety or depression during clinic assessment • Specialty pharmacy RNs and pharmacists detect issues with medication adherence, which may correlate with mental health issues • Family raises concerns over anxiety or depression with patient during clinic visit
Observational
• Observe symptoms of anxiety or depression and substance abuse during patient interactions • Patient overall appearance and demeanor raises concerns for mental health issues • Specialty pharmacy RNs observe potential mental health issues during home visits related to home setting and family interactions
Formal (Screening Tools)
• New patient questionnaire includes brief anxiety or depression and substance abuse assessment • Medical assistant performs abbreviated GAD-2 and PHQ-2 questionnaires during clinic visit intake • Patient fills out GAD-7 and PHQ-9 at start of each outpatient clinic visit, then provider reviews form and addresses findings with patient • Patients participating in pulmonary rehabilitation undergo depression screening at start of enrollment

Abbreviations: GAD-2, general anxiety disorder 2-item; GAD-7, general anxiety disorder 7; PHQ-2, patient health questionnaire 2; PHQ-9, patient health questionnaire 9; RN, registered nurse.

Table 2. Intervention Resources[a]

Community and Multidisciplinary Resources
• Refer patient to community counseling services for cognitive behavioral therapy • Refer patient to pulmonary rehabilitation program • Refer patient to outpatient palliative care services • Refer patient to integrative medicine or complementary alternative medicine (ie, guided imagery, massage, acupuncture) • Refer patient to local support group or national peer support line through the Pulmonary Hypertension Association
On-Site Dedicated Mental Health Resources
• High score on GAD or PHQ questionnaire prompts involvement of on-site counselor or social worker, if available • Clinic-based counselor engages and enrolls patients in counseling services • Clinic-based social worker provides community resources and crisis management • Direct referral and scheduling with clinic-based psychiatrist for pharmacotherapy treatment or counseling • Ongoing collaborative partnership between psychiatrist and PH provider regarding medication management

Abbreviations: GAD, general anxiety disorder; PH, pulmonary hypertension; PHQ, patient health questionnaire.

[a]While patient support groups and pulmonary rehabilitation provide healthy social interactions, this is not a replacement for psychotherapy or psychiatric support for patients exhibiting significant anxiety and depression.

CHALLENGES TO IMPLEMENTATION

We have faced various challenges when implementing mental health screening and interventions in our PH programs, including those related to the patient, provider, and health care system. When undergoing screening, patients may experience denial of anxiety and depression symptoms, and social barriers may exist with talking about mental health concerns. They may be hesitant to fill

out screening tools honestly or at all. Long-term success of formal screening has been highly dependent upon support staff to follow a consistent workflow of administering the screening tools. Providers often need to dedicate the bulk of the clinic visit to the complex management of medications and review of test results, leaving little time for in-depth discussion of mental health. Some providers don't feel comfortable discussing emotional concerns with patients because of lack of training. In addition, when the clinic lacks on-site support personnel such as social workers or counselors to assist with acute care needs that can arise, providers may forgo screening for mental health issues during the clinic visit.

Once anxiety and depression are identified, additional barriers can exist in obtaining appropriate interventions. Low education level, lack of insight into the importance of managing mental health symptoms, and social stigmas often prevent patients from obtaining counseling or psychiatric care. Patients may fear experiencing new side effects or drug interactions with PH medications when taking psychopharmacotherapy. In addition, they may feel burdened by polypharmacy and hesitant to add additional medications. Because of mental health clinician shortages, patients often have difficulty finding a mental health care provider who is accepting new patients in a timely fashion and is covered by their insurance, as well as easily accessible by convenient transportation. High copays can exist despite insurance coverage, making longer term counseling or psychiatric care less accessible.

OVERCOMING CHALLENGES THROUGH THE APRN AND RN ROLE

The RN and APRN role in implementing mental health care support for PH patients is multifactorial and, in our experience, integral for long-term success. We have found that APRNs and RNs can develop algorithms for screening patients formally during clinic visits, including workflows for support staff and having screening tools readily available in the clinic setting. In addition, APRNs and RNs can work to develop a list of resources to provide patients who are seeking outside support, such as names and contact information of counseling programs and support groups. APRNs are well equipped to serve as liaisons between the PH practice and community mental health services by setting up collaboration with local psychiatry and counseling programs. This allows for an established referral pathway and fast track referrals for more urgent mental health concerns. By providing education to psychiatry and counseling personnel on the complex nature of living with PH including common PH symptoms, complexities of PH therapy regimens, medication side effects, and difficult treatment decisions, APRNs can help mental health care clinicians improve their ability to address PH-related anxiety and depression. RNs can assess if transportation issues exist and if telehealth counseling is an appropriate option for patients. APRNs and RNs can provide informal emotional support during clinic visits while engaged in conversation with patients who might not feel ready for formal counseling services. RNs can work closely with clinic-based social workers who may be available for acute crisis management needs that can arise when screening patients for anxiety and depression. In addition, they can work with practice administration to highlight the need for on-site support and advocate for the availability of such services for large PH patient populations. APRNs often perform the bulk of follow-up care in PH programs, allowing them close recurrent follow-up on previously discussed mental health concerns and opportunities for ongoing screening.

DISCUSSION

Overall, PH is a progressive disease requiring frequent testing and complex treatment regimens. Many PH patients suffer from mental health issues including anxiety and depression. Despite an awareness that mental health issues are prevalent in our PH patients, we are not screening enough to detect these issues that can affect treatment outcomes, quality of life, and long-term prognosis. We need to be more proficient and diligent with screening and rescreening our PH patients early and throughout the disease process. Methods for screening exist, including formal and informal strategies that can be integrated into our PH practices. Interventions for mental health concerns include but are not limited to pharmacotherapy, counseling, exercise, and social support. APRNs and RNs are perfectly positioned to address such concerns through informal and formal means. Many challenges exist with implementing screening and interventions for anxiety and depression, nevertheless APRNs and RNs are key to overcoming them. APRNs and RNs can truly have a positive effect and be integral in the long-term success of our PH populations.

References

1. Olsson KM, Meltendorf T, Fuge J, et al. Prevalence of mental disorders and impact on quality of life in patients with pulmonary arterial hypertension. *Front Psychiatry*. 2021;12:667602. https://doi.org/10.3389/fpsyt.2021.667602
2. Talwar A, Verma S, Sahni S, Vijayan V. Depression in pulmonary arterial hypertension: an undertreated comorbidity. *Lung India*. 2016;33(1):58-63. https://doi.org/10.4103/0970-2113.173072
3. Pfeuffer-Jovic E, Joa F, Halank M, Krannich JH, Held M. Anxiety, depression and quality of life in pulmonary hypertension: a comparison of incident and prevalent cases [published online ahead of print April 27, 2022]. *Respiration*. 2022;101(8):784-792. https://doi.org/10.1159/000524369
4. Bussotti M, Sommaruga M. Anxiety and depression in patients with pulmonary hypertension: impact and management challenges. *Vasc Health Risk Manag*. 2018;14:349-360. https://doi.org/10.2147/vhrm.s147173
5. Mai AS, Lim OZH, Ho YJ, et al. Prevalence, risk factors and intervention for depression and anxiety in pulmonary hypertension: a systematic review and meta analysis. *Front Medicine (Lausanne)*. 2022;9:765461. https://doi.org/10.3389/fmed.2022.765461
6. Banerjee S, Allam A, Weihs K, Rischard F. Levels and treatment of depression and anxiety in patients with pulmonary arterial hypertension and their effects on outcomes. Poster presented at: Fourth Annual Reimagine Health Research Symposium; February 17, 2022; Phoenix, AZ.
7. Verma S, Cardenas-Garcia J, Mohapatra PR, Talwar A. Depression in pulmonary arterial hypertension and interstitial lung diseases. *N Am J Med Sci*. 2014;6(6):240-249. https://doi.org/10.4103/1947-2714.134368

8. Studer S, Hull M, Pruett J, Koep E, Tsang Y, Drake W. Treatment patterns, healthcare resource utilization, and healthcare costs among patients with pulmonary arterial hypertension in a real-world US database. *Pulm Circ*. 2018;9(1):204589401881629. https://doi.org/10.1177/2045894018816294
9. Sporinova B, Manns B, Tonelli M, et al. Association of mental health disorders with health care utilization and costs among adults with chronic disease. *JAMA Netw Open*. 2019; 2:e199910. https://doi.org/10.1001/jamanetworkopen.20199910
10. Park D, Meltendorf T, Kahl KG, et al. Health disparities and differences in healthcare-utilization in patients with pulmonary arterial hypertension. *Front Psychiatry*. 2022;13:813506. https://doi.org/10.3389/fpsyt.2022.813506
11. Grenard JL, Munjas BA, Adams JL, et al. Depression and medication adherence in the treatment of chronic diseases in the United States: a meta-analysis. *J Gen Intern Med*. 2011;26(10):1175-1182. https://doi.org/10.1007/s11606-011-1704-y
12. Jensen E, Dumas BP, Edlund BJ. Depression screening in chronic disease management. *Workplace Health Saf*. 2015;64(3):89-94. https://doi.org/10.1177/2165079915608404
13. Galiè N, Humbert M, Vachiery JL, et al. 2015 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension: the joint task force for the diagnosis and treatment of pulmonary hypertension of the European Society of Cardiology (ESC) and the European Respiratory Society (ERS): endorsed by: Association for European Paediatric and Congenital Cardiology (AEPC), International Society for Heart and Lung Transplantation (ISHLT). *European Heart J*. 2016;37(1):67-119. https://doi.org/10.1093/eurheartj/ehv317
14. Humbert M, Kovacs G, Hoeper MM, et al. 2022 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension [published online ahead of print August 25, 2022]. *European Respir J*. 2023;61(1):2200879. https://doi.org/10.1183/13993003.00879-2022
15. Dinç L, Gastmans C. Trust in nurse–patient relationships. *Nurs Ethics*. 2013;20(5):501-516.
16. Berry JA. Nurse practitioner/patient communication styles in clinical practice. *JNurse Pract*. 2009;5(7):508-515. https://doi.org/10.1016/j.nurpra.2009.02.019
17. Moldestad M, Greene PA, Sayre GG, et al. Comparable, but distinct: perceptions of primary care provided by physicians and nurse practitioners in full and restricted practice authority states. *J Adv Nurs*. 2020;76(11):3092-3103. https://doi.org/10.1111/jan.14501
18. Dinas PC, Koutedakis Y, Flouris AD. Effects of exercise and physical activity on depression. *Ir J Med Sci*. 2010;180(2):319-325. https://doi.org/10.1007/s11845-010-0633-9
19. Sanchez K, Eghaneyan B, Mitschke D. Implementation of a collaborative care model for the treatment of depression and anxiety in a community health center: results from a qualitative case study [published online ahead of print November 2014]. *J Multidiscip Healthc*. 2014;7:503-513. https://doi.org/10.2147/jmdh.s69821
20. Grassi L, Spiegel D, Riba M. Advancing psychosocial care in cancer patients. *F1000Research*. 2017;6(1):2083. https://doi.org/10.12688/f1000research.11902.1