FINDINGS

DESIGN FOR BEHAVIORAL AND MENTAL HEALTH:

More Than Just Safety

An Issue Brief on Designing for Behavioral and Mental Health

INSIDE YOU WILL LEARN ABOUT:

The prevalence of behavioral and mental health conditions as comorbidities.

Design strategies for promoting psychological wellness.

A systematic benefit analysis approach to meet the psychological needs of all.

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AUTHORS

Alan Card, PhD, MPH, CPH, CPHQ, CPHRM
Research Associate

Ellen Taylor, AIA, MBA, EDAC
Vice President for Research

Melissa Piatkowski, EDAC
Research Associate

Design for Behavioral and Mental Health: More Than Just Safety

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Executive Summary

Behavioral and mental health (BMH) conditions affect one in five adults in the United States each year, and are even more common among patients receiving care for medical conditions. According to the National Institute of Mental Health, the spectrum of BMH conditions includes anxiety, attention deficit disorders, autism spectrum disorders, bipolar disorders, depression, obsessive-compulsive disorders, post-traumatic stress disorder (PTSD), substance abuse, and suicide, among others. Up to 45% of patients admitted to the hospital for a medical condition or presenting to the emergency department with a minor injury also have a concurrent BMH condition. These BMH comorbidities increase the risk of psychological harm associated with care.

Safety and "therapeutic" design are equally important in settings that are not specifically intended for BMH conditions, because BMH patients often have physical health problems, too.

The implications of these statistics are two-fold: (1) BMH patients may be found anywhere within the facility, even if BMH concerns are not the primary diagnosis for admission, and (2) those being treated for BMH conditions are likely also in need of treatment for other conditions. In fact, they are more likely than the general population to require medical care (Druss & Walker, 2011). The widespread shortage of beds to handle BMH conditions, in conjunction with the reality of comorbidities, is being addressed with the design of new unit types, such as the medical behavior unit at the Children's Hospital of Philadelphia (Dinardo, 2017) or Stabilization Units (Pinkerton & Johnson, 2017).

In this complex context of comorbidities, safety and "therapeutic" design (i.e., designing an environment that promotes psychological wellness and healing) are both important. This is not only true in settings that are "purpose-fit" for

BMH, but also in health facilities of all kinds that serve patients with BMH comorbidities.

Most design teams acknowledge that providing BMH patients with a healing, therapeutic environment should be an important goal for health design, but the evidence base for designing for BMH in medically -oriented healthcare facilities has focused almost exclusively on physical safety. While safety is obviously the right place for the healthcare design community to start when designing for BMH, it is clearly not the right place to stop. Similarly, "normative" approaches have been criticized as oversimplifying the complexity of designing for BMH (Chrysikou, 2012). However, emerging evidence and expert opinion suggest that certain design features are important for BMH treatment facilities/units (Karlin & Zeiss, 2006; Shepley et al., 2016; Shepley & Pasha, 2013):

- A homelike, deinstitutionalized environment that supports patient autonomy and control over their own environment
- A well-maintained and well-organized environment
- Noise control
- Support for privacy
- Access to daylight and views of nature
- Physical access to the outdoors
- Support for feelings of personal safety/security
- Support for social interaction
- Positive distraction.

Many of these design features have also proven beneficial in other patient populations and may contribute to the comfort of staff members and visitors. For this reason, design interventions aimed at improving the psychological well-being of patients with BMH comorbidities may be more cost-effective than they initially appear if design teams leverage a universal approach to support improved well-being for all populations.

Introduction

Behavioral and Mental Health: A Range of Settings

When behavioral and mental health patients receive care for their physical health conditions, it is important that this care is delivered in a safe and

BEHAVIORAL AND MENTAL HEALTH CONDITIONS IN THE U.S.

1. An estimated 8.1% of people 12 and older had a substance use disorder within the past year.
2. 17.9% of adults had experienced a mental health issue (not counting developmental disorders) within the past year.
3. 3.3% of adults experienced both a substance use disorder and a mental health issue during that timeframe. (Center for Behavioral Health Statistics and Quality, 2016)

Between 25–45% of patients admitted to the hospital for medical care have one or more BMH comorbidities.

therapeutic environment (i.e., an environment that promotes psychological wellness and healing). Adding to the complex picture of behavioral and mental health (BMH) conditions is the variety of spaces in which care can be delivered: inpatient, outpatient, residential, or emergency departments. The design of the environment can either enable recovery, health, and wellness, or act as a barrier to restoration.

Most research on designing for patients with BMH conditions has focused on psychiatric units or specialized BMH care facilities. However, it is equally important to consider settings that are not purpose-built for BMH conditions. In fact, patients with BMH conditions are more likely than the general population to require medical care (Druss & Walker, 2011).

Behavioral and Mental Health: A Range of Conditions

Behavioral and mental health conditions are a common source of poor health in the U.S. (Center for Behavioral Health Statistics and Quality, 2016; National Institutes of Health, 2007). Each year, one out of every five adults experiences one or more BMH conditions, but many do not receive the care they need. Fifty-six percent of U.S. adults with a mental illness go without treatment, along with 80% of adolescents with depression (Mental Health America, 2016).

In fact, access to BMH care is so poor that adults with severe mental illness are three times more likely to be found in a jail or prison cell than in a psychiatric hospital bed, leading Torrey et al. (2010) to conclude, "America's jails and prisons have become our new mental hospitals" (p. 1).

BMH AND MEDICAL CORMOBIDITY IN THE GENERAL POPULATION

1. 68% of people with BMH conditions also have at least one concurrent medical condition (comorbidity).
2. 29% of people with a medical condition also have a BMH comorbidity.

(Druss & Walker, 2011)

Behavioral and Mental Health: Relationship to Physical Health

Not only do BMH conditions increase the risk of medical conditions, but medical conditions (and treatments) can also increase the risk of BMH conditions. And both share common risk factors (Druss & Walker, 2011).

BMH comorbidities are especially common among those who require hospital care. Between 25–45% of patients admitted to the hospital for medical care have one or more BMH comorbidities (Doupnik, Feudtner, & Marcus, 2017; Fulop, Strain, Fahs, Schmeidler, & Snyder, 1998; Levenson, Hamer, Silverman, & Rossiter, 1986), and as many as 45% of patients who present to the emergency

department with a minor physical injury may meet the diagnostic criteria for a positive BMH history or current BMH condition (Richmond et al., 2007).

These BMH comorbidities often go unreported by patients and undetected by clinicians (Mayou, Hawton, Feldman, & Ardern, 1991; Richmond et al., 2007). This means that reactive interventions that are implemented only in response to a diagnosis *cannot* succeed in providing a safe and therapeutic environment for patients with BMH comorbidities. Instead, these design interventions must operate for all patients, at all times, in all areas of the hospital.

Designing for BMH Comorbidities

The Prevailing Paradigm

Historically, efforts to improve design for people with BMH conditions have focused mostly on specialized BMH facilities or units, and mostly on safety. This work has informed the development of widely-adopted guidelines and regulations to support best practice in mitigating the risk of self-harm and harm to others (Hunt & Sine, 2016; New York State Office of Mental Health & architecture +, 2012).

As knowledge in this field has grown, it has become increasingly apparent that proactive, hospital-wide solutions are required to promote physical safety. As mentioned above, patients with (often unrecognized) BMH comorbidities are treated in all areas of the hospital. Moreover, even the best available techniques for suicide risk assessment and violence risk assessment are not reliable predictors of patient outcomes (Fazel, Singh, Doll, & Grann, 2012; Large et al., 2016). As a result, recent Joint Commission guidance clarifies that ligature points and other "self-harm environmental risks" must be identified and removed from all areas of the hospital unless they are necessary for the treatment of the patient (The Joint Commission, n.d.).

But protecting patients with BMH conditions from physical harm is not enough. Providing a safe and healing environment requires a "whole hospital" design strategy to protect patients against both physical *and* psychological harm, and to promote healing and health-related quality of life.

AVOIDABLE PATIENT SUFFERING

Avoidable patient suffering is "the affective experience of pain or emotional harm (anxiety, fear, distress, etc.)" that is not "an inherent part of [a] patient's diagnosis or treatment." (Card & Klein, 2016, p. 32)

Prioritizing Therapeutic Design

Psychological well-being is a core component of health (Card, 2017; Engel, 1977). So when the hospital environment impairs psychological well-being and contributes to avoidable patient suffering, it is causing real patient harm, and undermining the mission of the healthcare organization (Card & Klein, 2016). In short, designing the hospital to promote the psychological well-being of those with behavioral and mental health conditions is the right thing to do.

A major barrier to this kind of design improvement is that the proportion of patients with behavioral and mental health comorbidities is perceived as small, which makes the business case look poor. Despite evidence that 25–45% of hospital patients have BMH comorbidities, this misperception can be difficult to change.

However, while those with BMH conditions are the most vulnerable to environmentally-mediated psychological harm, all are susceptible. So the kinds of design interventions that might improve psychological well-being for patients with BMH comorbidities may also benefit other users of the facility (e.g., other patients, staff, and visitors). Considering design interventions in this broader context can help to make a stronger business case for improvements to support those with BMH comorbidities.

Leveraging Universal Design: Thinking for a System

Healthcare is a complex adaptive system (Wieman & Wieman, 2004), which means (among other things) that changes made at one point in the system, and aimed at one specific goal, will usually have other consequences elsewhere in the system. While these consequences are often unintended, they are not necessarily problematic. They can be positive, negative, or—perhaps more often—both.

For instance, adopting shock-absorbent flooring materials to reduce harm from patient falls might also have the positive consequence of reducing foot and leg pain in nurses, and the negative consequence of increasing back pain among patient transport workers who push wheelchairs, gurneys, and beds all day.

Universal design is the design of products and environments to be usable by all people, at every changing level of need, to the greatest extent possible, without the need for adaptation or specialized design. (Piatkowski & Taylor, 2016)

There are often benefits to other users when applying solutions that may be specifically intended to support one group. For example, pictograms for wayfinding that are intended to serve those with language barriers may also help those with dyslexia or visual impairment, or those who are simply dealing with a high cognitive load (e.g., an agency nurse, parents visiting a sick child, etc.). Hallway benches intended to assist older adults with mobility problems might also provide a space for families to gather and talk without waking a sleeping patient.

The classic example of this is the way mobility ramps or curb cutouts designed to meet ADA requirements not only help wheelchair users, but also parents with strollers, people with wheeled luggage, workers pushing handcarts, etc. Proactively making accommodations to enable accessibility for one group also lowers barriers for many others. Because of these broader impacts, the mobility ramp is far more cost-effective at the systems level than it appears when only wheelchair users are considered. Contrast this with a reactive approach in which accommodations are put in place only when a wheelchair user arrives. It is clear that relying on a reactive approach fails to support all the other populations who might benefit from a ramp.

These examples highlight the benefits of universal design. An extension of Story's definition of universal design (1997), proposed in an earlier brief (Piatkowski & Taylor, 2016), also serves as the premise for the present approach: "Universal design is the design of products and environments to be usable by all people, at every changing level of need, to the greatest extent possible, without the need for adaptation or specialized design."

Current practice in health facility design often equates universal design with ADA compliance. But as this definition makes clear, its scope is much broader than simply designing for physical accessibility.

By taking a system-wide view from the start of a project and evaluating design proposals through the lens of universal design, it is possible to predict some of the broader consequences of a design intervention. This allows design teams to accentuate the positive consequences and eliminate (or at least mitigate) the negative. This approach, in which these broader impacts are treated as an

intentional component of a design intervention, can enable much more sophisticated assessments of cost and benefit.

The goal of this approach is to design healthcare settings that provide a therapeutic environment for patients with BMH comorbidities, while proactively maximizing "spillover benefits" for patients without BMH comorbidities, staff, and visitors.

Therapeutic Design Features From a Universal Design Perspective

While there is little existing evidence focused specifically on designing for medical patients with BMH comorbidities, emerging evidence and expert opinion suggest that certain design features are important for BMH treatment facilities/units (Karlin & Zeiss, 2006; Shepley et al., 2016; Shepley & Pasha, 2013). Many of these may also be applicable to universal design for psychological well-being in hospitals. Examples include:

- A homelike, deinstitutionalized environment that supports patient autonomy and control over their own environment
- A well-maintained and well-organized environment
- Noise control
- Support for privacy[1]
- Access to daylight and views of nature
- Physical access to the outdoors
- Support for feelings of personal safety/security
- Support for social interaction
- Positive distraction.

Some of these design features may be more applicable to certain patient populations than others. For instance, patients who spend longer in the hospital might benefit more from designs that support social interaction outside of patient rooms, or from a homelike environment that promotes autonomy, than patients with a very short length of stay.

ENGAGE STAKEHOLDERS IN AN EVIDENCE-BASED DESIGN PROCESS TO:

- Identify the unmet needs of patients with BMH comorbidities
- Consider other populations that might benefit from (or be harmed by) design features that address these needs
- Select and implement design features that meet the needs of patients with BMH comorbidities, while maximizing benefits/minimizing harms for other users of the facility
- Evaluate outcomes and share learning to help advance the evidence base.

[1] This must be balanced with safety. For patients at increased risk of suicide or self-harm, private rooms may be a safety hazard (Bayramzadeh, 2016; Hunt & Sine, 2016).

Other design features are likely to help everyone. Noise control, for instance, will reduce stress and other noise-induced health impacts for all building users. Similarly, exposure to sunlight has a host of benefits across different categories of hospital users. And both of these design features may improve sleep, which plays a crucial role in both physical and psychological healing.

A Benefit Analysis Approach to BMH and Comorbidities

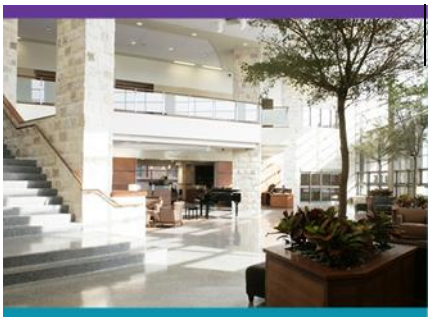
There are several ways a benefit analysis for a more universal approach might be considered. With each, the goal would be to balance the benefits with both first and long-term costs/cost avoidance. Three possible approaches are listed below.

Start Big. The first approach would identify a design consideration widely used for most populations in healthcare (e.g., access to daylight/sunlight, access to outdoors) and consider the benefit for an "unknown" BMH population (the 25–45% of inpatients suffering from comorbid conditions of BMH). This would also require thought for any mediation that might be required for patients with BMH comorbidities (e.g., restricted window opening or control of window shade devices).

Start Small. Conversely, teams could evaluate specific features used in behavioral health-specific environments (e.g., anti-ligature fixtures in bathrooms) and apply the same solutions to more general environments where the behavioral health patient may not be known, but where a "traditional" design would pose risk (e.g., sink with ligature points, shower curtains).

Start by Exploring. Lastly, in purpose-built facility/unit types that address specific populations across the continuum of BMH, there should be a clear articulation of benefits, risk, and potential cost avoidance for solutions to create both a safe and healing environment.

A supplemental tool provides a suggested framework for data extraction of the evidence that can be used for prioritization and discussion.



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Conclusion

Providing health to all patients requires a focus on both physical and psychological well-being. A very large proportion (25–45%) of hospitalized patients are especially vulnerable in terms of psychological health due to pre-existing BMH comorbidities. It is crucial that this be taken into account in the (re)design of healthcare facilities. Specifically, designers should engage stakeholders in an evidence-based design process to:

- Identify the unmet needs of patients with BMH comorbidities
- Consider other populations that might benefit from (or be harmed by) design features that address these needs
- Select and implement design features that meet the needs of patients with BMH comorbidities, while maximizing benefits/minimizing harm for other users of the facility
- Evaluate outcomes and share learning to help advance the evidence base.

This approach will not only help designers and healthcare organizations make better decisions about *how* to address the needs of patients with BMH comorbidities, but also help to make the case for taking action in the first place. Design interventions aimed at improving the psychological well-being of patients with BMH comorbidities may be more cost-effective than they initially appear if a universal design approach is used to extend the benefits of these interventions to other populations (e.g., other patients, staff, and visitors).

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