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Concerning inpatient mental healthcare, the fields of design and architecture face enormous challenges. While focusing on meeting high safety and anti-ligature standards, many psychiatric facilities are designed as highly institutionalised settings. This institutionalisation neglects essential psychosocially supportive elements, which promote health, wellbeing, as well as social interaction of patients and staff. With the aim of changing such institutional structures on a small scale and in an easily implementable manner, a new framework on how everyday objects could decrease institutionalization in psychiatric facilities is proposed. This framework includes two separate mechanisms: (1) design-induced priming of the concept of valorisation and (2) increasing patients' sense of control through everyday objects. As psychiatric environments affect patients as well as staff, we advocate using participatory approaches to determine the selection of product categories and styles of such objects.

Keywords: mental healthcare design; institutionalisation; evidence-based design; priming; psychosocially supportive design

The role of physical environments in the context of psychiatric facilities

Many psychiatric facilities are designed as highly institutionalised settings. This institutionalisation neglects essential psychosocially supportive elements, which promote health, wellbeing, as well as social interaction of patients and staff. In a systemic approach, understanding the impact of psychiatric premises on patients with mental illnesses is critical for battling institutionalisation. As space and the objects in it are formative of our societies and ourselves (Hillier and Hanson 1984), understanding these environments can inform the design process of psychiatric premises. This holds out the prospect of improving these premises in line with the values of psychiatric rehabilitation (Killaspy 2007, author 2019). Key to this understanding is the

psychosocial impact of the physical environment through forming interdisciplinary relations between architecture, design, and behavioral sciences (Ramsden 2019).

The influence of the built environment on health and wellbeing has been the object of research for several decades. Starting with Ulrich's (1984) seminal paper on the effect of hospital window views on recovery, an evidence-based design approach (Hamilton 2003) for health-promoting design emerged (e.g. Malkin 2008), which also inspired specific aspects and design paradigms of the built environment (e.g. Ryan et al. 2020). In most cases, the underlying theoretical framework of the health-promoting effects of these built environments relate to the *Attention Restoration Theory* (Kaplan & Kaplan 1989) and the *Stress Reduction Theory* (Ulrich 1983). While insights and design methodologies related to health-promoting design are well established for small scale (e.g. practises, Devlin 2014) as well as city scale (e.g. Roe and McCay 2021), knowledge and conceptual frameworks regarding mental healthcare facilities are still scarce.

In pre-Covid Europe, almost 20% of the burden of disease has been related to mental illness that affected 1 in 4 people (WHO 2021) and meta-analyses from early stages of the pandemic suggest increasing prevalence of depression, anxiety, distress, and insomnia during the pandemic (Wu et al. 2021). This development is expected to result in increasing risks of harm and self-harm as well as in an increasing number of patients of higher severity in the future (Pierce et al. 2020). As the biopsychosocial complexity of severe mental illnesses results in lower treatment accuracy compared to distinct somatic diseases (e.g. fractures [Christensen et al. 2009]), including environmental features into therapy appears promising for increasing the quality of care through a more holistic approach. Yet, mental healthcare environments have not been planned with psychosocial support or rehabilitation as their key purpose. Instead, the

provision of an environment to contain, control, cure, treat, or manage psychiatric patients has been the main aim according to WHO (World Health Report 2001). The modern equivalent of the asylum under the former definition becomes the acute mental health ward, i.e. a psychiatric space either attached to a hospital or part of a cluster of psychiatric services (NBS 2022a, NBS 2022b, author 2014). Towards the end of the Millennium, there was the most experimental wave of premises (NBS 2022a, NBS 2022b, author 2014). Yet, nowadays, even when psychiatric wards have been placed in the community and have shrunk in size to remove associations with asylums, they might still function as small institutions (Killaspy 2007).

This then casts doubt to the ability of the psychiatric premises to support the aim set for them by WHO (2001) – especially since these institutions tend to focus increasingly on anti-ligature (author 2019). As a result, at least in the Anglo-Saxon premises of the UK and US, psychiatric spaces tend to become more and more stripped of amenities (e.g. heavier, less flexible furniture; shelves instead of cupboards or drawers; special taps to prevent accidents) and a sense of comforting normality and privacy (author et al 2021). Still, harm and self-harm occur in these settings (e.g. Stewart et al. 2012). Thus, merely the management of risk for society emerges as a core function – a development that is contrary to the current model of care, a model that emphasizes social reintegration (author 2019).

Even when the psychosocial potential of the physical environment (in psychiatric environments) is acknowledged, theoretical models to explicitly link elements of the environment to psychological outcomes is still scarce (cf. Ulrich et al. 2018). The aim of this paper is therefore to establish a framework that focuses on implementing a human touch, sense of trust and a glimpse of hope through the physical context of psychiatric spaces. In a period where investment in infrastructure is reduced,

we propose interventions that are scalable, easily implementable and that could be materialised in the vast majority of existing institutions. As a feasible approach, we suggest a theoretical design framework based on immediate small-scale interventions that can be gradually extended to the entirety of psychiatric estates.

Acute psychiatric environments cannot be domestic like normal homes. Yet, under the influence of normalisation (Wolfensberger 1970), ‘domesticity’ became a common term referring to spatial qualities of psychiatric facilities. Although its use in mental healthcare differs from its meaning when applied to family housing, even in clinical environments with limited normality, ‘domestic’ has been the adjective used (author 2014). One effective example of implementing domestic elements into acute psychiatric environments lays in the concept of *Soteria* as introduced in 1975 by Mosher and colleagues and since then has been continuously developed further (Ciompi and Hoffmann 2004, Carlton et al. 2008). Although the therapeutic concept of Soteria exceeds by far the mere physical surrounding of treatment, it is an important part of its concept that it usually takes place in small groups of patients and staff in domestic contexts as opposed to clinical setups. In fact, already the first Soteria facility was established in a former residential building comprising the respective domestic aesthetics. Apart from several therapeutic regimes (e.g. lower doses of medication, transparent information politics) the built environment represents by its home-like structure key features of the therapeutic concept such as family-like social structures as well as close and continuous relationships with caregivers. Special attention is paid to the reduction of stimuli and to the establishment of a relaxing, small and familiar atmosphere. While still being a therapeutic niche concept, several studies show significantly better outcomes compared to conservative treatment settings (Bola and Mosher 2003). While several aspects of the Soteria concept interplay synergistically, the

specific aesthetic quality of the physical environment based on increased domesticity and destigmatisation supports the overall therapeutic regime.

Interaction of people and physical environments

Although the built environment profoundly influences health and wellbeing (Beemer et al. 2021, Devlin 2014, Shepley and Pasha 2013, Ulrich et al. 1991, 2008, 2018), it is at the same time constructed, occupied, and claimed by its inhabitants. This creates an infinite interaction between the built environment and the people using it. People directly or indirectly co-constitute places by constantly changing those (Steg et al. 2012). In its most obvious form, one might only feel "at home" after having individualised and decorated a domestic place (author 2014). While some changes in this context refer to functional elements, they also indicate personal and individual choices according to which the built environment has been adapted and thus been appropriated. Space appropriation – from a psychological point of view – represents the (experienced) change of a space that takes place through mental (e.g. remembering) or physical (e.g. decorating) activity (Rump et al. 2009). Thus, through appropriation, an initially neutral, unknown environment is transformed into one that is personally meaningful (Steg et al. 2012). By this, having an impact on our built environment fulfils the fundamental human need to occupy and claim a distinct area for oneself as one's (temporary) habitat (Steg et al. 2012), as well as the need of autonomy and competence (e.g. Sheldon et al 2001, author 2014).

Concerning public space, appropriation behavior increases attachment to these settings (Rioux et al. 2017). As Childress (2004) argues regarding adolescents' appropriation behavior, where ownership is usually not granted (e.g. minors' prohibition from property ownership in the US), people exert a use-based ownership of spaces that is visible by appropriation of this space and ownership markers. In this sense,

appropriation of spaces that refer to one's temporary personal space without direct ownership often relates to ownership markers (e.g. a towel, a flag) that indicate the occupation of this space. Studies show that increased appropriation of space fosters place attachment, which in turn reduces the likelihood of destructive behavior (Brown et al. 2004; Wener and Olson 1980). However, in starkly institutionalised settings such as many psychiatric facilities, patients lack the ability to appropriate a space and develop attachment to it.

Objects are part of the physical environments that people interact with on a daily basis, although often without conscious awareness. As such, objects do not only offer ways to appropriate places (e.g. by putting down a towel) but also convey symbolic meanings, affordances, and opportunities of usage through usability (Norman 2013, Sudjic 2009). One mechanism in person-object interactions is the formal-aesthetic appearance of objects, which can act as affordances (Gibson 1977) and more subtle as a prime (Ackermann et al. 2010, Kay et al. 2004).

Priming refers to the effect by which one stimulus (prime) affects a person's subsequent judgement, behaviour, thoughts, emotions, and beyond (Bargh and Chartrand 2014). This first stimulus – the prime – can be an everyday object that by its mere presence or through using it triggers associations or emotions in the user (author 2019). As studies on conceptual and material priming show, this can activate mental models, which affect the categories according to which we think and behave (Berger and Fitzsimons 2008, Kay et al. 2004). Based on the *Spreading Activation Theory* by Collins and Loftus (1975), these objects prime mental concepts (such as in the case of [Kay et al. 2004], "business world"). In this process, "activation tags are spread by tracing an expanding set of links in the network out to some unspecified depth" (Collins and Loftus 1975, 409). As Bower's *Semantic-network approach* supposes "each distinct

emotion such as joy, depression, or fear has a specific node or unit in memory that collects together many other aspects of the emotion that are connected to it by associative pointers“ (Bower 1981, 135).

Priming effects of the physical environment (both single objects and complex interior designs) received extensive and growing investigation in the context of retail (e.g. Möller and Herm 2013, Brcic and Latham 2016). Although intensively used in these contexts (e.g. Lindstrøm 2010, 2011, 2014), their potential for health promotion remains disregarded. This applies in particular to psychotherapeutic and psychiatric environments, in which very often the formal-aesthetic approaches are based on other medical premises (e.g. sterile white walls) and by this strengthen the notion of institutionalisation. However, both pathologies and therapeutic approaches in these settings do not require clinical design concepts similar to intensive care units or post-surgery wards. While therapeutic contexts such as psychiatric facilities represent a highly unusual setting, these physical surroundings still exert significant conscious and subconscious effects on patients regarding, for instance, physiological parameters such as blood pressure (e.g. “white coat hypertension”; Pickering 1996) or patients’ subjective evaluations (e.g. Swan et al., 2003). These subconscious effects can be directly attributed to mere aesthetic characteristics of the physical surrounding (e.g. in the case of white coat hypertension the white coat itself). Other studies support this idea in the therapeutic context referring to a “design placebo effect” (author 2017) of the built environment. With regards to Ulrich’s (1997) *Theory of Psychosocially Supportive Design* and the concept of *Salutogenic Design* (Dilani 2005), rethinking the formal-aesthetic design of these environments based on evidence from material priming research, neuromarketing (e.g. Morin 2011) and consumer psychology (e.g. Dijksterhuis et al. 2005) promises significant effects for both patients and staff.

Valorisation and control as basic human needs

As illustrated before, people are not powerless victims of their – physical or social – environments (e.g. Golant 2011). Instead, they actively co-constitute place through building, decorating, demolishing, and converting. However, in the admission to an acute psychiatric ward, two of these aspects become strikingly relevant: a) people become patients and therefore lose a certain control over their lives, especially in the majority of acute cases which tend to be involuntary hospitalisations or the result of a tribunal, b) through this loss of control, people become especially dependent on their immediate social and spatial surroundings (cf. author 2021). Psychological theories and empirical findings state control as a basic human need (Grawe 2004) captured in different concepts, e.g. self-efficacy (Bandura 1977), environmental mastery (Ryff 1989), internal vs. external locus of control (Rotter 1966). All of these concepts underscore the individual as a powerful agent in its surroundings. Feeling in control goes along with wellbeing and mental health (Eklund and Bäckström 2006), while an external locus of control (i.e. the belief that powerful others, circumstances or fate control one's life) is associated with depression and schizophrenia (Harrow et al. 2009). An early study from Ittelson and colleagues (1970) in psychiatric wards also suggested that a lack of control over space, i.e. establishing privacy and territoriality, was associated with withdrawal behavior in patients. Yet, as humans, we often depend on others. In social interaction, valorisation (i.e. a fundamental positive attitude towards another, respect, appreciation) poses a powerful element acknowledged across various psychological schools of thought: from the detrimental consequences of invalidation in childhood on mental health (e.g. Linehan 1993) to the effect of unconditional positive regard in client-centered therapy (e.g. Rogers 1951). There are various ways to communicate valorisation, e.g. through dedicating time, allowing rights, offering goods.

In highly institutional psychiatric environments, both control and valorisation are at stake: When admitted to a psychiatric facility, control over where to go, what to do, and when to sleep is often reduced under the pretext of security and stabilisation, due to lack of resources, or incompatibility between spatial affordances and human resources (author 2013). While excess of control may overwhelm patients in acute phases of mental disorders, lack of control may lead to feelings of invalidation and helplessness (Seligman 1975). Therefore, offering patients small choices during their stay at a psychiatric environment (e.g. choosing decorations for their rooms, taking care of a plant [cf. Langer and Rodin 1968]) might increase wellbeing. Such small choices have potential to activate a feeling of valorisation in patients beyond immediate social interaction.

Theoretical framework to strengthen patients' valorisation and control by everyday objects

Bringing together the aforementioned considerations on priming, space appropriation, and control we argue that in psychiatric facilities, everyday objects could have several health-promoting effects on patients. Transferring mechanisms of person-environment interaction to the context of mental healthcare facilities, the style, i.e. formal-aesthetic appearance, of everyday objects might refer to a certain mental concept (such as „hospitality", „homeliness", or „luxury") that influences subsequent thoughts and behaviours. While in many cases psychiatric facilities convey aesthetic symbols of institutionalisation caused by, for instance, a sterile and non-individual environment, everyday objects refer to personalisation and choice. As such, in the psychiatric context, these objects can be regarded as environmental cues that may increase the cognitive

accessibility of the mental concept of being welcomed and cared for (Berger and Fitzsimons 2008), i.e. represent the notion of valorisation.

In addition to that, if patients are given choice over a variety of objects to use during their stay (e.g. picture frame, cushion) as well as the styles of these objects (e.g. modern, country), they can exert control in a setting in which they usually experience enormous loss of control (author et al. 2021). This offer to individualise specific elements in their built environment (i.e. their rooms) in combination of appropriating – or personalising – their patient room with the given objects (as ownership markers), might strengthen patients' internal locus of control (Rotter 1966, Tyler et al. 2020).

We therefore propose two mechanisms by which everyday objects (such as furniture, pillows, carpets, lamps, picture frames, and other decorative elements) might decrease institutionalisation in psychiatric facilities (see Figure 1). The first mechanism refers to the style of an object, i.e. its physical appearance that acts as a prime by activating a person's mental concept of, e.g. domesticity. Subsequently, we assume this mental concept to influence the person's thoughts, emotions, and behaviours, especially the feeling of valorisation.

This priming effect of the physical surrounding might be even reinforced by the second mechanism, which refers to the variation of objects and the thereby given choice in the selection of objects. We assume this offer of choice to allow the choosing person a certain control over their immediate environment thus strengthening their internal locus of control.

Various design elements and features can enable exerting this type of control. On a basic level, (a) patients can be given the choice between different types or styles (e.g. colour, material) of specific objects such as pillows, doormats, or lamps at admission or at a later stage of their stay at a facility. Furthermore, (b) furniture and

other objects in a patient room can be designed as customisable items based on modular concepts that allow patients (or staff) to exchange parts or covers affecting both functionality and aesthetic appearance of these objects. While this approach is popular to increase product attachment concerning sustainable development (e.g. Mugge et al. 2005), in the case of psychiatric facilities, this emotional bond with one's physical environment can additionally represent a sign of appropriation. Another potentially less troublesome way to establish objects' variability is by technological means. Adjustable light colours or other visual elements (e.g. digital picture frames) allow patients to quickly change the overall appearance of their surrounding without extensive effort. In a more elaborate form, this controllable multi-sensory environment itself can have complementary therapeutic (stress-regulating) effects (e.g. Ziegler 2015).

Clearly, all of these approaches and the way they are implemented need to be designed based on careful consideration of needs and requirements of the specific patient group as well as staff. This applies for instance in particular to emotional states that are associated with a higher probability of being overwhelmed by additional choices being given.

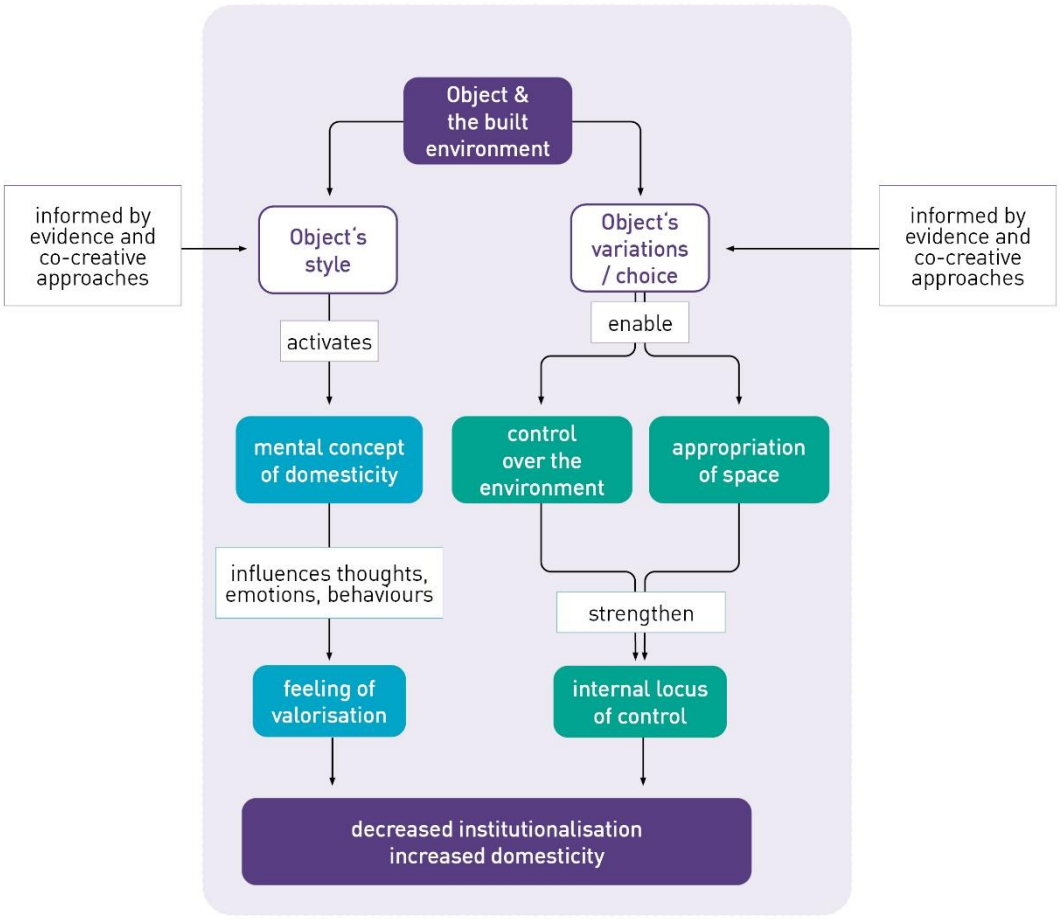

Figure 1. Two mechanisms by which everyday objects might decrease institutionalisation in psychiatric facilities.

Considerations on framework application

In order to put this framework into practice successfully, we deem crucial to include patients as well as staff members in the process, as in a psychiatric environment, unsuitable space configurations affect both groups of people. While they can lead to aggressive and/or withdrawal behaviour among patients (Welter 1977), staff members have to additionally work against such unfit settings (Vollmer and Koppen 2015). However, although there is a growing body of research on how to design environments to promote people's wellbeing, there are no one-size-fits-all solutions (Rambow 2003).

Accordingly, this leads to the intention to capture specific needs of space users (i.e. patients, staff) in order to implement those needs in the spatial design. Therefore, user consultations could contribute to ideating useful product categories and styles to be used in psychiatric patient rooms as a means to decrease institutionalisation (author et al. 2021).

From a methodological point of view, it is of high importance to include both patients and staff in this process in order to establish a profound understanding of potentials and limitations of everyday objects in psychiatric settings (Groot et al. 2019). This applies in particular to the formal-aesthetic properties of the everyday objects to be used in these settings. Aesthetic features and styles refer to mental concepts based on widely shared associations and connotations with these styles (author 2021, author 2021). In the context of psychiatric care, these sometimes-symbolic product semantics might have different or even ambiguous meanings. It is therefore mandatory to use participatory and empirical methods to gain a deeper understanding of how everyday objects can potentially contribute to the wellbeing of patients in psychiatric settings. This requires a careful adaptation of the applied methods tailored to the specific needs of space users involved (Hendriks et al. 2015) as well as a reflection of power dynamics in the process (Farr 2017).

Conclusion

Psychiatric environments are challenged to combine security and humane spatial design. When not meeting this challenge, the result is often highly institutional settings. Trying to change such institutional structures on a small scale and in an easily implementable manner, we proposed two mechanisms of how everyday objects could decrease institutionalisation in psychiatric facilities.

We advocate a paradigm shift concerning the physical environment for psychiatric patients: Currently, psychiatric patient rooms lack opportunities for patients to actively exert control over the built environment in which they are the sole user – namely their patient room –, e.g. due to furniture fixed to the floor. However, in their most fundamental function, these rooms serve as accommodation during therapeutic treatments, comparable to rental apartments – except for necessary safety precautions described earlier. Therefore, patients should obtain an extended right about these spaces as they are to be perceived as the patient's territory.

While considering necessary safety issues and therapeutic aspects, we propose everyday objects as the least interventional approach to facilitate personalisation through space appropriation and thereby decrease institutionalisation. On a second level, concerning material priming research, these objects should be selected carefully, as products convey associations and might trigger mental concepts that counteract the aforementioned mechanism. As an appropriate means to prevent this and as psychiatric environments affect patients as well as staff members, we advocate using participatory approaches as a powerful and efficient tool to determine the selection of product categories and styles of such objects.

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