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HEALTHCARE ENVIRONMENT DESIGN AND PATIENT EXPERIENCE

Section A: Environments that make a difference:
A narrative review of the effect of healthcare environment design on patients living with serious physical health conditions
Word Count 6091 (455)

Section B: Understanding patients' experiences of interacting with art and design in a cancer centre environment
Word Count 7968 (628)

Overall Word Count 14059 (1083)

A thesis submitted in partial fulfilment of the requirements of
Canterbury Christ Church University for the degree of
Doctor of Clinical Psychology

SALOMONS
CANTERBURY CHRIST CHURCH UNIVERSITY

MAY 2018

Acknowledgments

Thank you to the people who kindly gave their time and energy to take part in this project and for offering such varied and fascinating insights into this area of research. Thank you to Paul for his support at every stage of this project and to MG for helping to make it all happen on-site. A big thanks also to Paula for being my point of contact and for rallying the troops. Finally, thank you to Conny for her steadfast patience (and for showing me it can be done) and to the wonderful Brighton(ish) gang for their humour and moral support as we hurtled towards the finish line!

Summary of the MRP Portfolio

Section A: Presents a narrative literature review that synthesizes and critically evaluates the available published literature related to the effect of design in healthcare environments (defined as any location offering treatment) on patients living with serious physical health conditions (defined as any serious, chronic or life-threatening illness). Suggestions for future research include further exploration of patients' subjective experience as elicited through qualitative methods and randomized controlled trials investigating the strength of the effect of specific art and design interventions.

Section B: Presents a project that employs grounded theory methodology to examine the experiences of cancer patients using a newly built cancer centre that incorporates art and design. The theory describes a dynamic relationship between patients and healthcare environments that is informed by aspects of the individual context, such as the nature of the patient's illness. The results are discussed in relation to theories of identity, wellbeing and attachment. Clinical and research implications, with a particular focus on clinical health psychology, are described.

Section C: Appendices.

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SECTION A

MAJOR RESEARCH PROJECT

LOUISE MARSHALL LLB (Hons) BA (Hons) MSc

Section A: Literature Review

Environments that make a difference:
A narrative review of the effect of healthcare environment design on patients living with serious physical health conditions

Word Count:

6091 (455)

A thesis submitted in partial fulfilment of the requirements of Canterbury Christ Church University for the degree of Doctor of Clinical Psychology

May 2018

SALOMONS

CANTERBURY CHRIST CHURCH UNIVERSITY

Abstract

Evidence-based design research has identified several factors within healthcare environments that contribute to patient outcomes, however a general understanding of how these environments are experienced by patients is lacking. This review aims to synthesise and critically evaluate the published literature related to the design of healthcare environments for patients with serious physical health conditions. Given the paucity of research in this area, the review includes patient experiences and outcomes relating to various aspects of art, design, and architecture, as well as to healthcare environments as a whole. Relevant journals were searched - Psycinfo, Pubmed, Medline, CINAHL, BNI, Web of Science and ASSIA – using key search terms - [art*] or [painting] or [architectur*] and [healthcare environment] or [hospital environment] and [patient*] or [user*] and [evaluat*] or [qualitative] or [subjective experience] or [quantitative] - with both quantitative and qualitative papers included and critically appraised. Results are presented according to eight themes that designate important aspects of healthcare environments: physical comfort, accessibility/orientation, patient stress, perceived control, social interaction vs. privacy, homely atmosphere, distraction and stimulation, and perception of time. A key issue derived from this review is that patient choice regarding how and with whom they spend their time is fundamental to the quality of their experience. Strengths and limitations of this review are discussed, including the breadth and low quality of evidence in this area. Implications for future research and practice include exploring the needs of patients living with different health conditions, identifying important small-scale interventions to increase patient wellbeing, and providing patients with choices whilst in hospital.

Key words: review, design, healthcare environments, physical health conditions

Introduction

Physical environments influence people in many different ways, from the awe-inspiring impact of large-scale modern architecture to the comforting nature of a place that provokes happy memories of childhood. When it comes to the relationship between patients and healthcare environments, recent research has indicated that there are a number of factors that are essential to creating healing environments. Whilst this concept has been around for some time (Nightingale, 1859), it has more recently been developed by Ulrich in his seminal work on the impact on recovery times of patients being able to see natural views rather than brick walls (Ulrich et al., 1991) and is known as evidence-based design.

Evidence-based design (EBD)

As a wide-reaching concept, EBD has brought together diverse fields of research, including nursing, psychology and management, to produce a set of factors that have been shown to influence patient outcomes. Several studies have found that a key aspect of patient-centred care is an environment that facilitates patients' feelings of control (Birdsong & Leibrock, 1990; Sherer, 1993; Weber, 1996). In a recent review by Huisman and colleagues, results indicated that single-patient, identical rooms with adequate lighting are essential in healing environments as these promote a sense of security and agency for patients (Huisman, Morales, Van Hoof & Kort, 2012). However, other research has shown that this is not necessarily the case and that patient choice of single vs. multiple bed rooms is often guided by the particular circumstances they face, such as the type and severity of illness (Maben et al., 2015). Together, these results appear to indicate the importance for each patient of making informed decisions which is reflected in Leventhal's common sense model

of illness, specifically the element of curability/controllability pertaining to the actions that a person might take to feel in control of their illness (Leventhal, Diefenback & Leventhal, 1992). Other research has built upon Ulrich's work by identifying aspects of the environment that represent positive distractions, such as soothing colour and sound (Iyendo, 2016; Altimier, 2004), which have the potential to "enhance recovery [and] shorten hospital stays" (Lemprecht, 1996, p.127). Furthermore, the field of biophilic design demonstrates that the inclusion of natural elements, in particular plants, enhances patient wellbeing and reduces stress through associations with the outside world and other living organisms (Grinde & Patil, 2009; Drahota et al., 2004). The importance of reducing affective arousal in order to manage stress has long been recognized by the psychological literature (Bandura, 1982) and has more recently found support from neuroscientific research demonstrating the impact of stress hormones on cognitive and emotional functioning (Lupien, McEwen, Gunnar & Heim, 2009).

Patient experience

Despite the inherent difficulties in measuring the effects of healthcare environments with respect to patient outcomes (see Schweitzer, Gilpin & Frampton, 2004), quantitative methods continue to dominate EBD research. However, it is clear that a consideration of patient experience through qualitative research is crucial as it helps to illuminate the mechanisms at play and therefore inform further interventions. Studies that have explored the meaning of patient-centred care demonstrate that active participation in treatment and strong relationships with health professionals within a suitable context are key ingredients for patients (Kitson, Marshall, Bassett & Zeitz, 2012). This brings into focus the importance of a multi-faceted approach where decisions regarding design considerations, staff and service

needs, and patient care are balanced appropriately (Altimier, 2004; Verderber & Fine, 2000)

In arts and health research specifically, the emotional health benefits of EBD have informed several projects, such as the refurbishment of mental health hospitals in the south-east of England which gave rise to significant increases in both satisfaction ratings and discharge times compared to the old sites (Wells-Thorpe, 2003). These concepts have been applied elsewhere, for instance with regards to wayfinding for people with dementia in residential care homes (Innes, Kelly & Dincarslan, 2011) and altered layouts in psychiatric hospital dayrooms to improve socialization and wellbeing for patients (Melin & Gotestam, 1981; Peterson, Knapp, Rosen & Pither, 1977). It is possible that these improvements encouraged a sense of secure attachment to the environment that allowed patients to focus on their recovery, as outlined by Scannell & Gifford in their theory of place attachment (Scannell & Gifford, 2010).

Healing environments in physical health

Within physical healthcare, developments in arts-influenced environments have been slower to materialize. However, recent projects in UK hospitals demonstrate the value of integrating art and design into healthcare (e.g. UCLH Arts and Heritage, n.d.) and have drawn critical and public praise for their innovative approach to providing an environment that promotes health and wellbeing at a time of adjustment, reflection or crisis. Indeed, it is increasingly common for healthcare organisations to incorporate arts programmes or establish working relationships with arts charities to oversee the integration of art and design ideas into healthcare services, with notable benefits for patients such as increased social support (e.g.

Audience Engagement Programme, 2017). This holistic approach to health is further supported by research that highlights the profound impact that physical health problems, particularly chronic or life-altering illnesses, can have on the emotional wellbeing of patients (RCP, 2016). Indeed, clinical health psychology in hospital settings has provided evidence of the therapeutic benefits of interventions that focus on alleviating distress and enabling cancer patients to adjust to an unexpected and traumatic time in their lives (Osborn, Demoncada & Feuerstein, 2006; Stagl et al., 2015).

Focusing on the patient

Throughout these endeavours, it is vital to take account of the patient at the heart of any healthcare intervention, including those embodied in the environment. According to Kleinman, the social environment, including the way that staff, patients and visitors are organised within hospital buildings, informs the way we react to and interpret illness (Kleinman, 2003). Seeking treatment for health problems inevitably presents patients with a dilemma of either inhabiting the role of the 'good' patient – one who is compliant – or the 'bad' patient – one who is resistant - both of which engender consequences that can interfere with recovery (Taylor, 1979). Moreover, for those patients who spend significant periods of time in hospital, their capacity to perform cognitive tasks can also diminish (Garip, 2011), amplifying the threat to personal control. It is therefore helpful for both the immediate and general healthcare environment to positively intervene by increasing the strategies available to patients, particularly those living with life-altering illnesses, to maintain autonomy and wellness. As such, a thorough exploration of the current literature is a valuable starting point.

Methods

This review aims to synthesise and critically evaluate the published literature that relates to the effect of design in healthcare environments on patients with serious physical health conditions. Given the limited amount of evidence available, the review includes patient experiences and outcomes relating to various aspects of art, design, and architecture, as well as to healthcare environments as a whole. Papers focusing on art therapy or other types of active participation in the arts are not included in order to maintain a focus on elements of design that are embedded in the environment.

In order to accurately reflect the current evidence, only papers published in peer-reviewed journals have been included. 'Physical health conditions' were considered to be any serious, chronic or life-threatening illness and 'healthcare environments' referred to any location offering treatment for such conditions. Only studies with patients as participants were included to ensure an accurate representation of patient experience and studies related to either inpatient or outpatient, with current or recently discharged patients. Both qualitative and quantitative papers were included.

Literature search

Figure 1 details the systematic literature search that was conducted. Several databases relevant to arts and health were searched: Psycinfo, Pubmed, Medline, CINAHL, BNI, Web of Science and ASSIA. Taking the lead from an exemplary review on art and design in mental healthcare (Daykin, Byrne, Soteriou & O'Connor, 2008), the following search terms were combined: [art*] or [painting] or [architectur*]

and [healthcare environment] or [hospital environment] and [patient*] or [user*] and [evaluat*] or [qualitative] or [subjective experience] or [quantitative]. No cut-off date was used in order to capture all possible results. Initial searches produced 154 results which was reduced to 122 papers after duplicates were removed. All abstracts were then screened for relevance which resulted in twenty eligible papers. In order to maximize the search, key search terms were entered into Google Scholar and citation lists of key review papers were hand-searched, however no new papers were added.

Quality appraisal

In order to assess the quality of the papers in this review, two critical appraisal tools were employed. For quantitative papers, the Effective Public Health Practice Project (EPHPP) assessment tool comprises six components, each of which offers a rating of strong, moderate or weak and contribute to a global rating (Jackson & Waters, 2005, see Appendix A). For qualitative papers, the Critical Appraisal Skills Programme (CASP) qualitative research checklist evaluates ten areas, such as data collection, recruitment and appropriateness of the methodology used (Appendix B). The relevant score for each paper is included in Table 1 which also provides a summary of key points.

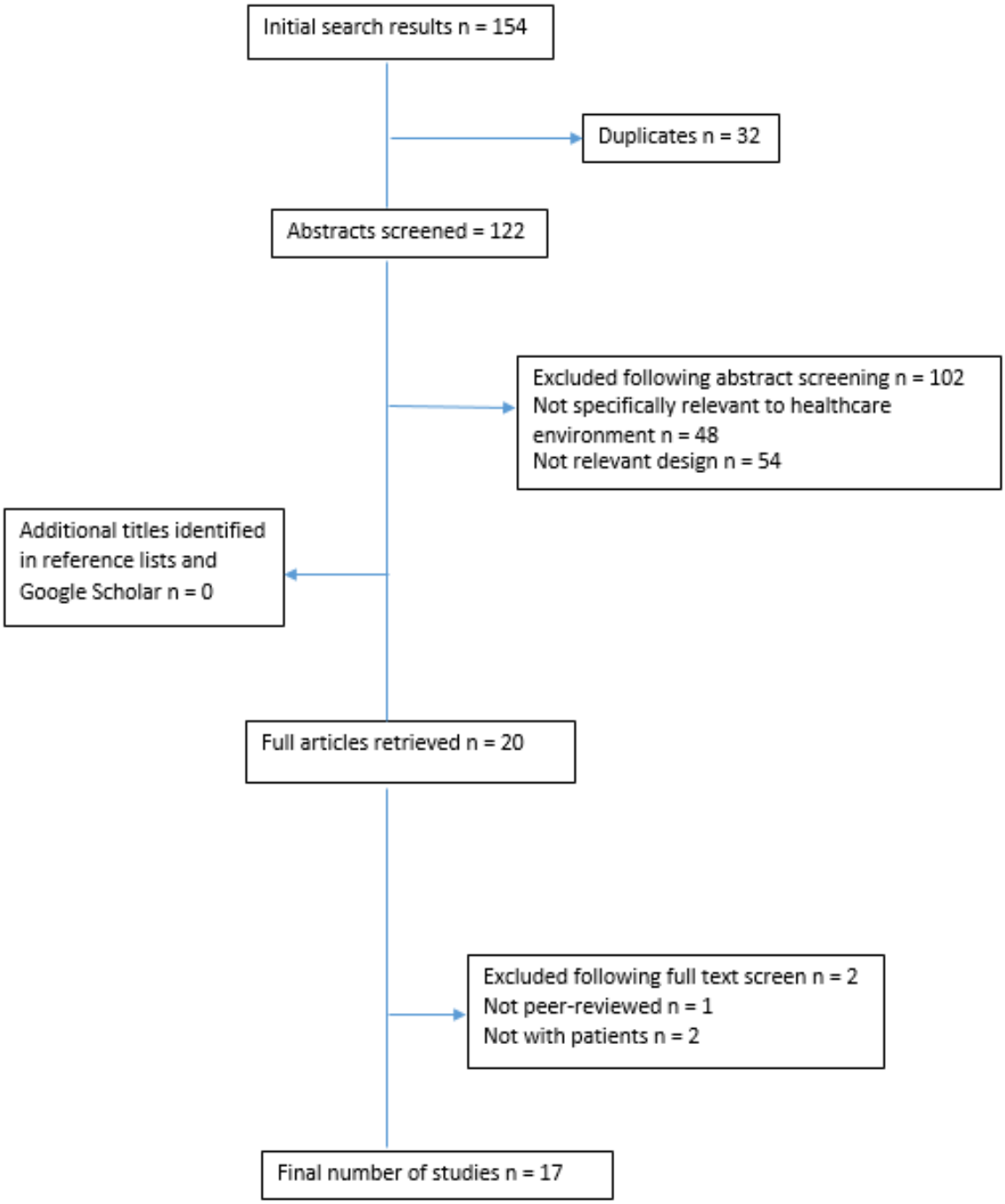

Figure 1. Flow chart illustrating systematic literature search

Table 1: *Reviewed papers*

Study and location	Aims	Setting and participants	Method and analysis	Main findings	Quality rating
Andrade, Devlin, Pereira & Lima, 2017 (Portugal, USA)	To test the relationship between physical environment and patient stress with regards to the perception of control, positive distraction, and social support	236 orthopaedic patients aged 23 – 87.	Post-surgery questionnaire; multi-level regression analysis.	The greater the number of favourable design features, the less the patients' stress; this effect is explained by the level of social support and distraction. The relative importance of these dimensions may differ between cultures.	Weak
Browall, Koinber, Falk & Wijk, 2013 (Sweden)	To describe what factors of the healthcare environment are perceived as being important to patients in oncology care	11 patients (mean age 54 years) with different cancer diagnoses in an oncology ward at a university hospital in west Sweden.	Qualitative design using focus group interviews; content analysis.	Three main categories: safety, partnership with the staff, and physical space. Physical factors are subordinated by psychosocial factors in a care environment. Patients' primary desire was a psychosocial environment where they were seen as a unique person; opportunities for good encounters with staff, fellow patients and family members, supported by a good physical environment; and a place to withdraw and rest.	6/10 points satisfied
Caspari, Nåden & Eriksson, 2007 (Norway)	To find out how patients evaluate the aesthetics in general hospitals and to ascertain how aesthetics influence health and wellness.	270 inpatients with a range of medical conditions across 6 hospitals.	Questionnaire containing 22 questions, each with detailed sub-questions; mean values reported across 15 categories.	The results in general showed that aesthetic surroundings are important for health and wellness, according to the patients' opinion. The aesthetics in the hospital environment were evaluated and generally considered to be less than satisfactory by the patients. They felt that the aesthetic issues are not attended to as well as they would have liked.	Moderate

Douglas & Douglas 2005 (UK)	To explore patients' perceptions of healthcare built facilities and designs. To develop a set of patient-centred indicators by which to appraise future healthcare designs	35 patients, 8 focus groups, past inpatients from previous 12 months in an NHS Trust.	Qualitative and quantitative methodologies, including futures group conferencing, auto-photographic study, novice-expert exchanges and a questionnaire survey of a representative sample of past patients.	Futures group provided suggestions for improvement including: accessibility and mobility; ground and landscape designs; social and public spaces; homeliness and assurance; cultural diversity; safety and security; personal space and access to outside. Auto-photographic study: quality of the ward design; human interaction; state and quality of personal space; and facilities for recreation and leisure. Surveys: main concerns were limitation of private space around the bed areas, supportive of privacy and dignity, ward noise and other disturbances.	6/10 points satisfied
Douglas & Douglas 2004 (UK)	To explore patients' perceptions of healthcare built facilities.	50 hospital inpatients across surgery, medicine, care for the elderly and maternity	Semi-structured interviews; thematic framework approach.	Patients perceived the built environment as a supportive environment. They expressed a need for personal space, homely welcoming atmosphere, a supportive environment, good physical design, access to external areas and provision of facilities for recreation and leisure.	9/10 points satisfied
George et al. 2018 (USA)	To examine whether placing a painting in the line of vision of a hospitalised patient improves patient outcomes and satisfaction and whether having patients choose their paintings offers greater benefit.	186 hospital inpatients, 49% male, average age 56 years, 89% Caucasian.	Randomised controlled trial; various statistical tests including MANOVA.	There were no differences in psychological and/or clinical outcomes across the groups, but patients in the 2 groups with paintings reported significantly improved perceptions of the hospital environment. Integrating artwork into inpatient rooms may represent one means of improving perceptions of the institution	Strong

Gotlieb 2000 (USA)	To present a proposed model and empirical evidence based on a general framework to help identify variables that affect the perceived quality of a hospital	232 hospital inpatients.	Questionnaire. Systematic random sampling with a random start; regression analysis.	The physical environment (i.e., patients' perception of their hospital rooms) and people (i.e., patients' perception of nurses) affected patients' perception of hospital quality. The process (i.e., patients' perception of control over the process) did not directly affect their perception of hospital quality. However, patients' perception of control over the process and their perception of their hospital rooms affected their perception of their nurses.	Weak
Harris, McBride, Ross & Curtis, 2002 (USA)	To determine the relative contribution of environmental satisfaction to overall satisfaction within the hospital experience and to explore differences across 4 departments and 6 hospitals.	380 discharged inpatients who had been hospitalized for an average of 3 days and were interviewed 2 to 54 days after discharge.	Telephone interviews based on Patient Perceptions of Quality Interview-Inpatient Form; multiple regression.	Interior design, architecture, housekeeping, privacy and the ambient environment were all perceived as sources of satisfaction. Environmental satisfaction was a significant predictor of overall satisfaction, ranking below perceived quality of nursing and clinical care. There were no significant differences between hospitals or departments in the level or sources of environmental satisfaction.	6/10 points satisfied
Karnik, Printz & Finkel, 2014 (USA)	To assess whether an art collection of diverse subject matter, media and imagery in the hospital environment can play a significant role in mitigating the psychological stresses and physical pain associated with a hospital visit, or	1094 members of a patient panel, 63.7% female, 93.9% Caucasian, aged 18-65+.	Survey; chi-square test of independence.	A majority of respondents noticed the artwork, had improved moods and stress levels due to the artwork, and reported that the art collection positively impacted their overall satisfaction and impression of the hospital	Weak

	whether it improves patients' satisfaction with their care.				
Kline et al. 2007 (Canada)	To consider patient satisfaction relative to changes to the physical environment in a newly design Canadian internal medicine unit (the Ward of the 21st Century, or W21C)	21 hospital inpatients.	Pre- and post-move surveys based on patient judgment system; comparison of means.	In the new unit, patients rated (a) their rooms as being in better condition, (b) the supplies and furnishings as better, (c) the atmosphere as more restful, and (d) the facilities as providing more privacy. The relationships between overall satisfaction and the immediate environment, general hospital environment, and staff interactions were all moderate and positive in direction, but overall satisfaction with hospital stay in the traditional ward was correlated with patient perceptions of their immediate environment and the general hospital environment, while in the W21C, the overall satisfaction with hospital stay was correlated with patient perceptions of the general hospital environment.	Moderate
Leather, Beale, Santos, Watts & Lee, 2003 (UK)	To evaluate the intuitively informed interior design changes made to a UK neurology outpatient waiting area following relocation to an alternative building.	145 neurology outpatients, equal split male and female, average age 48 years.	A two-sample comparative design with data gathered from patients pre- and post-relocation. Structured interview plus physiological measures.	The nouveau waiting area is associated with more positive environmental appraisals, improved mood, altered physiological state, and greater reported satisfaction. These findings provide support for the concept of a therapeutic hospital environment.	Weak
Nanda et al. 2012 (USA)	To analyse the effect of visual art depicting nature	Observation of waiting areas, i.e.	A pre–post research design	Significant reduction in restlessness, noise level, and people staring at other	Strong

	(still and video) on patients' and visitors' behaviour in the Emergency Department.	non-identifiable participants.	was implemented using systematic behavioural observation of patients and visitors in the ED waiting rooms of two hospitals over a period of 4 months; two-way ANOVA.	people in the room was found at both sites. A significant decrease in the number of queries made at the front desk and a significant increase in social interaction were found at one of the sites	
Nielsen, Fich, Roessler & Mullins, 2017 (Denmark)	To understand patient wellbeing and satisfaction and to qualify the current guidelines for the application of art in hospitals	30 patients with variety of diagnoses; aged 41 to 91; roughly equal split male and female.	User-oriented survey plus fieldwork; semi-structured interviews; observation; informal conversations; thermal cameras.	Art contributes to creating an environment and atmosphere where patients can feel safe, socialise, maintain a connection to the world outside the hospital and support their identity.	5/10 points satisfied
Rowlands & Noble 2008 (UK)	To explore the views of patients with advanced cancer on the effect the ward environment has on their overall wellbeing.	12 inpatients with a range of cancer diagnoses, aged 25-65+, two thirds female.	Semi-structured interviews; thematic analysis.	Four major themes: staff behaviours, the immediate environment, single vs multi-bedded rooms and contact with the outside environment. The attitude, competence and helpfulness of the staff creates the atmosphere of the ward regardless of layout, furnishings, equipment and décor. The majority of the patients in this study expressed a strong preference for a multi-bedded room when they were well enough to interact and a single cubicle when they were very ill or dying, which opposes	8/10 points satisfied

				the current advice for building new hospitals with all single rooms	
Timmermann, Uhrenfeld & Birkelund, 2013 (Denmark)	To explore how cancer patients experience the meaning of positive sensory impressions in the hospital environment, such as architecture, decoration and the interior.	6 cancer patients aged 61 – 89 (2f, 4m). Two had a single room, one shared with 2, three shared with 1. All had a view to water and green areas, or a view of the city and fields	Qualitative interviews; hermeneutical-phenomenological theory of interpretation.	Participants experienced that positive sensory impressions had a significant impact on their mood, generating positive thoughts and feelings; a view of nature helped them to forget their negative thoughts for a while and connect with good memories and personal life stories that enabled them to recall some of their feelings of identity	8/10 points satisfied
Williams, Dawson & Kristjanson, 2008 (Australia)	To develop the theory Optimising Personal Control to Facilitate Emotional Comfort, focusing on the hospital environment.	56 inpatients (23 male), aged 21-86+, different conditions and rooms.	Interviews and field observations; grounded theory.	Hospitalised patients were found to experience feelings of reduced personal control. The conditions of levels of security, level of knowing and level of personal value all contributed to patients' feelings of personal control which ultimately led to emotional comfort whilst in hospital.	6/10 points satisfied
Zijlstra, Hagedoorn, Krijnen, van der Schans & Mobach, 2017 (Netherlands)	To investigate whether the use of motion nature projection in CT imaging rooms is effective in mitigating psycho-physiological anxiety (vs. no intervention)	97 patients who had undergone a cardiac CT scan, mean age 55 years, equal split male and female.	Quasi-randomised design; mediation analysis.	By creating a more pleasant imaging room through motion nature projection, hospitals can indirectly reduce patient's psycho-physiological anxiety during a CT scan.	Moderate

Results

Summary of quality appraisal

Applying the EPHPP assessment tool to the nine quantitative papers included in this review indicated that only two papers achieved strong global ratings (George et al., 2018 and Nanda et al., 2012). For the remaining seven, the majority of weak scores concerned selection bias, study design and data collection methods. For the eight qualitative papers reviewed, three scored eight or more points out of ten according to the CASP framework (Douglas & Douglas, 2004; Rowlands & Noble, 2008; Timmermann et al., 2013). The remaining five tended to score poorly on recruitment strategy, potential researcher bias and insufficient details regarding data analysis. For many of the papers, low scores resulted from a lack of information rather than obvious signs of weak research methods. Where information allowed for a more thorough assessment, these points are elaborated upon in the subsequent sections.

The papers reviewed are grouped according to central themes and ideas that represent the effect of design in healthcare environments on patients. Each theme is addressed in turn and elaborated upon in the discussion that follows.

Physical comfort

At a time of uncertainty and anxiety, having access to sources of comfort is often a high priority for patients. In their 2002 mixed methods study, Harris and colleagues specifically explored patients' experiences of physical comfort across four different departments in six hospitals. Many participants in this study remarked on the importance of comfortable furnishings in their rooms and functional equipment that can easily be accessed from their beds (Harris et al., 2002). Unfortunately, the methodology used in this study did not allow for a more in-depth analysis as it

described high-level themes only rather than details of the reasons behind these comments. In contrast, in a phenomenological study of subjective experience in an oncology ward, patients with advanced cancer described a light and airy environment as one of the main contributors to their quality of life as this allowed them to feel better and to "want to wake up in the morning", suggesting that the physical environment can directly affect motivation and mood (Rowlands & Noble., 2008).

Accessibility and orientation

Linked to the notion of physical comfort is the ease with which patients can move and find their way around the hospital environment. Good signage and wayfinding was cited by both patients and experts (i.e. medical staff working in the hospital) as key to a patient-centred environment (Douglas & Douglas, 2005). Across several different patient groups, only those in the elderly care department commented on confusing signage as a barrier to the environment meeting the needs of visitors and family members, which perhaps highlights the importance of designing healthcare spaces for everyone regardless of age or ability (Douglas & Douglas, 2004).

Amongst the group of papers reviewed here, there was very little research into wayfinding in healthcare environments. Two of the studies (Kline et al., 2007; Gotlieb, 2000) mention satisfactory ratings of the hospital signage but do not offer further details which could be addressed in future research.

Patient stress

Several papers focused specifically on art and design interventions and these offer interesting findings in relation to patient stress. In their exploration of the effect

of a diverse, in-house art collection on patient experience in a general hospital environment, Karnik and colleagues found substantial improvements in stress and pain levels in the majority of participants (Karnik et al., 2014). Seventy-one percent of those who had noticed the artwork described the environment as "inviting/welcoming" whilst 57 percent described it as "calming". Both effects increased with time, with these figures rising to 77 and 73 percent respectively after two or more days in the hospital, which was explained by the researchers in terms of people gaining a deeper understanding or appreciation of the artwork the more time they had. However, this study was conducted using questionnaires sent to members of a patient panel, individuals who had volunteered to be part of a research group; respondents were nearly all Caucasian and over half aged 55 or above, therefore arguably not a representative sample of patients in the USA. Furthermore, the questionnaire was sent after, rather than during, the visit(s) to the hospital which means that respondents were relying upon their recall of the environment which can often be limited (Ebbinghaus, 2013).

Studies based in more localised environments offer an alternative perspective to this general focus. In an observational study based in emergency department waiting rooms, patients were found to display fewer restless behaviours, such as front desk queries, and to socialise more in the presence of visual art compared to its absence (Nanda et al., 2012). In spite of the increased socialisation, overall noise levels were reduced in waiting rooms that contained visual art compared to those without, implying that people were talking in softer voices and therefore behaving more calmly. The researchers in this study collected thirty hours of data, systematically organised according to behaviour type, and demonstrated a rigorous approach to research; as such, their results offer good insight into the effect of art in

hospital environments. In contrast to the potentially frenetic environment of a waiting room, a study situated in the confined space of a computerised tomography (CT) scanner room explored the effect of a motion nature projection on the wall during consultation with the radiographer and during the scan. Compared to the control group (no projection), participants reported an increase in pleasantness ratings which was indirectly related to a reduction in anxiety levels (Zijlstra et al., 2017). However, the researchers acknowledged the limitations in this study, such as the possible confounding presence of the radiographer, who had to be briefed about the study, and the difficulty in measuring an effect in patients who are experiencing high levels of anxiety. In spite of these limitations, this study offers a robust examination of a relatively simple intervention, which is an approach reflected in a 2018 paper by George and colleagues.

In their randomised controlled trial, George et al. (2018) explored the impact of artwork in cancer patients' rooms in terms of emotional response, pain, quality of life, length of stay and perception of environment. They found that the presence of a piece of art, whether chosen by the patient or the researcher, did not lead to any significant improvements in the measured outcomes compared to the 'no art' group with the exception of the perception of the environment. In other words, whilst patient outcomes did not improve, they felt better about their environment which may offer considerable benefits in terms of satisfaction and wellbeing.

However, artwork is only one way to help reduce patient stress. In their cross-cultural study of American and Portuguese patients, Andrade and colleagues found that stress could be mitigated by an increase in the number of 'positive elements' in the room, including clocks, pictures and personalized items, (Andrade et al., 2017). The investigators compared these findings across samples and found that this effect

was mediated more strongly by social support in the American compared to the Portuguese group, but that the opposite trend was identified for perceived control. However, several aspects of the research design were problematic, including a limited explanation of participant recruitment and sampling, which casts doubt upon the results.

Perceived control

The intricacies of the relationship between patients and their environments can also be understood in terms of uncertainty and powerlessness. Several papers found that a perceived lack of control lay at the heart of patient experience and was often mediated through environment factors, such as architecture and design features. In their investigation of what constitutes a 'patient-friendly' hospital, Douglas & Douglas (2004) found that patients required choice, independence and control over their environment. Across four settings – surgical, medical, elderly care and maternity – common themes included being able to move around independently, being able to see or go outside, and choosing when and how to socialize with others. The environment was described as facilitative in many ways, such as by providing open plan areas where possible, but obstructive in others, such as by not offering private or quiet spaces away from the noise of the hospital. In this same vein, having choice between single rooms and multiple bed rooms was described as more important than the type of room itself as the benefits of each (e.g. privacy vs. socialization) was intricately linked to the particular circumstances of the patient (Rowlands & Noble., 2008; Douglas & Douglas, 2004). Contrary to previous literature (see Chaudhury, Mahmood & Valente, 2005; Ulrich et al., 2004 and Phiri, 2004), these studies found that there was not a universal desire for single rooms

amongst patients and that, for many people, having company alleviated boredom and distress.

Both of these studies represent high quality research and highlight the importance of choice in hospital settings as a way to help patients feel more in control, a finding that has been reported elsewhere. In their 2008 study, Williams et al. theorised that patients find emotional comfort in hospital environments when they perceive themselves to be valued and in control of their knowledge and security. For instance, patients felt that they were more than just a patient, gained a good understanding of their treatment and felt that staff were available to respond to their requests. Environmental factors, such as comfortable furniture and adequate equipment, played an important role by enabling patients to move around, seek information and establish a sense of agency whilst in hospital. The authors make the point that recovery was "enhanced by an increase in personal control" and that "emotional comfort was facilitated when the hospital environment felt like home" (Williams et al., 2008, p. 1606), however there is insufficient data to justify this assertion and the theory development does not offer an adequate explanation of the relationship between these factors.

With regards to the importance of examining the effect of hospital environments, Gotlieb and colleagues' (Gotlieb et al., 2000) marketing approach offers an alternative perspective. Using service quality questionnaires, the researchers asked inpatients about their general perceptions of the quality of the hospital based on their impressions of the nurses, room environment and their sense of perceived control. Their findings suggest a positive relationship between the perception of rooms and the perception of nurses, as well as a positive relationship between the perception of rooms and the overall quality of the hospital. In other

words, whilst environmental factors may be difficult to measure directly, their effects on the appraisal of other aspects of care appear significant. However, one major failing of this study was the lack of information on the representativeness of the sample and therefore conclusions must be interpreted with caution.

Social interaction vs. privacy

In many of the studies, social interaction with fellow patients, as well as with hospital staff, was viewed as central to a positive experience of the environment. Indeed, in one study, when asked about quality of life in the hospital environment, patients cited the behaviour of staff ahead of any other consideration – "people make the environment", despite being aware of the research focus on the *physical* surroundings (Rowlands & Noble, 2008). This is backed up by another study in which patients described the "partnership with staff" as crucial to the success of the hospital environment; in particular, being treated 'like a person' and actively participating in discussions with staff about their treatment were key aspects of good communication (Browall et al., 2013). This study successfully used a flexible approach to interviewing and adopted an appropriate methodology for data analysis, however the way in which the final categories were compiled is not clear and the supporting data does not seem to fit clearly within the presented framework, weakening the reliability of their findings.

Evaluating patient responses following ward re-design, Kline and colleagues found that patients rated the refurbished facilities as providing more privacy, which was a key aspect of satisfaction ratings (Kline et al., 2007). Given the diversity of participants, these findings indicate that a certain amount of privacy is essential for high quality care, perhaps reflecting the emotional challenges that hospital treatment

presents. However, the survey used in this study did not include a measure of the importance of social interaction with staff or patients and it is therefore impossible to assess its relative value compared to that of privacy.

Homely atmosphere

Many of the studies mention the atmosphere of a hospital environment, described by some as 'symbolic meaning' (Harris et al., 2002). Whilst this quality is notoriously difficult to pin down, some researchers point towards the importance for patients that they feel at home in some way. In a qualitative investigation of ways to improve the hospital environment, Douglas et al. reported that many patients sought 'controllable lighting for a natural and homely environment' as well as 'a welcoming atmosphere' and 'access to external areas that promote a sense of normality' (Douglas & Douglas, 2004, p. 70). This desire for aspects of home life was reflected in other studies that mention a healing décor as '[like] being at home' (Harris et al., 2002) or a 'homely environment' Timmermann et al., 2013) which appears to be closely linked to aspects of control and comfort (explored above). However, it should be noted that all three of these studies failed to present details of strategies used to offset researcher bias, such as using multiple analysts or follow-up interviews with participants to check interpretations.

Distraction and stimulation

As well as being stressful, spending time in hospital (for any reason) can be tedious and patients can benefit greatly from opportunities for distraction and stimulation. One study investigating general impressions of an oncology ward following renovation demonstrated that patients found great satisfaction in paintings or being able to see things happening outside as these features represented

distraction from negative thoughts (Timmermann et al., 2013). These findings were backed up by Nielsen and colleagues in their exploration of the role of art in dayrooms in medical wards: as well as being comforting, artwork provided an impetus for discussion with others as well as 'less slowed time' and a feeling of 'something happening' (Nielsen et al., 2017).

In their 2003 study comparing 'traditional' (pre-renovation) and 'nouveau' (post-renovation) environments in a neurology waiting area, Leather and colleagues demonstrated that altering several design elements, such as general layout, colour scheme and lighting, led to increased satisfaction and a reduction in stress that continued with time (Leather et al., 2003). However, as all changes were made at once, it was not possible to tease apart the relative importance of individual design elements. The authors linked these results to patients' descriptions of the 'nouveau' environment as more stimulating, distracting and colourful than the 'traditional' space as well as to an increase in physiological arousal, which was interpreted as evidence of greater interest in the environment. It is possible that this increased arousal could be explained as anxiety related to an unfamiliar environment but Leather et al. provide a clear justification of their conclusion based on the rest of their findings which indicate an overwhelmingly positive response from patients.

Perception of time

Related to distraction is the altered perception of time passing within a hospital. Looking generally at the aesthetics of inpatient wards across six hospitals, Caspari and colleagues found that the value of various components changed over time as well as across the lifespan. For instance, the sense of 'harmony' that patients felt in their environments is initially rated highly but falls over time, whilst the

evaluation of 'design' is initially low, then improves before eventually dropping again (Caspari et al., 2007). What this perhaps demonstrates is that patients experience their environments differently depending on circumstance: it may be that the first few days in hospital are emotionally demanding but, over time, patients have more capacity to take in their surroundings and form opinions accordingly. However, despite strengths in sampling and data collection, this paper does not provide sufficient explanation of the variables being measured, for example what the terms 'harmony' or 'design' actually refer to. A further study, perhaps integrating qualitative methods, would add meaning and depth to these findings about patient experience.

Summary of findings

The results of this literature review are presented according to eight themes that describe aspects of healthcare environments that are important to patients living with serious physical health conditions. These are: physical comfort, accessibility and orientation, patient stress, perceived control, social interaction vs. privacy, homely atmosphere, distraction and stimulation, and perception of time. In general, the quality of the papers included is low to moderate, with some exceptions in both quantitative and qualitative studies, reflecting both the difficulty of measuring interventions in this field and the need for rigorous research going forward.

Discussion

In recent years, much work has been done on understanding what constitutes a healing environment, particularly in mental healthcare. When it comes to physical health, however, literature is relatively limited: this review therefore sought to bring together relevant studies in this field, each of which investigated different aspects of healthcare environments and the ways in which these are experienced by patients.

This provides an adjunct to previous reviews in this area which have covered related topics such as the engagement with creative arts in hospitals (Stuckey & Nobel, 2010; Staricoff, 2004; Boyce, Bungay, Munn-Giddings & Wilson, 2017; Dijkstra, Pieterse & Pruyn, 2006) and hospital environments for end of life care (Brereton et al., 2012).

With regards to fundamental requirements of healthcare environments, several of the reviewed studies illustrated the link between physical comfort and emotional wellbeing, indicating that patients' surroundings can directly impact upon mood and motivation. This is in keeping with theoretical literature that suggests that moving through certain places can induce changes in mood (Kerr & Tacon, 1999) and that people can develop attachments to certain places that represent safety and/or familiarity (Guiliani, 2003). A number of papers demonstrated that accessibility within patient rooms and wards was an important aspect of the design of healthcare environments as this led to a sense of agency and control for patients who are often experiencing extraordinary times. However, when it comes to the accessibility of a hospital or healthcare building in general, the studies reviewed do not offer much information: contrary to arts and health literature in dementia care and mental health (e.g. Passini, 1996), wayfinding and signage do not yet appear to be central concerns of physical healthcare research. As it stands, it is unclear whether this is due to a lack of importance or an omission. Nevertheless, it is arguable that patients attending hospital for physical health complaints may find themselves feeling vulnerable or anxious and therefore requiring clear and consistent information with which to navigate their environments. It would be helpful for further research in this area to focus specifically on this question to understand the relevance of wayfinding for different populations.

Many studies present evidence for healthcare environments actively reducing patient stress, whether through additional elements such as arts programmes, or through the general design and infrastructure (Carpman & Grant, 2016). This intuitively understandable matter has been covered extensively elsewhere, for instance in organisational psychology studies of employee wellbeing in the workplace (Danna & Griffin, 1999; Wright & Bonett, 2007) or in the wider arts and health literature (see Davies, Knuiman & Rosenberg, 2015). However, what is less clear is the relative value of individual elements of design: of the five studies that focused on patient stress (Karnik et al., 2014; Nanda et al., 2012; Zijlstra et al., 2017; George et al., 2018; and Andrade et al., 2018), only one (George et al., 2018) was able to present a convincing argument for the impact of art on patient stress, as all other variables had been controlled for. In contrast, the other studies presented findings related to multiple interventions being made at once, such as renovating all aspects of a communal space. Building on this research with RCT studies based on each individual factor, such as lighting or layout, would enhance the knowledge base considerably.

With regards to personal control, the evidence presented here indicates that small changes, such as patients having more personal items around or being fully informed about their treatment, can lead to significant improvements. Whilst not all of these changes are directly linked to the environment, several papers argue that the surroundings can either facilitate or hinder patients' sense of personal control which can, in turn, impact upon perceptions of the quality of care received.

Five of the studies refer to patients' preference for a homely atmosphere that represents some sense of familiarity or personal touch (Douglas & Douglas, 2004; Douglas & Douglas, 2005; Harris et al., 2002; Timmermann et al., 2013; Williams et

al., 2008). This is in keeping with key literature in health and clinical psychology that relates to the process of adjusting to major life changes and the importance of some degree of certainty or consistency to maintain psychological wellbeing and augment resilience (see de Ridder, Geenen, Kuijer & van Middendorp, 2008). However, another set of studies found that patients prefer a modern hospital design to a traditional one (Kline et al., 2007; Leather et al., 2003), which seems to contradict the notion that a homely environment is best. On the one hand, it may be that a modern design conveys several important messages, such as efficiency, hygiene and high quality care, that are equally if not more important than 'homeliness' (Huisman et al., 2012). On the other hand, it may be that differences in study design provide a more accurate explanation. Both Kline et al. (2007) and Leather et al. (2003) present comparisons between pre- and post-renovation environments, it is likely that the salience of modern design elements influenced participant responses more strongly than in unchanged environments. Interestingly, Nesmith (1995) suggests that patients are attracted to a "high-tech image [that] instils confidence in the hospital's ability to provide the latest medical procedures" but "at the same time…healthcare environments that are reassuringly familiar" (p.98). It appears, therefore, that a combination of homeliness and modernity is appreciated by patients and future research would benefit from a greater exploration of these two aspects of design.

Whilst the majority of the studies reviewed here recognise the difficulty in measuring the relationship between intangible properties, such as design and patient experience, their findings nevertheless present compelling evidence of the power of the built environment in healthcare settings, specifically in relation to perceptions of quality of care. As demonstrated in Nanda and colleague's observational study, it is also possible for patient behaviour to be influenced by art and design, resulting in

increased calmness in trauma waiting areas and a reduced demand on hospital staff (Nanda et al., 2012). With the growing body of research into the range of health difficulties linked to chronic stress (e.g. Dhabhar, 2014; Gianaros & Wager, 2015), this is a fascinating insight into the effectiveness of relatively small interventions on the psychological health of patients, visitors and staff. Furthermore, in times of limited resources and increasing demand, there is a clear economic argument for staff and services operating more efficiently in environments geared towards a positive patient experience.

A central theme in many of the studies reviewed here has been the importance of people within healthcare environments. For many patients, the opportunity to socialise with fellow patients and have reliable contact with staff members constituted an essential component of their experience in hospital, often taking precedence over building design. Given the emotional and physical difficulties typically associated with serious illness, it makes sense that patients would seek comfort from other people in order to hold onto aspects of their identity and cultivate a sense of collective experience. In other words, whilst the physical surroundings are undoubtedly instrumental in creating a patient-centred environment, they are only one part of a complex network of factors that relies heavily on people. This is borne out in psychological theories that describe different levels of identity, such as internal processes (Burke, 1991) or group membership (Gaertner & Dovidio, 2014), as well as in existential theories of relationships and meaning (Hoffman, Vallejos, Cleare-Hoffman & Rubin, 2015). An understanding of human behaviour and emotions in the context of time, place and other people provides a useful framework for evidence-based design and future research would greatly benefit from an increased psychological focus.

Strengths and limitations

This review has brought together disparate studies examining various aspects of design within healthcare environments and, in that respect, offers an opportunity to compare findings and themes as well as to identify gaps in the literature. However, the breadth of this review also represents a key limitation as it precludes a more in-depth analysis of the nuances between various settings and participant groups. For instance, of the seventeen papers reviewed, eleven are situated in inpatient wards whilst only five concern communal areas or healthcare environments as a whole. Comparing and contrasting these findings is likely to produce a different focus than analysing inpatient studies alone and possibly misses certain nuances that a more prescribed review would highlight. However, this diversity can also be considered a strength of the review as key points are brought together in one place to enable readers to grasp a general understanding of the role of healthcare environments in patient experience.

Clinical implications

1. Healthcare environments should continue to provide comfortable surroundings for patients as these can impact upon mood and motivation, as well as potentially influence recovery times.
2. Ensuring that environments are accessible and navigable will enable patients, families and visitors to feel more in control during difficult and unpredictable times in their lives, thereby reducing stress.
3. Hospital staff may wish to consider making small changes to environments, particularly focal points that offer distraction or stimulation such as during

waiting times, as these can lead to considerable improvements in patient perceptions of the general hospital environment.

4. Affording patients the choice of either interacting with others or seeking out private spaces is an important part of person-centred care. Given the diversity of individual experiences, healthcare environments should continue to provide a variety of spaces for patients and their families to encourage wellbeing.

Future directions

This review has identified several gaps in the research that would benefit from further exploration, for instance the subjective experiences of patients in different settings within healthcare environments and the impact of specific interventions as measured by randomised controlled trials (RCTs). With regards to patient experience, across the evidence-based design literature, there is an appeal for more qualitative research that "explores [patients'] in-depth perceptions, meanings and impacts" of art and design interventions (Daykin et al., 2008, p.92), not only as it elucidates the complex relationship between patients and their surroundings but also because it offers clues as the mechanisms at play, further informing research. In other words, understanding what is perceived as most helpful within healthcare environments would enable future studies to adopt a suitably narrow focus. Accordingly, RCT studies could focus on specific elements of design, such as the impact of colour in waiting rooms on patient anxiety levels or the effect of lighting in hospital wards on distressed behaviour. It would also be helpful to investigate this matter in relation to patients living with different physical health conditions to understand where potential differences may lie. With the increasing demands on healthcare services, this field of research has the potential to offer clues as to

evidence-based and cost-effective interventions that have patients' best interests at heart.

Conclusion

The way that healthcare environments are designed can make a measurable difference to the patients that they serve. From strategically-placed artwork in patient rooms to full-scale modernisation of waiting areas, interventions of all kinds have the potential not only to increase personal control and reduce stress, but also to contribute to a better perception of the quality of care received. Whilst it is difficult to tease apart the 'active ingredients' in art and design interventions in healthcare environments, these appear to operate in many ways including distraction from difficult thoughts and feelings, stimulation to offset boredom, and cultivation of relationships with fellow patients and staff. These findings fit with theoretical perspectives that signify the importance of feeling secure within one's environment in order to explore and form attachments to the building and the people within it. Serious physical illness threatens many aspects of a person's identity and requires resilience on the part of the patient in order to adjust to altered personal circumstance. A successful design, therefore, is one that recognises the need for patients to preserve psychological integrity through identifying with familiar environments whilst also conveying messages of safety and efficiency. The application of these ideas to healthcare provision in real-life is an exciting prospect and one that will continue to benefit from psychological input.

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MAJOR RESEARCH PROJECT

Section B: Empirical Paper

UNDERSTANDING PATIENTS' EXPERIENCES OF INTERACTING WITH ART AND DESIGN IN A CANCER CENTRE ENVIRONMENT

Word count: 7968 (628)

A thesis submitted in partial fulfilment of the requirements of Canterbury Christ Church University for the degree of Doctor of Clinical Psychology and prepared for submission to "Arts and Health" journal.

MAY 2018

Abstract

The design of healthcare environments has been shown to produce positive effects for patient outcomes, particularly in mental healthcare. However, relatively little is known about patient experience of design within physical healthcare environments. In this study, fourteen cancer patients were interviewed about their experiences of using a newly built cancer centre that incorporates art and design. Grounded theory methodology provided a framework for the analysis of results and the construction of a theoretical model that represents a first attempt at explaining the relationship between healthcare environments and patients with respect to emotional wellbeing. Results show that central elements of this particular healthcare environment – orientation, physical aspects of design, and atmosphere – were "not like a hospital". As such, a diversity of experiences was observed depending on the individual context, specifically in relation to patients' personal histories and preferences. This study exemplifies place attachment theory, with patients describing a process of finding safety in order to explore their environment, as well as the powerful influence of art and architecture in providing patients with distraction and stimulation during threatening times in their lives. Central weaknesses of this study relate to the use of one-off interviews and the limited personal information gathered from participants. Implications for clinical practice, including the benefits of drawing upon helpful aspects of environments as part of a holistic approach to treatment, are discussed. Future research could focus on staff experiences as well as the long-term impact of aesthetic environments on patient stress, mood and motivation.

Key words: patient experience, healthcare environment, cancer, grounded theory

Introduction

Psychosocial cancer care research offers valuable insight into the difficulties facing those living with cancer. Across the myriad types and severities of this chronic health condition, medical treatments may differ enormously but perhaps one commonality appears: seeking treatment for cancer can evoke distress and pose a threat to numerous aspects of wellbeing (Belcher, Hausmann, Klem, Cohen, Donovan & Schlenk (2016). As such, psychological interventions often focus on reducing anxiety and enhancing positive ways of coping (Page & Adler, 2008). One particular branch of research, evidence-based design, has highlighted the potential benefits of creating healthcare environments that incorporate art and design ideas to stimulate healing for those living with chronic health conditions.

Evidence-based design

Evidence-based design has drawn upon many different fields within arts research in order to identify elements that contribute to patient wellbeing, particularly from environments that are viewed as intrinsically artistic, namely museums and art galleries, which appear to offer something unique to the viewer. These non-stigmatising places (Camic & Chatterjee, 2013) have the power to reduce psychological and physiological symptoms (Clow & Fredhoi, 2006), perhaps by providing an additional 'object' through which to tell one's story. This idea has formed part of psychoanalytic traditions for several decades, e.g. with Klein's contributions to object relations theory (Klein, 1959) and Winnicott's notion of a transitional object to facilitate secure attachment (Winnicott, 1969). Non-clinical studies have shown that individuals retain strong memories of their visits to museums, particularly of the feel of the building, and that these memories are often

bound together in highly personal ways (Falk & Dierking, 1995). Whilst healthcare buildings have traditionally focused on functional approaches to design (Richardson, 1998), over the last few decades there has been growing interest in the integration of aesthetic ideas into healthcare environments (Department of Health, 2013), in particular visual arts.

The value of visual arts

Perhaps reflecting intuitive ideas about art, studies have shown that the visual arts in particular not only stimulate reflection and inspiration but also a sense of improved psychological wellbeing (Staricoff & Loppert, 2003). A review by Stuckey and Nobel posits that engagement with the arts "has the potential to contribute toward reducing stress and depression and can serve as a vehicle for alleviating the burden of chronic disease" (Stuckey & Nobel, 2010, p. 254). This idea is echoed by Boydell, Gladstone, Volpe, Allemang and Stasiulis in their 2012 review of arts-based health research: looking at 71 studies, they concluded that using arts-based interventions elicits the "subjective experience" (p. 45) of individuals, "accounts for skills and abilities of vulnerable populations" (p. 45) and allows patients to "reflect on and become sensitised to aspects of illness experience" (p. 46). According to theory, art can elicit a variety of cognitive and affective reactions from the viewer (Arnheim, 1966) as well as provoke a sense of positive relatedness and life purpose, enhancing wellbeing (Ryan & Deci, 2001).

Wider aspects of healthcare environment design

However, the influence of design within environments goes beyond the particular effects of art to encompass the ways that people operate individually and in groups. In other words, the wayfinding systems employed in buildings are as

important as the aesthetics in shaping the emotional experience of patients, from clear signage that eases worries about finding the right department, to complicated layouts that confound and confuse. Psychological theories have demonstrated that cognitive capacity is reduced in stressful situations such that it becomes difficult to attend to all but the most salient stimuli (Lazarus & Folkman, 1986). When it comes to other people, environments can either facilitate social interaction through the positioning of furniture or the use of open plan design or exclude it through the use of digital technology. For patients with serious health conditions, there is a need to find ways to self-regulate in order to consciously manage the complex difficulties that arise (Muraven & Baumeister, 2000). It is possible that this process of self-regulation may be ameliorated by environments that encourage reflection and stimulate personal growth, such as those found in art galleries, museums and aesthetically-oriented health care treatment centres.

The inherent complexities of evidence-based design are reflected in the difficulty of accurately measuring the impact of specific interventions on patients (Verderber, Jiang, Hughes & Xiao, 2003), frustrating those who operate from an outcome-driven foundation. However, through its capacity to accommodate complexity, psychology can provide a useful framework for the interplay between individual patients and the healthcare environment. It helps to explain that the way that environments are perceived by patients depends not only on the bricks and mortar but also on an intricate blend of their personal histories, preferences and illness profile. For instance, cognitive theories might suggest that a patient has attributed a particular meaning to the environment based on their previous experiences of being in similar locations (Roseman & Smith, 2001), whilst learning theories might offer a perspective on more “automatic” processes that occur when

individuals are exposed to certain stimuli (Rescorla & Wagner, 1972). In the context of increasing economic pressures on healthcare services, making room for a psychological appraisal during design processes may enable adherence to NHS values, such as improving lives and practicing compassion (NHS Constitution for England, 2015).

Extant literature

In terms of the literature to date, there has been extensive research into the effect of art and design within mental healthcare environments, particularly in dementia care and acute psychiatric settings. However, within the realm of physical health, studies mainly focus on patient outcomes rather than experience and tend to be limited to inpatient wards rather than the environment as a whole. Furthermore, this research predominantly comes from the fields of nursing and marketing which means that a specific clinical psychology perspective on this subject is rare.

Current study

The present study is concerned with the subjective experience of cancer patients using a healthcare environment that incorporates art and design. This has implications for both research and clinical practice: in the first instance, it allows for a richer understanding of the relationship between the arts and cancer care; in the second instance, it offers ideas for designing health interventions based on the impact of the environment, with the aim of improving psychological and physical wellbeing and expanding practice opportunities within clinical psychology. The overall aim of this project is to explore ways in which healthcare environments can best serve patients with a cancer diagnosis, through designing therapeutic spaces that are more conducive to wellbeing.

Method

Design

Semi-structured interviews were conducted with 14 participants currently undergoing treatment at a newly built cancer centre within a central London NHS Trust that incorporates art and design. Eight interviews were conducted face-to-face whilst six interviews were by telephone due to transport and other difficulties. A draft interview schedule was submitted to a cancer patient reference group for feedback with regards to topics and question wording. The final interview schedule comprised seven open-ended questions to guide discussions (Appendix J), although the methodology allowed for significant departure from the topic according to the interest of participants. Interviews tended to open with questions about general and/or first impressions of the environment and continued with specific questions, for example regarding artwork, logistics and individual experiences.

Participants

Inclusion criteria. Patients were eligible to take part in this study if they were actively seeking treatment of any kind in the cancer centre but were excluded if they were under the age of 18, had been diagnosed for less than one month (to minimise potential distress) or were unable to speak or understand English (due to lack of resources for interpreting services).

Participant characteristics. The 14 participants (8 women) ranged in age from 53 to 72 years (although age was not disclosed for 5 participants) and all spoke English as a first language, with the exception of one participant whose first language was eastern European. Thirteen participants represented a range of different cancer diagnoses and treatment plans, from preventative treatment to intensive chemo- and

radiotherapy; one participant from this group also served on a patient reference panel in relation to the development of the cancer centre. The final participant was a carer of a person with cancer and was using the cancer centre to receive psychotherapy in relation to her role as a carer. The total number of participants was in keeping with recommendations from relevant literature for grounded theory (Charmaz, 2006). A summary of participant characteristics can be found in Table 1.

Table 1.

Participant characteristics (ND = not disclosed) *carer of relative with cancer

Participant ID	Age	Gender	Diagnosis	Approximate time since diagnosis	Location of interview
001	69	Female	Gynaecological	4 years	Telephone
002	63	Male	Skin cancer	2 years	Participant's home
003	60	Female	ND	4 months	Telephone
004	61	Female	Breast cancer	1 year	Therapy room in cancer centre
005	72	Female	Breast cancer	12 years	Telephone
006	ND	Female	ND	ND	Telephone
007	72	Female	Breast cancer	22 years	Telephone
008	ND	Female	N/A*	N/A	Telephone
009	ND	Male	Prostate cancer	1 year	Telephone
010	ND	Male	Prostate cancer	3 years	Participant's home
011	53	Female	Breast cancer	1 year	Therapy room in cancer centre
012	ND	Female	Colon cancer	1 year	Chemotherapy unit
013	55	Male	Lymph node cancer	1 year	Chemotherapy unit
014	ND	Female	Lung cancer	5 years	Therapy room in cancer centre

Ethical considerations

Ethical approval was obtained from the Health Research Authority (HRA) and the Camberwell-St Giles Research Ethics Committee (Appendices C-E). With regards to research governance on-site, the Research & Development (R&D)

department within the relevant NHS Trust also granted approval (Appendix F). Participants were approached by the nursing staff on-site, not the investigator, in order that their established relationships with patients would avoid the possibility of coercion. Informed consent was discussed with participants in advance of arranging interviews and again at the point of interview. Participants were made aware that interviews could cause distress and the option of taking breaks or terminating the process at any point without jeopardizing their care in any way. Participants were given the choice to determine the timing and location of the interview. The investigator made it clear to the participants that she was independent of the cancer centre and that all data would be confidential and anonymous.

Procedure

Participants were identified through liaison with the on-site clinical nurse specialist (CNS) team as well as advertising via flyers placed within communal areas. Interviews were conducted and transcribed by the investigator over the course of several months, using theoretical sampling to guide the direction of participant recruitment. When theoretical sufficiency was reached (i.e. no new themes identified during initial analysis of interviews), recruitment was ended (Dey, 1999).

Data analysis

The examination of subjective experience requires a methodological approach that adequately captures the depth of participant interviews. As an established qualitative research method known for its precision and rigor, grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998) provided a framework for detailed data analysis and the subsequent construction of an explanatory model at a

conceptual level. The topic in question lent itself to a constructivist approach (Charmaz, 2014) where the meaning of an object or experience is driven by the perspective of the participant (and the investigator). Given the paucity of literature in this particular field of enquiry, grounded theory allowed for new insights to be gained without the need for hypothesis-driven research.

In keeping with a central tenet of grounded theory, constant comparison between excerpts of data and related categories was used to ensure a consistent and data-driven approach. The stages of analysis described by Urquhart (2013) were followed: interview transcripts were initially scanned to gain a general sense of each participant's experience; data analysis continued with line-by-line coding for the first five transcripts and was then expanded to sentence and paragraph coding for the remaining nine transcripts; selective coding was then used to highlight more conceptual codes whilst remaining close to the data; finally, these concepts were lifted up to theoretical codes that formed the basis of an explanatory model of patient experience in healthcare environment.

Quality assurance

Guidelines provided by Elliott, Fischer & Rennie (1999) provided a framework for appraising the quality of this study. With regards to "owning one's perspective", during the analysis phase, the author actively and frequently attended to her assumptions about the subject matter, mitigating their interference by exploring alternative perspectives to interrogate the data. In this vein, a reflective diary was maintained throughout each stage of the research. Whilst certain key ideas about the topic were understood by the author prior to analysis, a detailed understanding was only gained during the systematic literature review which took place after

analysis was completed which helped to satisfy the condition of "grounding in examples". Constant comparison was used throughout each iterative stage of analysis and brief excerpts of coding were reviewed by an independent analyst to "provide credibility checks". The researcher spent time within the building on a number of occasions (for a total of sixty minutes across four visits) to observe patient behavior and explore different perceptions of the environment. Researcher bias during interviews with participants was minimized through the use of open questions and clarification of responses. A conscious effort was made to put participants at ease in order to allow them to direct the conversation towards issues that were important to them. During the analysis phase, interpretation of the results was guided by meaning conveyed by the participants as well as by the investigator's training in clinical psychology.

Results

Overview of the theory

The patient-environment dynamic theory is an attempt to illustrate the possible interaction between a particular healthcare environment (a London-based cancer centre incorporating art and design) and the emotional wellbeing of the individual patients utilizing it. The model is considered "dynamic" as it contains a number of fluid and flexible components that interact with each other in numerous ways in time and space. The individual and the environment can be thought of as parties to a relationship that shifts according to the particular interaction of the contextual factors. The overarching narrative suggests that this particular environment was not like a hospital, reflected in the approach to orientation, the physical aspects of design, and the atmosphere, and that this had varying effects on

the psychological and social wellbeing of patients, depending on the individual context. The elements of the healthcare environment interact with each other and influence patient wellbeing in the context of individual coping styles and the particular circumstances of illness. Table 2 presents three levels of categories which are depicted in the model of the patient-environment dynamic theory in Figure 1 and also highlighted in bold in the text.

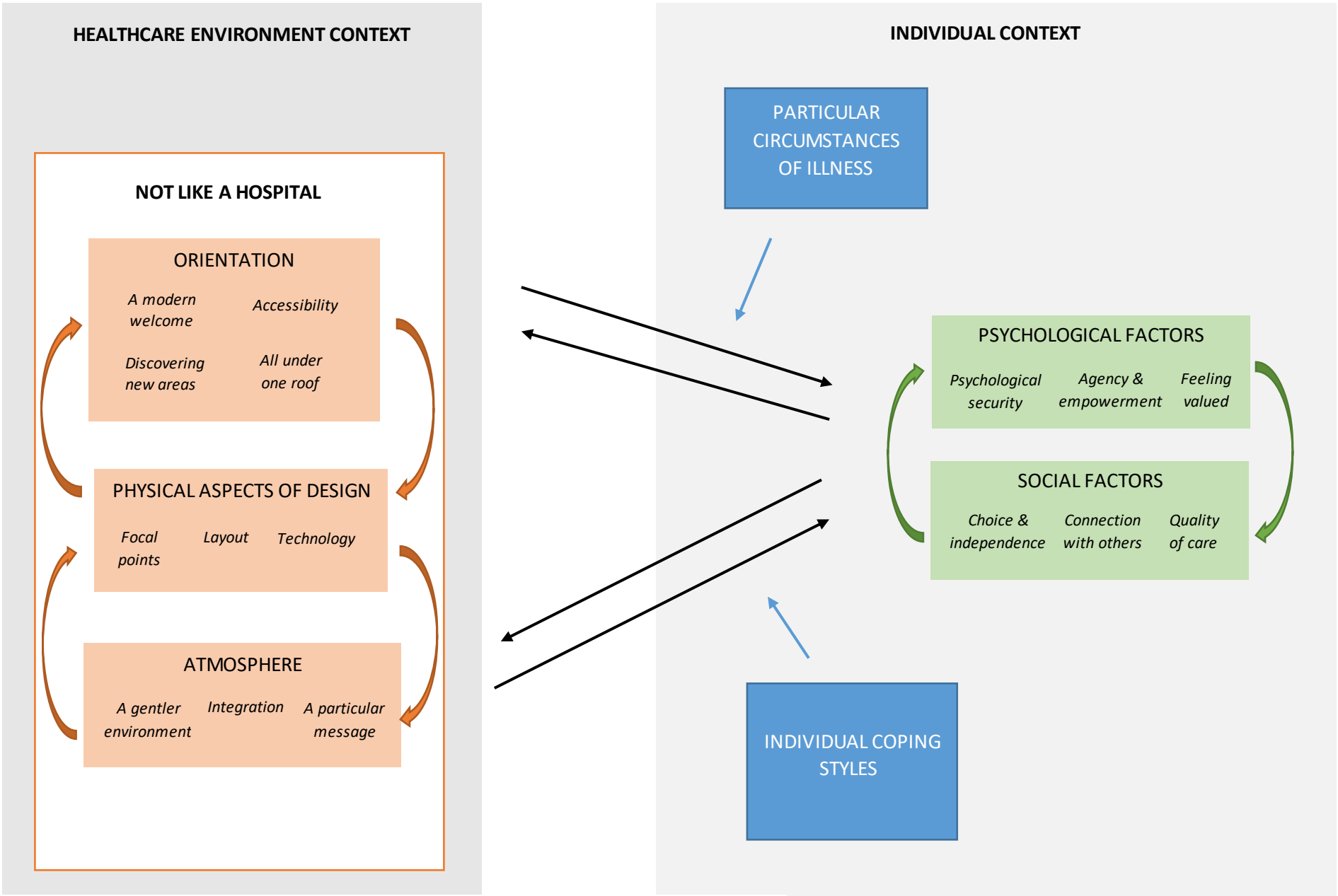

Figure 1. The patient-environment dynamic theory.

Table 2.

Superordinate categories, categories and subcategories resulting from theoretical coding .

Superordinate Category	Category	Subcategories
Not like a hospital	Orientation	Welcome; accessibility; all under one roof; discovering new areas.
	Physical aspects of design	Focal points; layout; technology.
	Atmosphere	A gentler environment; integration; a particular message.
Emotional wellbeing	Psychological factors	Psychological security; agency and empowerment; feeling valued.
	Social factors	Choice and independence; connection with others; quality of care

Superordinate categories

The superordinate categories that were derived from the analysis were "not like a hospital" and "emotional wellbeing". Each will be discussed in turn, with reference to their respective categories and sub-categories.

Not like a hospital. There are three main aspects associated with the healthcare environment being not like a hospital. Firstly, participants found that orientation within the building was unusual; secondly, the physical aspects of design provoked a range of responses; and, thirdly, the atmosphere of the building reflected something other than a traditional hospital.

***Orientation*.** As the first point of interaction with the building, the welcome that patients receive can set the tone for the rest of the visit by providing clues as to how the environment operates in general. In this building, the traditional reception desk on the ground floor has been replaced with digital towers, where patients scan their appointment letter, within an open plan administration area. Each of the other

floors, which are segregated according to medical intervention, contain their own reception desk where patients register for a second time. Some valued the streamlined registration process which circumvents the need to "face a queue of people" (P1[1]), allowing them to fully attend to their own needs; for others, this process was "strange" and difficult to learn – "I've been here five times, I still don't know how it works!" (P3) – indicating that orienting themselves in the building was more difficult than they would have liked. Another participant stated that "it's called the welcome village but…you're not, um…it's in a slightly sort of removed welcome" (P7), evoking nostalgia for a time when fewer patients meant more one-on-one time with reception staff. For this person, there was a sense that the design of the building had increased the emotional as well as physical distance between patients and staff which impinged upon her sense of feeling welcome. For others, the set-up was a positive change as it felt "less rushed" (P8) and members of staff were "not hiding behind great big screens [which] makes them more approachable" (P5).

This point was echoed in relation to the volunteers available to guide patients and visitors as they enter the building, helping them to navigate the unusual set-up. For several participants, the fact that the volunteers were "very obviously there" (P7) meant that they could "spot someone who's looking a little bit worried…[and] it just takes off that few minutes of worry for someone" (P6). However, for a small minority, asking for help may have actually increased anxiety: "I don't particularly like asking for directions, um…if I'm in a rush or in a hurry, I would find that quite stressful" (P8). An interesting point to note is that these responses did not seem to be linked to participants' ages or treatment histories, suggesting that preference for more or less

[1] Participant number

human contact is primarily driven by differences in individual communication and coping styles.

On a fundamental level, participants spoke of the need for the environment to be accessible as they move from one location to another. Many participants expressed confusion and irritation with regards to the lift system which required them to exit one lift and move across a hallway to another in order to access the upper floors. For some participants with additional needs, such as poor mobility or memory problems, this tested their patience and provoked a desire for the more traditional hospitals they had encountered. However, the majority[2] admitted that it "is not a problem once you know it" (P9) and were aware of the various forms of help available, such as the volunteers.

The value of accessibility was also evident in participants' views on signage within the building. Several people stated that the signposting was clear and adequate, with many praising the minimalist approach which conveyed a calmness that they had not experienced in other healthcare environments. However, a large proportion of participants expressed frustration at the lack of information to help them find their way towards their destination: "in most hospitals, they have labels like 'this is the way to, you know, that department'. It didn't have so much labelling like that" (P4); another person "found the signage rather bizarre…you never know which floor you're on because there are no floor signs" (P9). For some, this issue raised anxiety with regards to attending appointments on time or "being self-directive" (P3) in the

[2] Given the small sample size of this study and the use of qualitative methods, the language used here to describe the results (e.g. "majority) is intended as a shorthand for dominant themes amongst participants rather than an indication of generalizability.

event of a fire, perhaps reflecting the heightened emotional states that many patients experience whilst in hospital.

The spaces within the building perform different functions such that every specialism related to cancer treatment is all under one roof. For some, moving from one space to another offered a range of experiences and seemed to mitigate the boredom of spending long hours in the building: “the fact that you’re moving from different areas makes the wait seem less. Because you’re looking at different things, I mean it’s staggering the waiting isn’t it” (P1). Others appreciated the fact that the environment was specifically designed for cancer care, indicating not only the convenience of the set-up but also the shared experience of each patient living with the same condition: “the fact that the whole centre is just geared towards that…treatment, um, makes it feels very different” (P11).

Many participants spoke of the importance of exploring the building and discovering new areas along the way. For one participant, happening upon one of the rooms dedicated to relaxation proved to be fundamental to keeping herself psychologically well, “It’s such a fantastic place. It is something I like, I like to go into the nature and go to relax there. To forget everything around” (P4). For others, the variety of spaces available was a great benefit: “I think the building definitely lends itself to…having spaces that reflect how you feel and how you want to be, how you want to engage with others” (P10). For these people, there was pleasure in being able to inhabit different modes of being and in experimenting with space and time. However, the majority of participants were either unaware of these spaces or unsure of their right to use them, suggesting that additional information would have been helpful.

Physical aspects of design. Many of the participants spoke of their response to different focal points, in particular aspects of an integrated arts programme including light fixtures, murals and moving images. Some participants had the impression that the building design prioritized style over function, for instance in relation to a moving image installation in the lift which seemed to them to be tokenistic and a waste of resources: "the video I think is very low key…you don't really notice it" (P8). For some, there was a sense that the main purpose of the environment – to provide treatment – was being unnecessarily obscured/ which left them feeling confused. Others commented on the distribution of focal points and expressed a desire for more distraction and stimulation in areas that displayed blank walls: "they could really do with a mural down there [in the blood test waiting area]" (P5). However, this was offset by some who "absolutely adored the lift" (P1) as it "was a lovely experience…you really could believe that we are in the Amazon!" (P11), suggesting that a moment's calm away from other distractions was a relief. The range of responses perhaps reflects the different emotional states that the participants were experiencing, from the need for the environment to contain their anxiety to a willingness to be transported somewhere else in order to find respite from their turmoil. For some, there was a sense of the focal points holding no meaning, "it doesn't bother me really" (P13), or simply not being noticed, which may have due to individual ways of coping, such as turning inward rather than outward to find strength.

These differences were also seen in relation to the layout within the building, in particular the configuration of seating in communal areas. In the spacious waiting areas, chairs are arranged in twos and threes around small coffee tables which struck some participants as isolating and ineffective. They noted that people are

likely to sit at a vacant table rather than join one with strangers and, when there are no fully vacant tables, they may choose to stand instead. However, some relished the opportunity to find solace away from others, noting that "when you're close to other people, you can see what they're going through and it sounds daft, this, but you get involved in their conversations…we didn't need that" (P1). For the majority of participants, there was appreciation for the open plan areas which provided the option of engaging in friendly conversation with others in the spirit of shared experience or finding a quiet spot to reflect and gaze into the distance.

With regards to technology, the modern design of the building incorporates large screens on each floor that display patient names and waiting times for appointments. Many participants commented that "the design dictates people's behaviour so that they are watching the screens for their names even if they are ninety minutes early" (P10). Some also mentioned a worry about being forgotten if they aren't vigilant at all times, "it's awful if you think you've missed your name" (P6), with some suggesting that a system for alerting people each time a name is added would be helpful. These responses tended to come from the older participants who were less familiar with technology; however, there were many participants who did not comment on this issue which may suggest that they did not experience difficulty.

***Atmosphere*.** In keeping with a modern and minimalist brief, the interior of the building was described by some as "a gentler environment" (P7) compared to more traditional hospital designs, for others, it was "a happy place" (P12), "cheerful" (P8), and "immediately relaxing" (P5). The airy and spacious feel of the building – "it has elements of cathedralness to it" (P3) - expelled the sense of claustrophobia that many people had experienced in other healthcare environments: "it's not like the other place where people are crammed into long corridors, you can actually breathe

here" (P3). As a result of the "non-clinical" (P7) atmosphere, some participants felt that they could easily adjust to the surroundings which may have enabled them to feel more in control, "you've seen these features before in other buildings so it's quite easy, really" (P11). However, a passionate minority felt that the environment demonstrated the discrepancy between what the designers assumed was best for patients and what patients actually needed: "I think the majority of people might well have been happier at [another hospital] because they wouldn't feel daunted by it" (P2). Some cited the irrelevance of modern design during times of extreme distress, "the majority of people won't register the glass and steel" (P2), whilst others spoke of the need for human connection and comfort taking priority.

However, others observed that the lack of plants in the building was a glaring omission and deprived them of a feeling of "life growing" (P3) which would help to counteract their worries of declining health: one person noted that "the pictures of nature, woodland themes, and…pictures of flowers and plants…always makes me feel calm and less anxious" (P8). Moreover, whilst the absence of noticeboards was positive for some as it "transformed the bureaucracy into something else" (P3), others craved "homely" (P14) touches, such as thank you cards displayed on the wall, as a way to connect with the building in a more personal manner.

Alongside the non-traditional feel of the building is the integration within the design. The large windows and outside terrace areas on each floor create a link between the exterior and interior of the building and provide opportunities for people to feel connected to the outside world, perhaps mirroring the dual identity of being both a patient and a person whilst in the building: "it's not all cancer stuff, you can still remember who you are outside of treatment when you're there" (P7). For one woman, being able to see ongoing construction works at a neighbouring building

offered a focus outside of cancer and a sense of "life going on" (P11). Through sharing this visual experience with her consultant at each visit, there was a mutual starting point for conversation as well as perhaps a sense of hope for the future. However, with regards to the interior design, a number of participants felt that there was "no theme" (P8) and that certain areas were less successful than others, for instance where the "colour seems to stop" (P1) and focal points disappear. This added to a sense of disconnection and interrupted their opportunity to hold onto a relationship with the building, perhaps jeopardizing their sense of control regarding their treatment.

The choice of colours raised concerns from some participants who described the "jarring blood red" (P5) in the waiting area, which conjured thoughts of death and dying, and the "bland beigeness" (P2) in upper floors, which provoked a sense of detachment. However, some described relief at not being met with the "traditional hospital colour scheme" (P4) and praised the design for showing commitment to a modern approach. As one participant explained: "they're not…trying to sort of cheer people up with primary colours" (P7), alluding to the importance of affording patients the space to reflect upon painful situations. The opportunity to reflect in a coherent way was also linked to the floor-to-ceiling windows on each floor which allowed patients to feel at peace and to have the mental capacity to take in their surroundings in a curious way. For one participant, there was a desire for more natural lighting in the building, rather than the fluorescent lighting in clinical areas which was described as being very tiring and at odds with the rest of the design with its preference for natural materials and concepts.

For many participants, their experience within the building was shaped by the language used to describe each area or floor which conveyed a particular message.

Many were confused, and some offended, by one particular decision to identify the location of chemotherapy treatment as the “chemotherapy village”. Whilst some pointed out that the intention behind this language was likely to make the process of treatment feel more manageable or less frightening, others felt that “to overlay experiences with a language that seeks to comfort or control or to minimise doesn’t work in any environment” (P14) and “does not alter the fact that they are pumping poison into your veins which is going to make you feel like death” (P2). This seems to reflect a fundamental need for participants’ experiences to be acknowledged and validated by those around them, including those involved in the design of the building. Others were disappointed that the building seemed to actively discourage physical activity by providing a prominent lift system but no staircase and indeed felt that there was a missed opportunity to promote public health awareness. For them, “anything that encourages me or supports me in living for the now and doing that in a full way is a good thing” (P9), indicating that maintaining agency through decision-making and physical movement was crucial to managing their personal situations.

Emotional wellbeing. Each of the aspects of design discussed has the potential to affect the emotional wellbeing of patients, although this differs according to the individual and the particular circumstances they are facing. Emotional wellbeing can be understood in terms of psychological factors that are internal and social factors that relate to other people (Stewart-Brown, 1998).

Psychological factors of wellbeing. Some participants expressed an idea that a ‘good’ environment would not necessarily make things better but a ‘bad’ environment could certainly make things worse. According to one participant, “the first thing you do with someone who is ill [is] take them to a place that’s safe and comfortable and the rest spills out from there” (P6), indicating the fundamental

importance of psychological security. However, there was also a sense that when things are really tough, the need to feel secure increases and some people look to the environment for this in many ways. For instance, one person described finding a "place to reflect" (P5) and others described "feeling reassured" (P12) by the building as "it's calming, it's, it's, it all goes towards…a soothing, next step in terms of the treatment I have come for that particular day" (P11). For yet another, cancer had meant 'death' before she became a patient herself but the experience she had had at the Cancer Centre had changed her mind. The building had provided a sanctuary where she had been able to reassess her life: "this condition is a very lonely condition…[people] need help, they need support…it's just nice to sit here in a quiet place…relax, not disturbed, to have to think about, to arrange my papers" (P4). In her opinion, this would not have been possible in the previous hospitals where she had been treated. However, there were dissenting voices on this matter, for instance one participant spoke of retreating to the main hospital next door where she had started her treatment because "I feel really at home [there]…I can't get that feeling here…you have more of a sense over there of watching the world go by" (P14).

This point also raises the interesting question of the role of the 'cancer patient': almost every participant spoke, in some way, about the inevitable sense of passivity and lack of control that comes from receiving treatment: "there's a risk that you become just a patient…waiting for the, the healthcare professionals to fix you if they possibly can" (P9). Some participants had experienced ways that the building helped them to rekindle a sense of agency and empowerment in their lives: "the very fact that you're in the cancer unit as a patient, um, isn't the best feeling in the world. So to go in and to feel that tension going, um, I have to say the light and colour and the atmosphere is quite important" (P5).

Many of the participants felt that the building was designed with them in mind, for instance by providing resources and facilities that enhanced comfort, which led to a sense of feeling valued by the environment. Others spoke of their delight at noticing the surprises that the building had to offer, such as the moving image installation in the lift or the areas specifically designed for relaxation and retreat. Some imagined being at home in certain spaces, notably in the X Centre which provides various therapies for patients and family members. There was a general sense that "small gestures go a long way" (P14) and that it was far easier to feel valued in the Centre than in "some scruffy basement" (P14).

Social factors of wellbeing. In addition to these psychological factors, the emotional wellbeing of participants was also affected by the actions and relationships available within the environment, identified here as social factors. For some participants, the space and layout of the environment promoted choice and independence by providing a variety of spaces to occupy and the freedom to decide where to go as well as whether to be around other people: "it was a very open space, there were different areas but it was also, there was a bit of privacy where they had the seating area" (P8). However, for others, the unfamiliar set-up and lack of clear information within the design inhibited freedom by making it less possible to be self-directive. At a time when illness is threatening to remove independence from people's lives, it seems that the building plays a part in alleviating or augmenting this sense of loss.

This intricate balancing act is reflected in the opportunities to connect with others, whether it be fellow patients, volunteers or staff. Some participants felt that the design enabled staff to "monitor the patients better" (P1) and therefore respond more quickly to their needs. Others noticed that certain spaces are often unattended

by staff or volunteers, such as the consultants' waiting area which is viewed as "one of the most nerve-wracking points" (P5). They surmised that the circular 'walk around' design of this particular area may make it more difficult for staff to see what is going on, which perhaps contributes to a sense of isolation for patients.

The wellbeing of staff has been cited as one of the key aspects of good quality care and, although mentioned by only a few participants, there was a sense that the staff working in the building were content in their jobs: "there's more space to move around…[the staff] don't seem to be stressed, they don't seem to be under pressure" (P13). The quality of care was also linked to the building not feeling "crowded" (P3) or "claustrophobic" (P6) and, even though the environment cannot change the reality of cancer, "it makes a major difference, you know, it's like you're sat there and they say, well it's not curable but…to be able to go to a bright, cheerful, very calm and relaxing place is wonderful" (P5).

Discussion

When people visit healthcare environments as patients, they bring numerous different stories, experiences, preferences and needs. These go beyond the usual diversity in diagnosis and prognosis (e.g. the needs of someone undergoing preventative treatment will be different from those in palliative care) to include socio-economic status, age, gender, disability and a whole host of others. The meanings attached to buildings encompass all of these things but they are also influenced by the physical structure, design and operation of the building itself: "through interacting with the environment and developing knowledge structures, individuals from different places, cultures and subcultures develop different meanings and preferences across content or symbolic categories" (Nasar, 1994, p.389).

It has been suggested that "when designing built environments designers should be aware of the concept of place attachment" summarised by Dent as: "patterns of attachment; places which vary in scale, specificity and tangibility; different actors and social relationships; and temporal aspects" (Dent, 1998, p.19). This concept was evident for participants who described changing their attitudes towards cancer or finding reassurance because of what the building represented for them. Responses from participants reflect a developmental theory of place attachment that an environment must elicit a sense of security and exploration in people as fundamental aspects of attachment (Scannell & Gifford, 2010). The environment becomes more than simply the structure and the healthcare staff it houses; it quickly assumes a symbolic meaning that strengthens over time and promotes healing. As one researcher explained, "environments that evoke positive moods…and that draw people's attention without being stressful or demanding can help people recover more quickly and fully from mental fatigue" (Gifford & McGunn, 2012, p. 116). One possible explanation for this comes from Leventhal's illness representation theory where individuals are thought to manage the threat of illness according to its coherence, identity and controllability (Leventhal, Meyer & Nerenz, 1980). A reassuring and positive environment can help patients to tap into these resources in order to preserve hope and agency. However, the results of this study also make it clear that, for some, the meaning attached to the environment was neutral at best; indeed, some chose to seek comfort in other buildings that represented significant stages of treatment, perhaps demonstrating the complexity of place attachment (Scannell & Gifford, 2010).

Measuring outcomes has been notoriously difficult for EBD interventions, however qualitative methodology offers a different approach that captures the rich

details of patient experience. Although participants were not specifically asked about the emotional experiences of living with cancer, many spoke openly about this, suggesting that the relationship with the cancer centre building may be qualitatively different from that of other public buildings. In other words, the "role of the cancer patient" was felt strongly by many participants and was undoubtedly shaped by the fundamental meaning or symbolism of attending a building for the purpose of cancer treatment. The passive nature of being a patient was often felt more strongly during times of turbulence, for instance poor prognosis, or fatigue, such as after a long course of chemotherapy. In these circumstances, it is possible that some participants no longer felt able to maintain self-efficacy over their health and wellbeing (Sarafino, 1996) and instead relinquished control to the medical staff and the environment (Rotter, 1966). It is in these circumstances above all that a healthcare environment can assist patients to hold onto their social identity as members of a group of people living with illness rather than "sick patients" (Tajfel,1974). A healthcare environment that demonstrates commitment to quality of care in this way can go a long way to providing this comfort (NHS Constitution for England, 2015).

On a practical note, the ability to find one's way around is important in any environment and should not be eclipsed by "the imperative to design something unique" (Ellard, 2017) as evidenced by the "notoriously disorientating" Seattle Central Library which, despite being "universally admired by architects" is found fundamentally "dysfunctional" by its users. However, a sensible wayfinding system is perhaps even more important for those in extraordinary circumstances, such as patients with life threatening diseases and particularly those with disabilities. As Passini noted, "successful navigation in inclusive design that considers how building

for [the impaired] might be best for everyone" (Passini, 1996) is a good starting point for any healthcare environment.

Once inside a building, "the provision of a range of social interaction spaces [in residential settings] from small, intimate spaces for solitude, through small group spaces, to larger, more public interaction opportunities is associated with greater perceived control and comfort" (Alexander, 1972; Zimring, 1982). Despite the difference in setting, this conclusion is supported by aspects of this study which support the idea that when people are free to explore and discover different types of space within the building, it contributes to their sense of control and enhances wellbeing. However, many felt strongly that the overall atmosphere of the building was affected by the absence of plants which would have made a great difference to their subjective experience. This is in keeping with biophilic design research demonstrating that "plants have a beneficial effect on stress reduction and pain tolerance" (Bringslimark, Hartig & Patil, 2009) as well as increasing positive affect (Larsen, Adams, Deal, Kweon & Tyler, 1998). Whilst it may be difficult to evidence, Jencks would argue that these factors are examples of the architectural placebo effect which positively contributes to patient experience through delivering a message to patients that they "matter" (Wagenaar, 2006).

Across several different environments, the opportunity for social interaction has been shown to be a key factor in enhancing psychological wellbeing. For instance, "when furniture is rearranged to promote social interaction (e.g. chairs facing one another at a comfortable distance, chairs arranged around a table), social interaction among hospitalised patients increases and isolated, passive behaviours decrease" (Holahan, 1972; Holahan & Saegert, 1972; Osmond, 1957; Sommer, 1969). This point was raised by a few participants who noticed how the configuration

of seating can increase or decrease interaction between people. However, what is clear from the present study is that the *reason* for being in a particular environment, as well as someone's individual differences and preferences, can influence whether social interaction is viewed as positive or negative. In other words, the same person might prefer to interact with peers one day but not the next depending on their levels of anxiety and fatigue, in order to self-regulate and preserve identity (Baumeister & Heatherton, 1996).

Social interaction is also profoundly influenced by information and communication technology which is "transforming all aspects of society" (Selwyn, 2004, p.369). In this study, technology within the building proved to be one of the most contentious subject matters, with some participants praising the efficiency of the self-registration whilst others were left baffled by it. However, it was the use of large digital display screens that produced the greatest number of concerns, with many lamenting the intrusion upon their own personal coping mechanisms (e.g. being prevented from reading a book by the need to constantly watch the screen) and the lack of alternative foci.

What is clear from the research is that the way people behave and make decisions can be heavily influenced by the environment. The value of successful focal points within buildings, such as "neutral territory", has been demonstrated in relation to wellbeing and health (Becker, 1995, and Bechtel, 1976, cited in Evans, 2003). In the current study, the welcome areas on the ground floor have provided several different focal points which enabled participants to find relief from difficult feelings through positive distraction and stimulation. More profoundly, through the provocation of alternative ideas and emotions, focal points also reminded participants of the complex nature of their identity which was not limited to the role of

"patient" but rather encompassed an intricate network of personal histories and experiences, reflecting prominent theories of wellbeing (Ryan & Deci, 2001).

However, one surprising result from this study concerns the relative absence of the various pieces of artwork as important focal points. It is possible that participants connected more with a general perception of the environment, with each element integral to, but indiscernible from, the whole. It may also be that the amount of time spent in any one area within the building tends to be limited, with the exception of chemotherapy spaces where focal points were described as lacking, thus restricting participants' capacity to reflect on works of art. From a research point of view, this finding seems to convey the difficulty in systematically measuring the effect of individual elements of design and the subsequent need for a more focused approach.

Of course, individual preference and experience varies enormously and it is clear that there can be no single architectural design that meets everyone's needs all of the time. It has been said that "our preference judgments can sometimes be made so rapidly that 'there is surely more cognition than conscious thought'" (Kaplan, 1992, p.57). The vast majority of participants were aware of this need for compromise and explained that concerns about design did not interfere with their experience of treatment which was primarily influenced by staff rather than the building.

Myriad views on colour prevailed, echoing the ambiguity of research in this area: whilst some researchers have commented that "there is no clear evidence that colour affects mood, emotions or psychological wellbeing in any systematic way" (Evans, 2003), others claim that "visual aesthetics have an influence on our mental

states, for example blue colours can be calming in a high-stress setting, while yellow is associated with positivity and increase in mood" (Tikhoniouk, 2015). In this study, there were clear divergences within the participant group according to the importance of visual aesthetics which suggests that participants were open-minded and curious about the environment in spite, or perhaps because, of the personal challenges they were facing. Through triggering this curiosity, it is possible that the design of the building stimulated novel thoughts and feelings for participants, adding an extra dimension to their experience of healthcare.

It is important to note that the available literature in environmental design and wellbeing does not relate specifically to cancer care. However, it is possible to find examples of best practice in Maggie's Centres where architectural design "reinforces the provision of practical, emotional and social support for cancer patients, their families and friends". Macmillan Cancer Care also offers a yardstick for quality of care, namely the Macmillan Quality Environment Mark (MQEM) which rates environments according to accessibility, privacy and dignity, comfort and wellbeing, choice and control, and support (Macmillan Cancer Support, 2015). Despite serving a different purpose to the site in the present project, it is interesting to note that each of the factors stipulated by the MQEM have been identified by participants in this study as crucial to the success of the building. Future research in this area would benefit from developing these ideas further in order to elaborate on the subjective experience of patients in specifically designed healthcare environments.

Clinical implications

1. Participants indicated the helpful presence of volunteers in this regard and it is recommended that this be considered in other waiting areas in order to support vulnerable patients, particularly those with additional needs.
2. To inform patients and visitors of all the spaces available to them within the building, operational staff might produce additional information in the form of leaflets or signage. They may also wish to consider the impact of language in both the chemotherapy unit and the floor-numbering system to ease patient concerns.
3. Participants appreciated the choice of seating available but expressed a wish for more comfortable seats, particularly in areas where they may be waiting for long periods of time.
4. Increasing the number and variety of focal points, particularly plants, would provide patients with opportunities for distraction and stimulation.
5. Clinical health psychology in cancer care would benefit from acknowledging the wide-ranging effects of healthcare environments on patients, in particular those that increase agency and self-regulation, in order to provide patients with a wider repertoire of coping strategies. Psychologists can support other healthcare staff to understand that patients' capacity to use or respond to the environment will vary according to their needs at a particular time and that they can play a role in assisting patients where necessary to orientate themselves and feel secure.

Research recommendations

1. An in-depth exploration of the personal histories and experiences of patients would provide a better understanding of how these individual differences might influence relationships with healthcare environments and how the environment might respond to meet diverse needs.
2. Longitudinal studies investigating the relationship between patients and environments over time may offer clues regarding the changing impact of serious illness on perceptions of security and control which could then be translated into healthcare design.
3. Qualitative research into the experiences of staff within healthcare environments would provide an alternative perspective and allow for a greater understanding of the interaction between staff, patients and environment.
4. Psychotherapy research with patients living with cancer may wish to explore the impact of the aesthetic environment on both clinical outcomes and patient experience, in particular with regards to managing stress and mood.

Limitations

There were several limitations in this study which should be noted. Firstly, participants were not asked specifically about the emotional difficulties of living with cancer which may have led to a more superficial account of their experience. Secondly, with the exception of basic demographic details, personal information was not collected which means that a more in-depth analysis of the participants' histories and circumstances was not possible. Thirdly, interviews were one-off and therefore captured thoughts and feelings at a particular moment; participants themselves acknowledged that their views may change over time, especially given the

unpredictable nature of cancer treatment. Lastly, due to time constraints, staff were not included in this study which means that their views were only represented through the perspectives of patients.

Dissemination

Findings of this study were disseminated to the relevant Research & Development department and Research Ethics Committee as well as to those participants who requested a copy of the report (see Appendices W-Z). Results were also presented, verbally and in writing, to key stakeholders within both the cancer centre and the wider host Trust in order to shape future interventions regarding patient experience.

Conclusion

The relationship between physical healthcare environments and the emotional wellbeing of patients is best described in dynamic terms whereby each individual element contributes towards a whole experience. Patients undergoing treatment for cancer are already contending with extremely challenging situations, however the healthcare environment can play an active role in ameliorating these challenges through simple and effective design, for instance by finding a good balance of sufficient information without overwhelming patients. In keeping with extant literature, this study found that patients require choice in terms of where and with whom to spend their time whilst in the building. For many people, the value of art and design can be understood as secondary to the quality of care received which, in turn, was seen to be largely driven by staff rather than the environment. Nevertheless, a visually pleasing and comfortable building allows patients to feel

more valued than they might elsewhere and may also improve working conditions for staff.

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Section C:

Appendices of supporting material

A thesis submitted in partial fulfilment of the requirements of Canterbury Christ Church University for the degree of Doctor of Clinical Psychology

MAY 2018

SALOMONS

CANTERBURY CHRIST CHURCH UNIVERSITY

Appendix A. Effective public health practice project (EPHPP) quality assessment tool

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Appendix B. Critical appraisal skills programme assessment framework

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Appendix C. Health Research Authority approval

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Appendix D. NHS Research Ethics Committee favourable opinion (conditions)

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Appendix E. NHS Research Ethics Committee confirmation that conditions were met

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Appendix F. NHS Trust R&D approval

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Appendix G. Consent form

Participant Identification Number for this study:
Short Title of Project: The perceived impact of art and design on patient experience
Name of Chief Investigator: XXXXX

Please initial box

1. I confirm that I have read and understand the information sheet dated..... (version 3: 16th February 2017) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

3. I understand that I will be asked to complete a demographic questionnaire which contains questions about my diagnosis and medical treatment plan. This information will be used to enhance the richness of the data for the purposes of analysis and later publication. ☐

4. I agree that anonymised quotes from my interview may be used in published reports of the study findings ☐

5. I agree to my interview being recorded for the purposes of analysis. ☐

6. If I subsequently withdraw from the study, I understand that all data will be destroyed. ☐

7. I agree to take part in the above study. ☐

Name of Participant_____ Date_____

Signature _____

Name of Person taking consent _____ Date_____

Signature _____

Appendix H. Participant information sheet

Short Title: The perceived impact of art and design on patient experience

Hello. My name is X and I am a trainee clinical psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research study. This study is a student project that forms part of my training. Before you decide, it is important that you understand why the research is being done and what it would involve for you.

Talk to others about the study if you wish.
(Part 1 tells you the purpose of this study and what will happen to you if you take part.
Part 2 gives you more detailed information about the conduct of the study).

What is the purpose of the study?
The purpose of this study is to find out whether the art and design of the cancer centre has an impact on patients using the centre. And, if so, we would like to find out a bit more about the impact, e.g. does it help make things less stressful/more relaxing?

Why have I been invited?
You have been invited to take part in this study because you are currently seeking treatment at this centre. You may have responded to an advert that was in the waiting area or you may have shown an interest in the study when it was mentioned to you by your clinical nurse specialist.

Do I have to take part?
It is entirely up to you to decide to join the study. If you agree to take part, I will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect the standard of care you receive.

What will happen to me if I take part?
If you decide to take part, we will arrange a mutually convenient time to meet for an interview that will last up to 60 minutes. This interview will take place in a private and accessible location within the cancer centre. For analysis purposes, the interview will be recorded using a digital recording device. Your treatment at the cancer centre will not be affected in any way.

This study is about your experiences of the hospital environment. You will not be asked directly about your experiences of cancer and/or cancer treatment, although you are welcome to discuss anything that is important to you.

What will I have to do?
You will be asked questions about your experience of the design of the building, as well as the artwork within the building. These questions will cover various topics, including first impressions, wellbeing and practical issues such as wayfinding. The interview will relaxed and informal.

What are the possible disadvantages and risks of taking part?
Although the questions are not directly related to cancer or cancer treatment, I understand that it may be impossible to separate these very important aspects of your experience. As such, it may be that you find aspects of the interview upsetting or distressing. I will do my best to look

out for signs that you are finding the interview upsetting but, if I do not pick up on these signs, please feel free to ask for a short break or to ask for the interview to stop altogether.

What are the possible benefits of taking part?

The overarching aim of this study is to find out if there are any ways in which we can make the experience of seeking treatment for cancer a little bit easier. As a trainee clinical psychologist, I am primarily concerned with the psychological benefits of an artistically designed hospital, such as increasing wellbeing, but I am also interested in any other benefits that emerge from the interviews. As such, you may find it interesting to take part in this study on a personal level or you may be interested in how it might help patients in the future. We cannot promise that this study will help you but the information we gain from this research is intended to improve cancer care in the future.

What if there is a problem?

If you have any queries or concerns about this study, please feel free to speak to me at any stage. If you feel that it would be better to speak to someone else, you are welcome to contact the Research Director at Canterbury Christ Church University, Professor Paul Camic on 0333 011 7114.

Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. The detailed information on this is given in Part 2.

Will my taking part in the study be kept confidential?

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

This completes part 1.

If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.

Part 2 of the information sheet

What will happen if I don't want to carry on with the study?

If you do not want to carry on with the study, you can withdraw at any point. All information that has been collected, e.g. contact details or recorded conversations, will be removed from the study and destroyed.

What if there is a problem?

If you have a concern about any aspect of this study, you can ask to speak to me and I will do my best to answer your questions. If you remain unhappy and wish to complain formally, you can do this by contacting Professor Margie Callanan (Canterbury Christ Church University) on 0333 011 7114. You can also contact your local Patient Advice and Liaison Service (PALS) on 020 7188 8801. PALS can give you advice about services and can offer support if you have queries or difficulties.

Will my taking part in this study be kept confidential?

All information collected about you during the course of the research will be kept strictly confidential, and any information about you that leaves the hospital will have your name and address removed so that you cannot be recognised. Your information will be coded with a unique identification number allocated to you at the start of the study which means that all information will be anonymised.

Your electronic data will be stored securely on an encrypted memory stick and any paper copies of your data will be anonymised and kept in a locked case in an office at Canterbury Christ Church University. The university requires that anonymous data is kept for 10 years after the study has completed; it will then be disposed of securely.
You have the right to access your data at any stage and you may do this by speaking directly to me (Louise).

Are there any exceptions to confidentiality?
As an employee of the NHS, I have a responsibility to safeguard patient wellbeing. This means that if you disclose any information that makes me think that you, or someone else, is at risk of harm, I will have to pass this on to my colleagues within the hospital. I will endeavour to let you know if I have to do this but there may be times when I have to pass on information without your consent if I believe it is in the interests of your safety.

What will happen to the results of the research study?
The results of the study will be written up in the form of a short dissertation and will also be submitted for publication by the lead researcher once the project has finished. Publication can be a lengthy process. However, if you are interested in the results and would like a copy of the report, then this will be made available to you. There will be an opportunity to request a copy of the report at the point of signing the consent form. Please note that the information included in all reports, regardless of publication, will not identify you personally. Anonymous quotes from interviews may be used but only if you have agreed to this in the consent form.

Who is organising and funding the research?
The research is organised and funded by Canterbury Christ Church University, in conjunction with XXXXXX NHS Trust.

Who has reviewed the study?
This study has been reviewed and given favourable opinion by both the peer review process within Canterbury Christ Church University and the National Health Service Research Ethics Committee. If you decide to take part, you will receive a copy of this information sheet and a signed consent form to keep.

Further information and contact details
For more information about research in general, or about this project in particular, you are welcome to speak to me at any stage. You can do this face-to-face or you can leave a message for me on a 24-hour voicemail phone line at 01892 507673. Please say that the message is for Louise Marshall and leave a contact number so that I can get back to you. You can also speak to me for advice on whether to participate; you can also speak to your clinical nurse specialist at the cancer centre. Alternatively, if you know someone personally who has taken part in research, you may want to ask for their opinion.

Appendix I. Demographics questionnaire

Research project:

The perceived impact of art and design on patient experience

Demographics Questionnaire

Participant ID:……

Year of birth:……

Gender:……

Diagnosis:……

……

Treatment plan:……

……

Appendix J. Interview schedule

The interview will follow a list of topics, rather than a fixed set of questions. However, sample questions have been included to give a flavour of the interviews.

Introduction of the project

I will introduce my role and the general themes covered in the interview: art, design, subjective experience, wellbeing and health.

First impressions

Thank you so much for taking the time to answer some questions on your experience of the artistic side of the cancer centre. Could you please begin by telling me about your first impressions of the cancer centre, perhaps thinking about the layout and general design?

What do you think the aim of the design is? In your opinion, how well do you think that has been achieved?

Experience over time

(If the participant has been to the cancer centre on a number of occasions). Thinking back to the first time you entered the cancer centre compared to the last time, has your opinion of the design of the cancer centre changed in any way?

(If it is the participant's first experience of the cancer centre). What were your expectations of the cancer centre before coming here? And how did this compare to your actual experience?

Artwork

There are a number of pieces of art around the cancer centre. What are your thoughts about this?

Were there any pieces that stood out for you? If so, why? If not, why not?

Could you tell me what you think doesn't work so well within the building?

What do you think is helpful about having artwork around? And unhelpful? (For example, how would you feel if you were to focus your attention on a painting, sculpture etc. whilst waiting?)

Wayfinding

The cancer centre has been designed to make it easier to find your way around. How well do you think this has been achieved? What was your experience of finding your way around the cancer centre?

Comparison with other cancer centres

Have you had any experiences of other cancer centres? How does the cancer centre compare to those cancer centres in terms of the art and design?

Wellbeing

For some people, particular environments can have an impact on the way they feel, especially if they are designed in certain ways. From your experience, what impact (if any) has the environment of the cancer centre had on you? Is there anything in particular to do with the artistic side of the cancer centre that has impacted upon your wellbeing?

Do you think the artistic elements of the environment have made things less stressful for you, or more? Why?

Improvements?

If you were in charge of designing the cancer centre, what would you have done differently?

Summary and thank you

I will summarise our conversation, reflecting back a few ideas that the participant raised, and then thank them very much for their time.

Appendix K. Example of coded transcript

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Appendix L. Examples of theoretical memos

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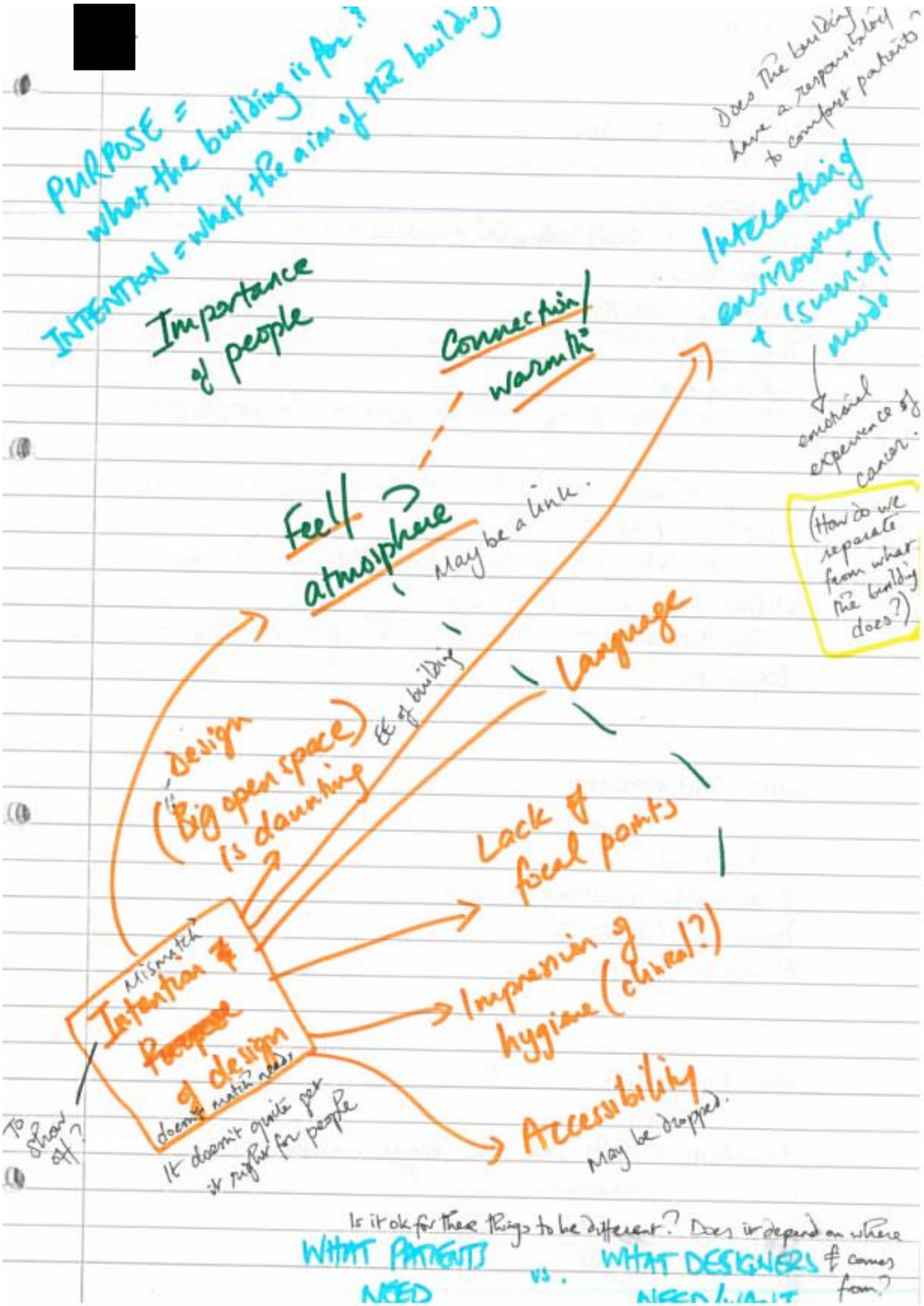
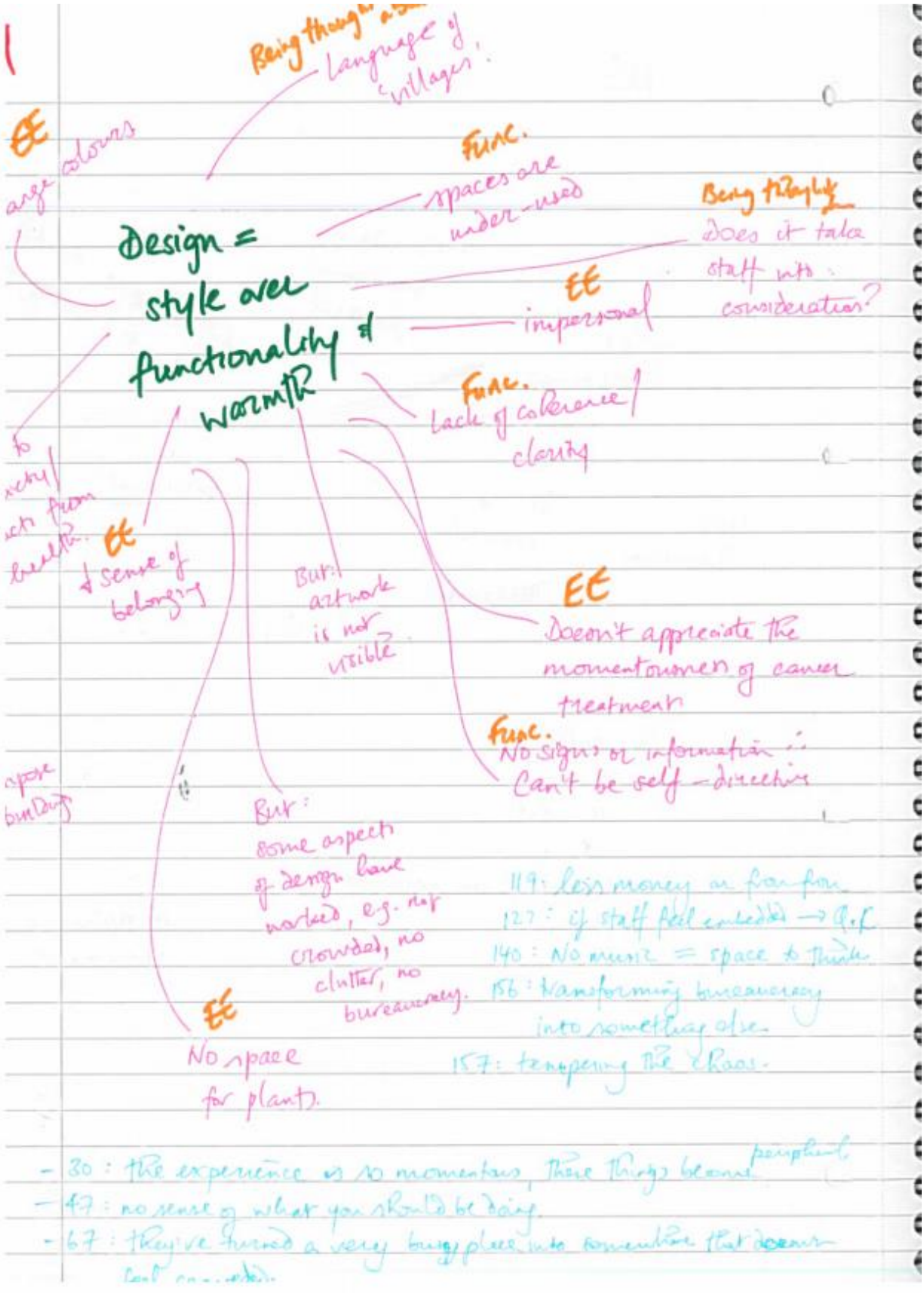
Appendix M. Example diagrams of sub-category development





Design = style over functionality & warmth

Being thought about
Language of 'villages'.

EE
arge colours

Func.
spaces are under-used

Being thought
Does it take staff into consideration?

EE
impersonal

Func.
Lack of coherence / clarity

to
xcity /
ects from
health.

EE
& sense of belonging

But:
artwork is not visible

EE
Doesn't appreciate the momentousness of cancer treatment

Func.
No signs or information ∴ Can't be self-directive

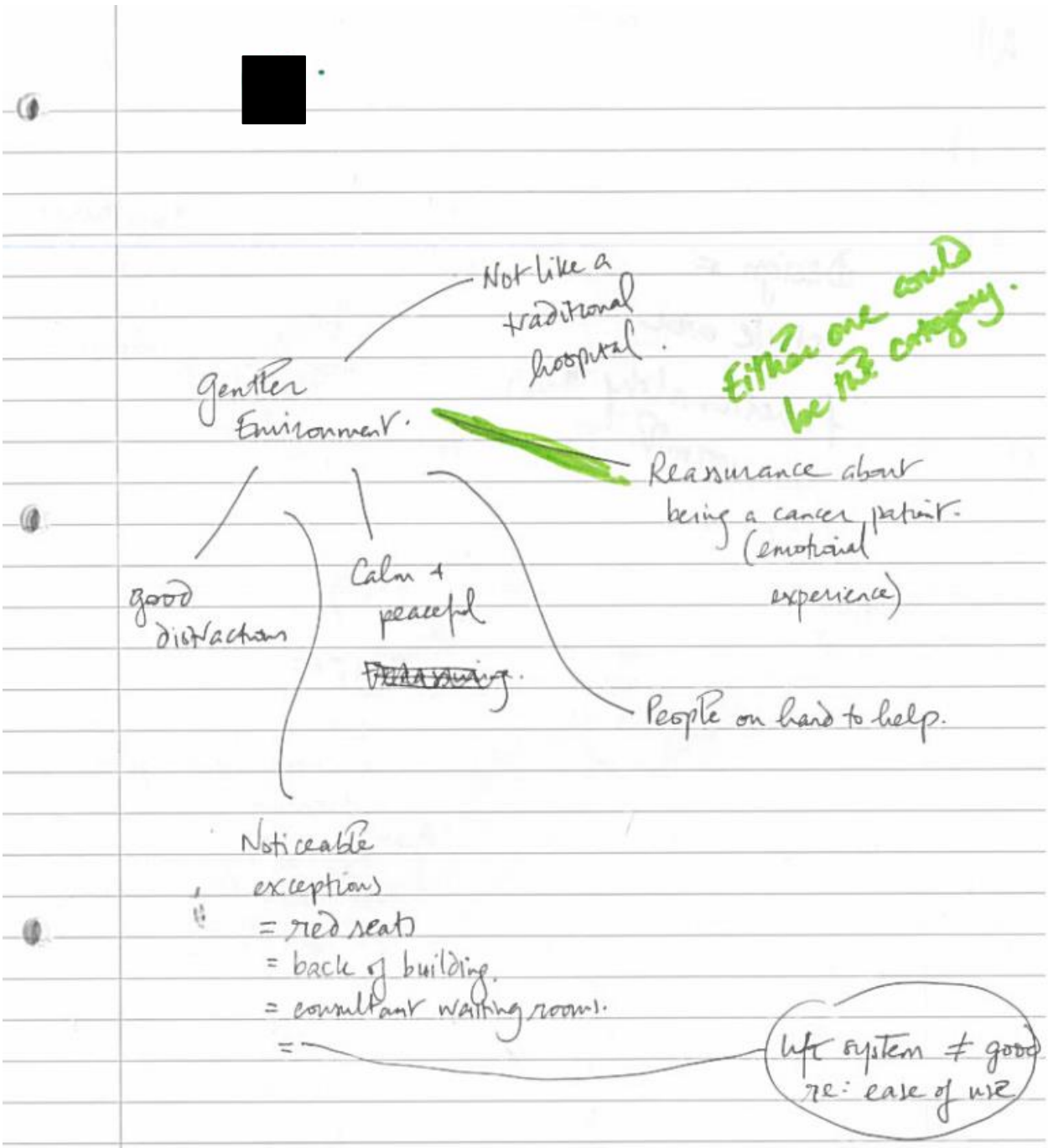
apose
building

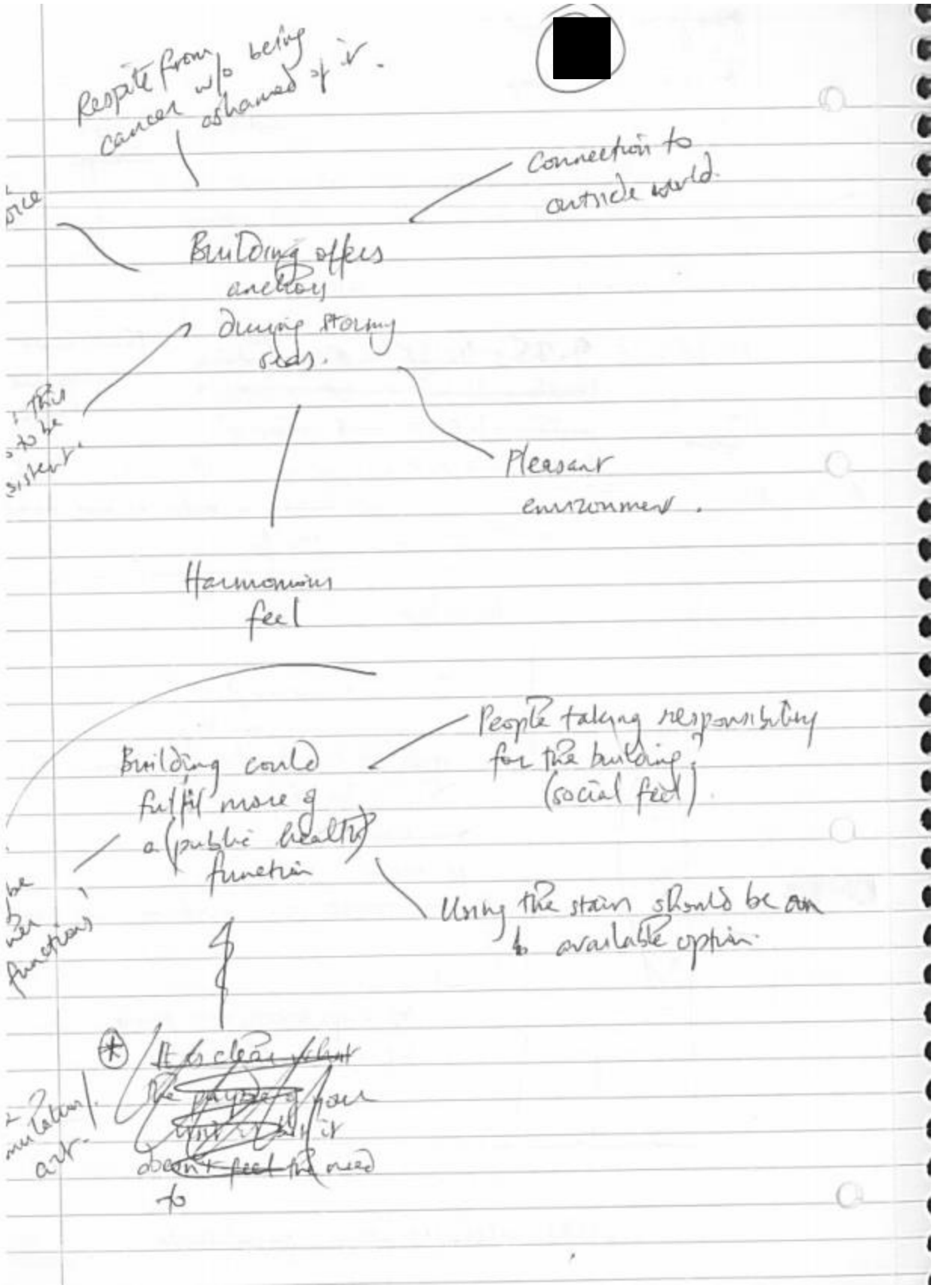
But:
some aspects of design have worked, e.g. not crowded, no clutter, no bureaucracy.

EE
No space for plants.

119: less money or from from
127: if staff feel embedded → Q.C
140: No music = space to think
156: transforming bureaucracy into something else.
157: tempering the chaos.

- 30: the experience is so momentous, these things become peripheral
- 47: no sense of what you should be doing.
- 67: they've turned a very busy place into somewhere that doesn't feel connected.


Not like a traditional hospital.
Either one could be the category.
gentler Environment.
Reassurance about being a cancer patient. (emotional experience)
good distractions
Calm + peaceful
People on hand to help.
Noticeable exceptions
= red seats
= back of building.
= consultant waiting room.
=
life system ≠ good re: ease of use


Respite from cancer w/o being ashamed of it.
Connection to outside world.
Building offers anchor during stormy seds.
Pleasant environment.
Harmonious feel
People taking responsibility for the building. (social feel)
Building could fulfil more of a public health function
Using the stairs should be an available option.
It is clear what the purpose of your visit is & it doesn't feel the need to

Appendix N. Example of sub-category development

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Appendix O. Table of collated categories

Participant	Category	Subcategories
001	Design makes demands on you as a patient	- Wayfinding - technology
	Physical space	- feeling of space - feeling reassured - being in control/having choice
	Relationship between building and emotional experience of cancer	- space helps you to avoid other people's distress - emotional experience can be overwhelming - (some spaces have painful associations)
002	There is a mismatch between the intention/purpose of the design and the needs of patients	- Design is daunting when patients need comfort - Language is condescending - Lack of focal points to distract from worry - Atmosphere is cold - Poor accessibility - Quality of care has not improved - But that doesn't matter when you're in survival mode
003	The design of the building prioritises style over functionality and warmth (i.e. patients' needs)	- Psychological experience needs to be improved - Patients' needs not being considered by designers (this might drop) - Poor functionality.
004	Physical space – a safe haven	- Place to relax - Contact with nature - But the design is too modern - Care comes from people
	Technology is frustrating	- Duplicate registration is frustrating - Lift system is complicated - Technology interrupts human contact
005	Building provides reassurance during a difficult time	- Calm and peaceful environment - Plenty of distraction - People on hand to help

		- Reduces anxiety of being a 'cancer patient
006	Building provides opportunities to feel better	-
	Cancer Centre has not been designed with patients in mind	- Comfort - Ease of use
007	A gentler environment	- Not like other hospitals - Airy and spacious - Calm - Colour scheme is sympathetic - Volunteers are helpful - Design interferes with quality of reception
	Design has patients in mind	- Design is well thought through - Uniqueness of cancer treatment - Taking everyone into consideration - Something has been lost - Design can increase or reduce anxiety in people - Design can increase or reduce interaction between people
008	A place for reflection and comfort	- It doesn't feel like other hospitals - Being in touch with nature - A place for reflection - Lack of coherence between areas - Building gives you choice
009	Style over function/usability	- The building does not fulfil a much-needed public health function - Missed opportunities re: art - Wayfinding is complicated - Design does not take into account human behaviour/needs
010	Contemporary design	- Streamlined process - Technology may exclude some people - Closer connection with staff
011	The building offers anchors during stormy seas	- Connection to outside world - Harmonious environment - Respite from cancer - Having choice/control - But it needs to be consistent
	The building could fulfil other functions	- Public health - Stimulation/art - Social space (taking responsibility)

012	Being in the building is a positive experience	- It is cheerful / doesn't feel like a hospital - Staff are fundamental - Some things could be improved, e.g. need more stimulation for carers - (She acknowledges that her perception is altered by treatment etc.)
013	Physical aspects of design	- Nice modern design - Building seems to help staff - The building has a relationship with the surroundings - The building serves a practical function
014	Building does not 'get' what cancer is all about/what 'cancer patients' need	- The tone and language of the building is off - Design is both obstructive and facilitative - Not being able to feel at home or find your place in the building - It might be different for new people - None of that matters if you have good people providing care

Appendix P. Early iteration of sub-categories and codes from all participants, with related diagram

Subcategories	Codes
A gentler environment / a positive experience / It's not like other hospitals	Airy and spacious Calm Colour scheme is sympathetic feeling of space feeling reassured Place to relax Contact with nature But the design is too modern Building provides opportunities to feel better It is cheerful / doesn't feel like a hospital Nice modern design The building offers anchors during stormy seas Harmonious environment Respite from cancer Calm and peaceful environment Reduces anxiety of being a 'cancer patient Being in touch with nature A place for reflection The building has a relationship with the surroundings Connection to outside world
Design does/does not have patients in mind (both for function and aesthetics)	Design is well thought through Taking everyone into consideration Uniqueness of cancer treatment Comfort Ease of use Design does not take into account human behaviour/needs Plenty of distraction But – main areas lack this and leave you feeling disorientated and strange The tone and language of the building is off Not being able to feel at home or find your place in the building It might be different for new people Design is daunting when patients need comfort Language is condescending Lack of focal points to distract from worry Atmosphere is cold Poor accessibility Psychological experience needs to be improved Poor functionality More stimulation needed (e.g. art or public health)

The role of people (e.g. staff, volunteers)	Volunteers are helpful Design interferes with quality of reception Care comes from people, not the building Staff are fundamental Building seems to help staff People on hand to help None of that matters if you have good people providing care
Design impacts upon what people do and how they feel	Design can increase or reduce anxiety in people Design can increase or reduce interaction between people space helps you to avoid other people's distress Challenge of finding your way around Technology divides opinion (lifts, dual registration) being in control/having choice Something has been lost (in the reception/welcome) Stimulation Having choice/control Wayfinding is complicated Emotional experience of having cancer treatment can be overwhelming Design doesn't matter when you're in survival mode

8.3.18. Bringing all ~~codes~~ categories together.

CARE COMES FROM PEOPLE, NOT BUILDING

- : "
- : Staff are fundamental.
- : Building seems to help staff.
- (: people on hand to help)

ATMOSPHERE/ FEEL

s this separate?

- : A gentler environment; The welcome system
- : Physical space + reassured.
- : Physical space.
- : Nice modern design
- : A homely environment/reflection

ook out for there saying this.

FUNCTIONALITY

- : The welcome system; design influences behaviour.*
- : Design makes demands on patients* Being in control/having choice.
- : Tech. is frustrating
- : Building serves practical function.
- : Building could perform other functions
- : Style over function/usability. o
- : Prioritises style over func. + wasteth

means?

PATIENTS' NEEDS BEING RECOGNISED

Maybe sub-cat. of functionality?

- : Design has patients in mind
- : Not designed with patients in mind
- : Need more stimulation for carers.

RELATIONSHIP BETWEEN BUILDING + EMOTIONAL EXPERIENCE of CANCER

- : "
- : Building provides opps. to feel better
- : Doesn't feel like hosp./perception is altered
- : Building offers an anchor in stormy sea.
- : Building provides reassurance in diff. time
- : Building doesn't get patients' needs △
- : Mismatch re: design + patients' needs △

May supersede care comes

PEOPLE

- : People on hand to help.

o Also fits in rel. + needs.
△ Also fits in functionality + needs.
* Maybe separate category — interaction between people + environment.

Appendix Q. Examples of quotes grouped according to category

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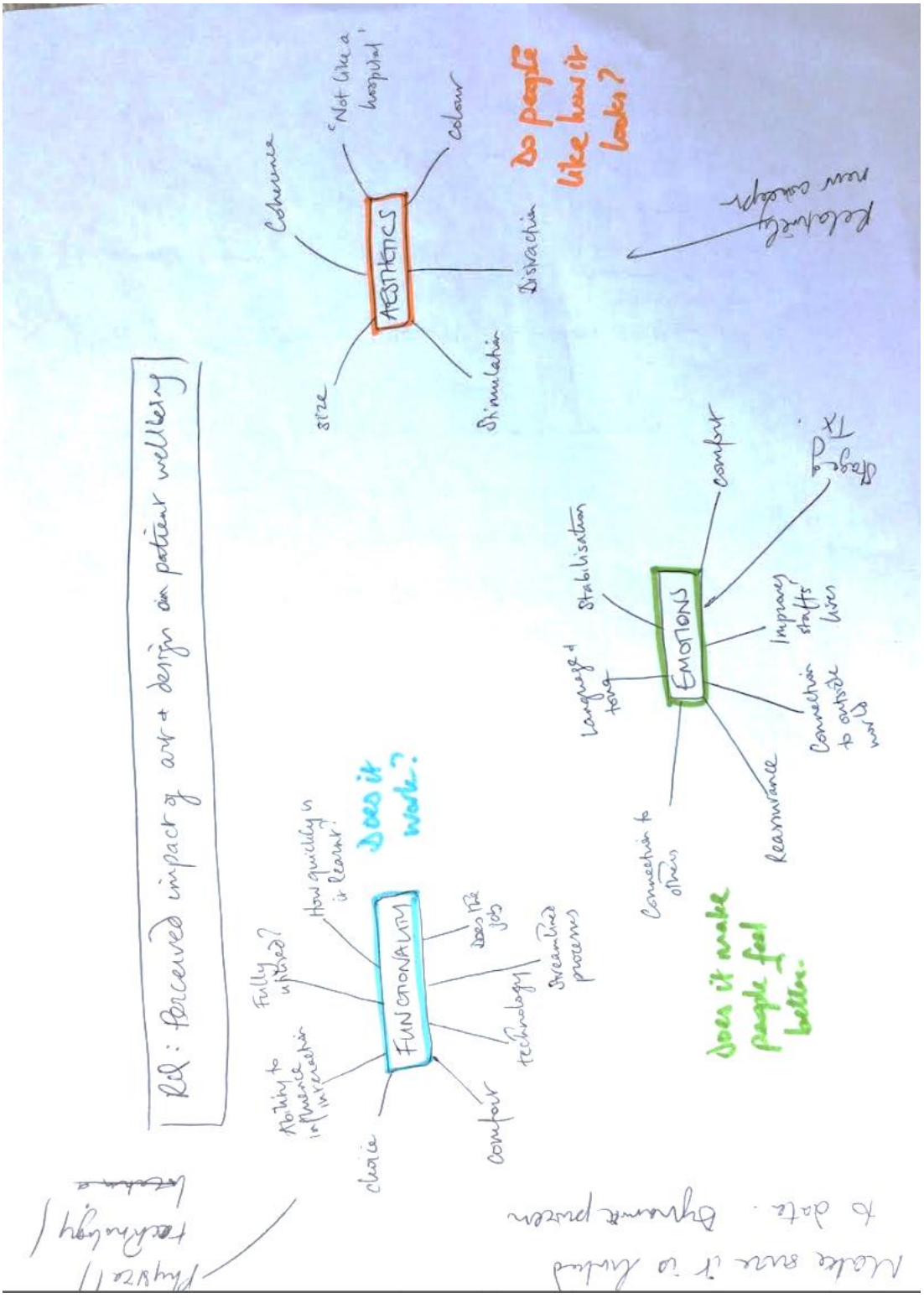
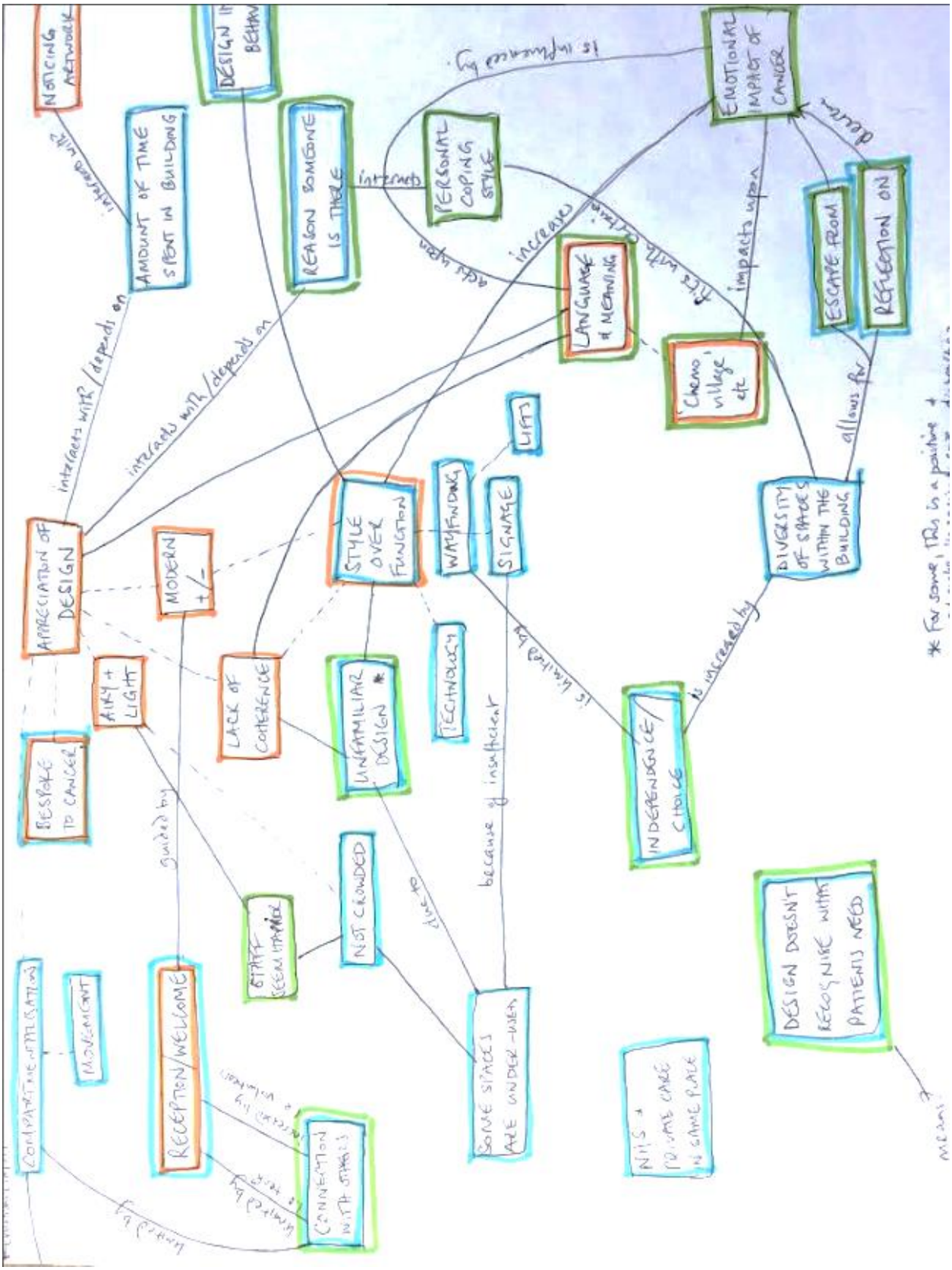
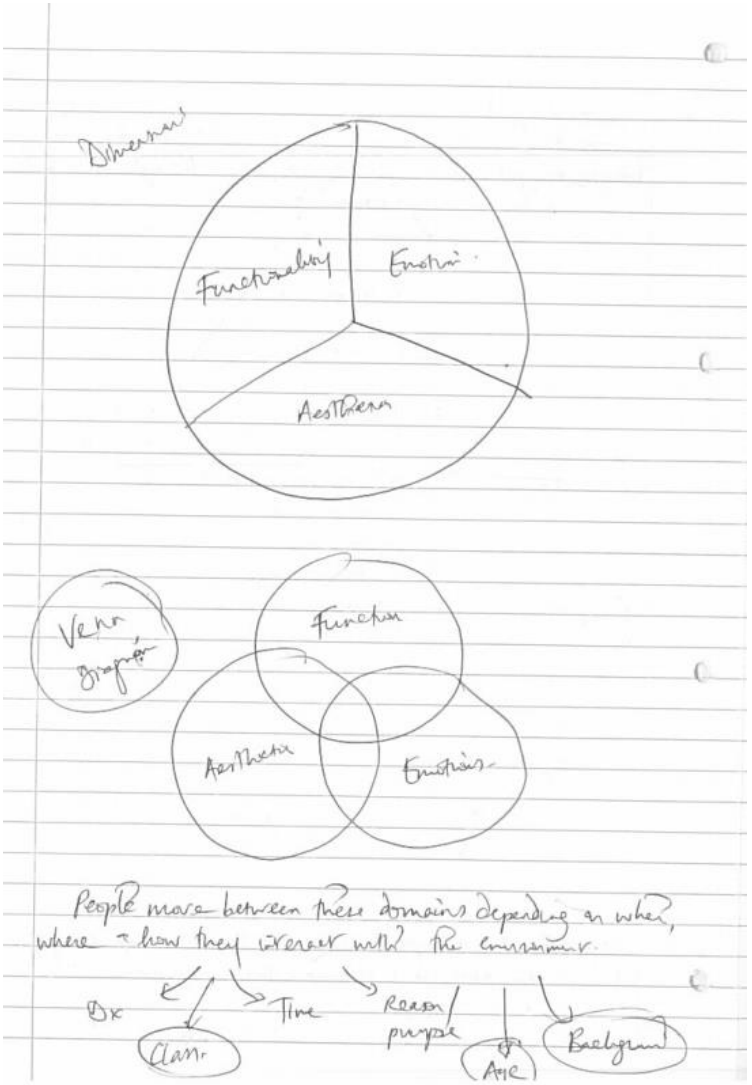
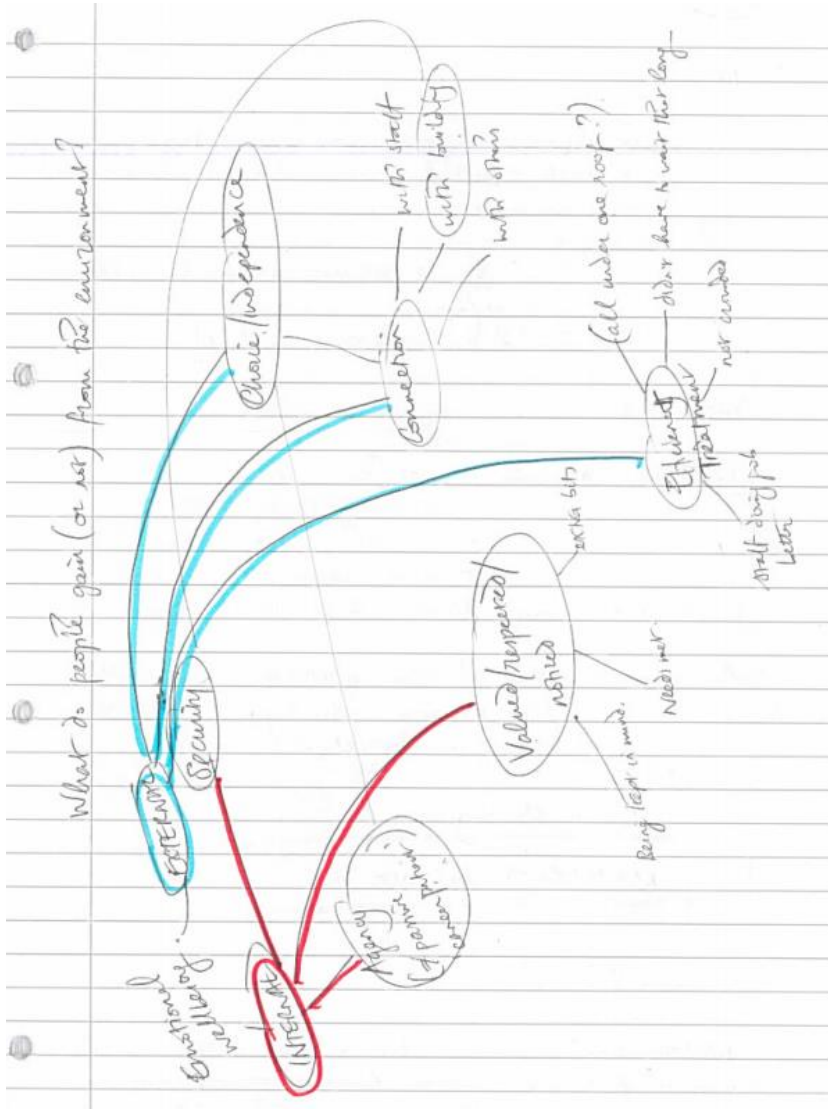
Appendix R. First iteration of superordinate categories

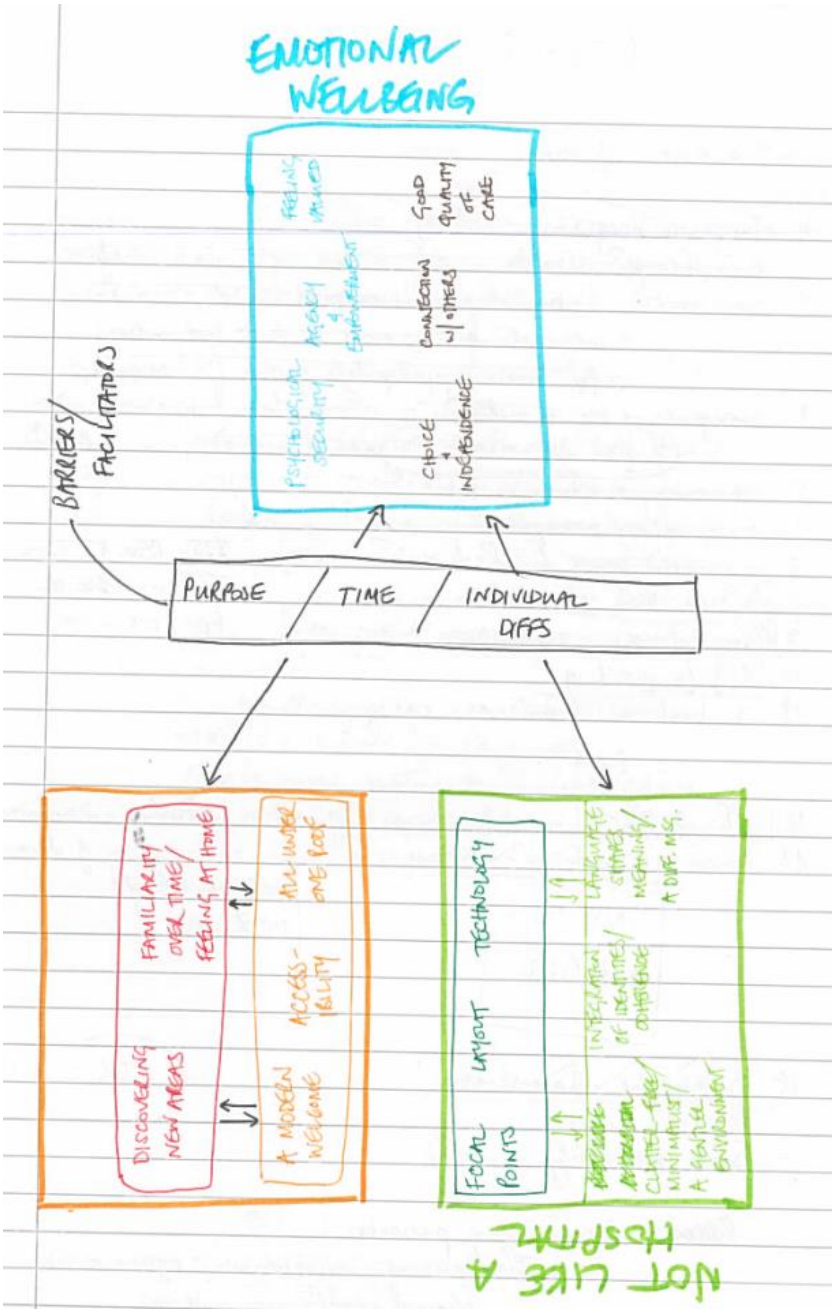



NOTICING ARTWORK
AMOUNT OF TIME SPENT IN BUILDING
REASON SOMEONE IS THERE
PERSONAL COPING STYLE
EMOTIONAL IMPACT OF CANCER
ESCAPE FROM
REFLECTION ON
LANGUAGE & MEANING
Chemo, village etc
APPRECIATION OF DESIGN
MODERN +/-
STYLE OVER FUNCTION
WAYFINDING
SIGNAGE
LIFTS
DIVERSITY OF SPACES WITHIN THE BUILDING
AIRY + LIGHT
LACK OF COHERENCE
UNFAMILIAR DESIGN *
TECHNOLOGY
BESPOKE TO CANCER
INDEPENDENCE/ CHOICE
NOT CROWDED
STAFF SEEM HAPPIER
COMPARTMENTALISATION
MOVEMENT
RECEPTION/WELCOME
CONNECTION WITH OTHERS
SOME SPACES ARE UNDER-USED
DESIGN DOESN'T RECOGNISE WHAT PATIENTS NEED
NHS + PRIVATE CARE IN SAME PLACE
interacts with/depends on
interacts with/depends on
interacts
acts upon
increases
impacts upon
allows for
is influenced by
is limited by
is increased by
because of insufficient
due to
guided by
limited by
* For some, this is a positive +

Appendix S. Example diagrams of theory development






EMOTIONAL WELLBEING
GOOD QUALITY OF CARE
CONNECTION W/ OTHERS
CHOICE & INDEPENDENCE
BARRIERS/ FACILITATORS
PURPOSE
TIME
INDIVIDUAL DIFFS
FAMILIARITY OVER TIME/ FEELING AT HOME
DISCOVERING NEW AREAS
ACCESS-IBILITY
FOCAL POINTS
LAYOUT
TECHNOLOGY
not like a hospital

Appendix T. Abridged research diary

This has been removed from the electronic copy.

Appendix U. NRES DECLARATION OF THE END OF A STUDY

This has been removed from the electronic copy.

Appendix V. MRP Information Form

This has been removed from the electronic copy.

Appendix W. Letter to Research Ethics Committee confirming study has ended

This has been removed from the electronic copy.

Appendix X. Letter to R&D department confirming study has ended

This has been removed from the electronic copy.

Appendix Y. Letter to participants enclosing study findings

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Appendix Z. End of study summary report for participants, ethics committee and R&D

Study title: Understanding patients' subjective experience of interacting with art and design in a cancer centre environment

Background

Over the last few decades, there has been increasing interest in healthcare environments that promote patient wellbeing through the use of evidence-based design. However, there has been relatively little research into how these environments are experienced by patients, particularly within the domain of physical healthcare.

Aim

The aim of this study was to investigate the subjective experience of cancer patients using a healthcare environment that incorporates art and design in order to develop a psychological understanding of the relationship between patients and environments.

Method

Fourteen patients using a newly-built cancer centre in a central London NHS Trust were interviewed on several topics, including responses to artwork and perception of wayfinding in the building. Interviews were transcribed and analysed using grounded theory methodology (Urquhart, 2013) to elicit key themes and categories.

Findings

A theoretical model capturing central aspects of patient experience within healthcare environments was produced (Appendix 1). The overarching theme

depicts a dynamic relationship between patients and healthcare environments that is influenced by the particular attitudes and circumstances of each individual. Participants described the environment as “not like a hospital” which encompassed a range of views on the aesthetics (“modern”, “airy and light”, “impersonal”), operation (“efficient”, confusing”) and effect on wellbeing (“feeling valued”, “reflective”).

On the whole, the integration of art and design in the building was welcomed by participants who valued the opportunities for distraction and stimulation that were presented by the diverse focal points in the building. Many participants also appreciated the variety of spaces within the building which enabled them to choose between spending time with others and retreating to a quiet place to reflect. However, there were a number of participants who found it difficult to orientate themselves in the building due to the unfamiliar design and others who found it lacking in personal details which hindered their capacity to form an attachment with the environment.

Participants spoke of the environment being important but not essential to an experience of good quality care. For many participants, interaction with staff constituted the most valuable aspect of their experience whilst in the cancer centre, although some acknowledged that the building may help staff to feel more relaxed which, in turn, may enable them to work more effectively with patients.

Selected clinical implications

- Participants indicated the helpful presence of volunteers in this regard and it is recommended that this be considered in other waiting areas in order to support vulnerable patients, particularly those with additional needs.

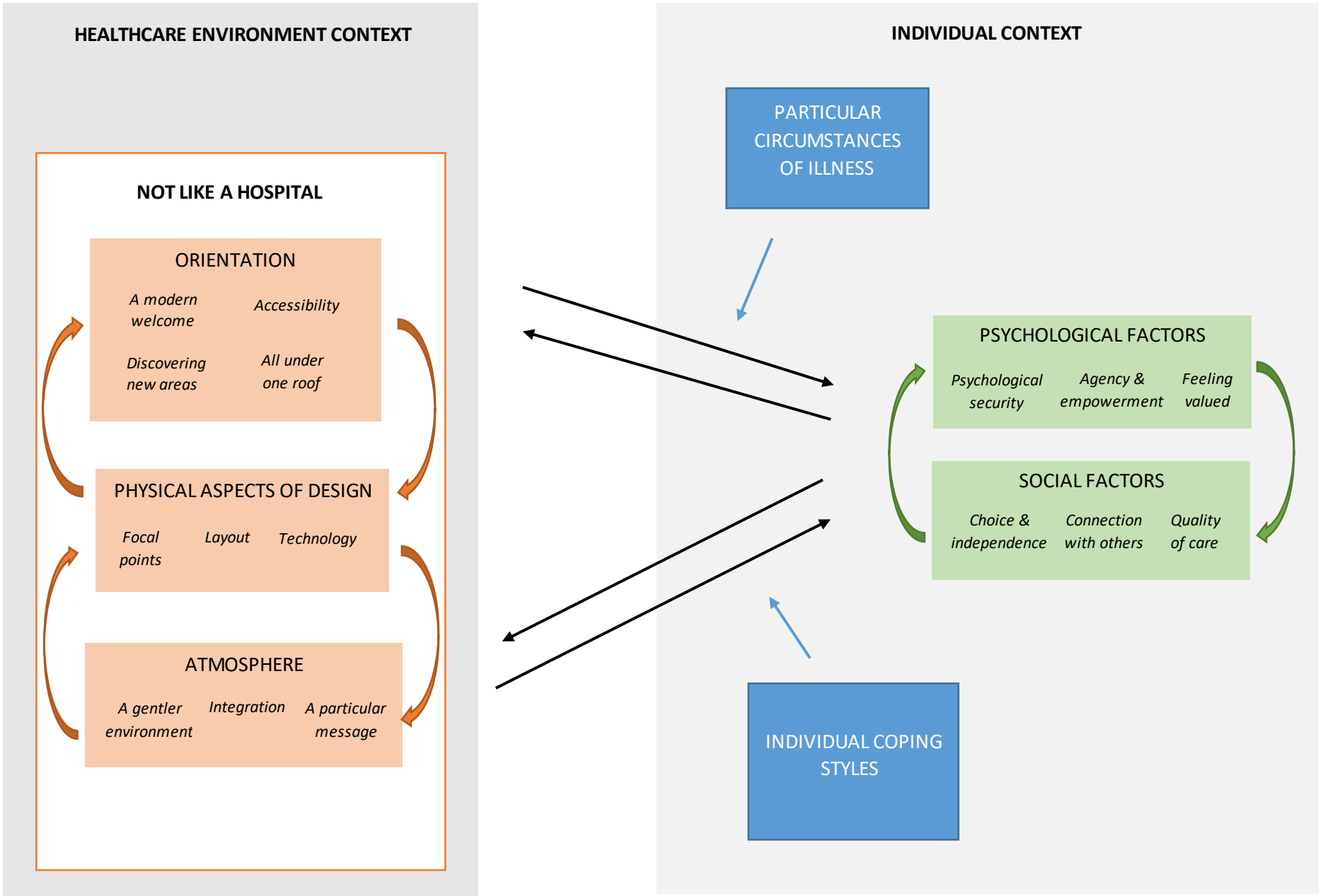
- To inform patients and visitors of all the spaces available to them within the building, operational staff might produce additional information in the form of leaflets or signage. They may also wish to consider the impact of naming different floors with letters rather than numbers as well as the language used to describe the chemotherapy unit, as both of these aspects of design raised concerns with participants.
- Participants appreciated the choice of seating available but expressed a wish for more comfortable seats, particularly in areas where they may be waiting for long periods of time.
- The presence of focal points gained positive responses from many participants: continuing this theme in areas that are currently lacking focal points would provide patients with opportunities for distraction and stimulation. This may take the form of artwork or natural elements, such as plants, which have the potential to bring "life" into the building.

Louise Marshall
Trainee Clinical Psychologist
Canterbury Christ Church University
l.marshall659@canterbury.ac.uk
Supervised by Professor Paul Camic and XXX

Reference

Urquhart, C. (2013). Grounded theory for qualitative research. London: Sage

Appendix 1. The patient-environment dynamic theory



Appendix AA. Author notes for submission to Arts and Health journal

Arts & Health

An International Journal for Research, Policy and Practice

Instructions for authors

Thank you for choosing to submit your paper to us. These instructions will ensure we have everything required so your paper can move through peer review, production and publication smoothly. Please take the time to read and follow them as closely as possible, as doing so will ensure your paper matches the journal's requirements. For general guidance on the publication process at Taylor & Francis please visit our Author Services website.

AUTHORSERVICES
Supporting Taylor & Francis authors

SCHOLARONE MANUSCRIPTS™

This journal uses ScholarOne Manuscripts (previously Manuscript Central) to peer review manuscript submissions. Please read the guide for ScholarOne authors before making a submission. Complete guidelines for preparing and submitting your manuscript to this journal are provided below.

This journal is compliant with the Research Councils UK OA policy. Please see the licence options and embargo periods here.

Contents List

Manuscript preparation

1. General guidelines

PLEASE NOTE: The main text should be formatted according to the Taylor & Francis layout guidelines. These guidelines include information on section headings, table and figure formatting, and other essential main text elements. The references should be formatted in APA style. Links to both the Taylor & Francis layout guidelines and the APA references guidelines can be found below.

- Manuscripts are accepted in English. Any consistent spelling and punctuation styles may be used. Please use single quotation marks, except where 'a quotation is "within" a quotation'. Long quotations of words or more should be indented without quotation marks.

Research and policy manuscripts

A typical manuscript will not exceed 6500 words including tables, references, captions, footnotes and endnotes. Manuscripts that greatly exceed this will be critically reviewed with respect to length. Authors should include a word count with their manuscript.

- Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgements; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).
- Abstracts of 150 words are required for all manuscripts submitted. The abstract must be divided into the following sections: Background, Methods, Results, Conclusions.
- Each manuscript should have 3 to 5 keywords.
- Search engine optimization (SEO) is a means of making your article more visible to anyone who might be looking for it. Please consult our guidance here.
- Section headings should be concise and follow the Taylor & Francis guidelines on hierarchy.
- All authors of a manuscript should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page of the manuscript. One author should be identified as the corresponding author. Please give the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after the manuscript is accepted. Please note that the email address of the corresponding author will normally be displayed in the article PDF (depending on the journal style) and the online article.
- All persons who have a reasonable claim to authorship must be named in the manuscript as co-authors; the corresponding author must be authorized by all co-authors to act as an agent on their behalf in all matters pertaining to publication of the manuscript, and the order of names should be agreed by all authors.
- Please supply all details required by any funding and grant-awarding bodies as an Acknowledgement on the title page of the manuscript, in a separate paragraph, as follows:
  - *For single agency grants:* "This work was supported by the [Funding Agency] under Grant [number xxxx]."
  - *For multiple agency grants:* "This work was supported by the [Funding Agency 1] under Grant [number xxxx]; [Funding Agency 2] under Grant [number xxxx]; and [Funding Agency 3] under Grant [number xxxx]."
- Authors must also incorporate a Disclosure Statement which will acknowledge any financial interest or benefit they have arising from the direct applications of their research.
- For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms must not be used.
- Authors must adhere to SI units. Units are not italicised.
- When using a word which is or is asserted to be a proprietary term or trade mark, authors must use the symbol ® or TM.

Additional guidelines for original research papers

While these guidelines are not intended to be prescriptive it is important that authors of original research also take into consideration the following points:

Title page:

The title of the article should convey something specific about the topic

e.g. The role of service user participation in a community based visual arts and health programme: an

ethnographic case study.
Main part of manuscript:
Background. This should establish the context and rationale for the research and provide an overview of the paper. It should also provide a critical account of current relevant research, showing how evaluation of its strengths, limitations and gaps supports the rationale for the current study.
Research approach and methodology. This should begin with a statement of the research aims and objectives. As well as informing the reader about the rationale for the approach taken this section should provide a critical account of the methods used. It should address the responses by the researcher/s to any methodological or ethical challenges they faced during the study.
Results. This should outline the main findings from the research.
Discussion/conclusions and implications. This should situate the research findings within the broader context of current knowledge as well as addressing the implications of the study for research, policy and practice.
References
Contact information

Systematic and Literature Review

The journal welcomes systematic reviews and meta-analyses and literature reviews that are deemed to make a substantial contribution to the field. Systematic reviews and meta-analyses should follow recognized guidelines (e.g. Cochrane) and should be reported following the PRISMA guidelines (prisma-statement.org). There are several methods and tools to assess study quality. It is important that authors clearly articulate their approach to quality assessment and how it informed the process and outcomes of the review. Literature reviews should present a clear rationale for the review, be well organised into coherent subsections that are appropriately titled, and present well-defined conclusions and recommendations for future research. The length for systematic reviews and meta-analyses and literature reviews is 8000 words including tables, figures and references. Longer submissions will be considered but we urge authors only to do this in exceptional circumstances. Similar to research and policy manuscripts, reviews require a structured abstract.

Practice-Based Reports

Each issue will publish one or two articles focusing on programmes that demonstrate 'best practice' in the arts and health field. Programmes can be delivered in any venue (e.g. hospital, clinic, community centre, museum, etc.) but must address an issue or problem broadly related to healthcare. Practice-oriented articles are meant to inform the reader about innovative, groundbreaking, emerging and/or longstanding programmes from around the globe. A typical article will be between 2000-3000 words. Abstracts should be approximately 100 words in length and are not required to be structured.

While these guidelines are not intended to be prescriptive it is important that authors take into consideration the following points:
Title page:
The title of the article should convey something specific about the programme
a. Story telling and poetry in a children's cancer unit
Main part of manuscript:

Abstract: Not to exceed 100 words.
Introduction: A description of the programme, it's history, how it is funded, location, and population served
Programme rationale and goals
How the programme is evaluated. This is a key area and authors should describe the evaluative aspects of the programme in detail. Please include any data the programme has collected if possible. Include a discussion of any challenges relating to evaluation, e.g. methodological issues, ethical issues, resource issues
Future plans for creative activity
References (if relevant)
Recommended reading (if relevant)
Contact information

Guidelines for authors submitting qualitative research

Introduction:
A clear rationale and justification for the study should be reached by the end of the introduction section. Relevant literature should be cited, and an appropriate theoretical/epistemological framework identified.

Methods:
The methods should reflect the theoretical framework identified in the introduction, and research procedures and processes should be presented in sufficient detail. Processes of recruitment, ethics and consent, data collection and analysis should be covered, paying attention to the role of the researcher/team and any contributing contextual factors. The scope and limitations of the methods used should be acknowledged as well as the reasons why they were chosen.

Results:
The reader should be able to fully understand who participated in the research, how many (people), and to what extent (e.g. if participatory methods were used). If interviews were undertaken, it is useful to know the minimum / maximum / average interview length. Findings should be presented clearly, with data (e.g. quotations, field notes, creative outputs) distinguishable from their interpretation.

Discussion:
Authors should avoid repeating the findings in detail. No new data should be introduced in the Discussion section. This section should consider the study findings in light of the theoretical framework and existing literature identified in the introduction. Any unanticipated issues, including ethical or methodological challenges, should be considered here, along with the limitations of the study.

Disclosure Statement

Please include a disclosure statement, using the subheading "Disclosure of interest." If you have no interests to declare, please state this (suggested wording: *The authors report no conflict of*

interest). For all NIH/Wellcome-funded papers, the grant number(s) must be included in the declaration of interest statement. Read more on declaring conflicts of interest.

Manuscript submission

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All submissions should be made online at the *Arts & Health: An International Journal for Research, Policy and Practice* ScholarOne Manuscripts site. New users should first create an account. Once logged on to the site, submissions should be made via the Author Centre. Online user guides and access to a helpdesk are available on this website.

Manuscripts should be submitted in Word. These files will be automatically converted into a PDF file for the review process. LaTeX files should be converted to PDF prior to submission because ScholarOne Manuscripts is not able to convert LaTeX files into PDFs directly. All LaTeX source files should be uploaded alongside the PDF. The journal does not allow Microsoft Word 2007 documents. Please use Word's "Save As" option to save your document as an older (.doc) file type.

Click here for information regarding anonymous peer review.

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This journal applies the Taylor & Francis Basic Data Sharing Policy. Authors are encouraged to share or make open the data supporting the results or analyses presented in their paper where this does not violate the protection of human subjects or other valid privacy or security concerns.

Authors are encouraged to deposit the dataset(s) in a recognized data repository that can mint a persistent digital identifier, preferably a digital object identifier (DOI) and recognizes a long-term preservation plan. If you are uncertain about where to deposit your data, please see this information regarding repositories.

Authors are further encouraged to cite any data sets referenced in the article and provide a Data Availability Statement.

At the point of submission, you will be asked if there is a data set associated with the paper. If you reply yes, you will be asked to provide the DOI, pre-registered DOI, hyperlink, or other persistent identifier associated with the data set(s). If you have selected to provide a pre-registered DOI, please be prepared to share the reviewer URL associated with your data deposit, upon request by reviewers.

Where one or multiple data sets are associated with a manuscript, these are not formally peer reviewed as a part of the journal submission process. It is the author's responsibility to ensure the soundness of data. Any errors in the data rest solely with the producers of the data set(s).