THESIS FOR THE DEGREE OF LICENTIATE OF ARCHITECTURE

HEALTH PROMOTION AND HEALTHCARE ARCHITECTURE

Conceptualizations of Health Promotion in relation to Healthcare Building Design

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Department of Architecture and Civil Engineering
Chalmers University of Technology
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Cover page: schematic illustration of the decentralisation of healthcare facilities; a network of small healthcare facilities close to everyday life, by Elke Miedema.

LIST OF PAPERS

This thesis is based on the following papers:

Papers:

Miedema, E.; Lindahl, G.; Elf, M. (2017) Health promotive ambitions related to the built environment – the case of Angered Närsjukhus. ARCH17 Conference, April 26-28, 2017 Copenhagen, Denmark. [published]

Miedema, E.; Lindahl, G.; Elf, M. (2017) Health promotion and the built environment of healthcare – a scoping review. Journal of Health Environments research and Design [submitted]

Poster (peer-reviewed):

Miedema, E. (2015). Engaging stakeholders in Complex Design using Symbiosis in Development method. Design 4 Health Conference, July 13-16, 2015 Sheffield UK.

Conference presentations:

Miedema, E. ; Fröst, P. ; Elf, M. (2015). Healthcare architecture for health and well-being From hospital to neighbourhood care (PROARCH). CIB W069 'residential studies'; Explorations on Urban Residential Qualities: Situations of Dwelling, Ageing and Healthcaring. Inquiries of Transdisciplinary Nature. October 14-17, 2015 Chalmers University of Technology, Gothenburg, Sweden

Miedema, E.; Bosschaert, T. (2015) Systemic thinking and urban redevelopment. Conference on Nature and Urban Wellbeing, May 19-20 May 2015 Gent, Belgium

ABSTRACT

Background: *Today's healthcare system is under development and reorienting and adapting to embrace a person centred and holistic perspective on health, including a focus on health promotion. This reorientation results in changes in the healthcare models, processes as well as it sets new requirements for healthcare building design. A vast majority of research has been devoted to the relation between inpatient healthcare building design and individual health, e.g. how our hospitals affects treatments and patient outcomes. Less attention has been paid to the relation between outpatient healthcare building design and public or population health and wellbeing, e.g. healthcare in the community to lessen the load on large hospitals. At the same time as the aforementioned development is happening there is a growing body of research emphasizing the importance of the built environment for public health.*

Objective: *This licentiate thesis aim to explore conceptualizations of health promotion in the context of outpatient healthcare building design, the aim is to enable a broader platform to enable incorporation of several health promotion perspectives into future healthcare building design. The main research question is: How is health promotion conceptualized in the context of outpatient healthcare building design? In addition, several other questions emerged in the research process: What aspects of building design result in health-promoting building design? How is health-promoting building design conceptualized in the literature and in practice? What tools and outcomes are referred to when evaluating health-promoting building design?*

Methods: *The research included two studies with an explorative approach: a scoping review and a content analysis of interviews.*

Results: *The results present different conceptualizations of health promotion in the context of healthcare building design. In addition, the results provide an interpretation of health-promoting building design. The results also relate to health promotion strategies, perspectives on health-promoting building design and some aspects of building design that can contribute to, or prevent, health promotion.*

Discussion: *The discussion emphasizes challenges related to developing health-promoting building design, such as vague and contradicting definitions and interpretations of core concepts as health promotion and it's interpretation in the built environment. In addition, the discussion highlights the challenges associated with evaluating health-promoting building design.*

Conclusions: *Health promotion perspectives, have been shown to influence healthcare building design through altered implications for the built environment.*

As shown, healthcare building design thus seems to have the opportunity to promote the health and wellbeing of patients, staff, visitors and the community. However, the vocabulary used to address health promotion, the different perspectives and health-promotion is weak and inconsistent. The thesis therefore proposed definitions for health promotion and health-promotion building design, that might guide future research and discussions on health promotion vocabulary. Future research should focus on developing the health-promoting building design vocabulary, collecting examples of health-promoting building design, relating health promotion theory to existing architecture theory, and methods and outcomes to evaluate health-promotion building design.

Keywords: *architecture, building design, built environment, healthcare facility, health behaviour, health promotive settings, health equity, health promotion, salutogenics*

PREFACE

A Licentiate of Engineering is an intermediate postgraduate degree used only in a few countries, among them Sweden and Finland, and can be seen as an academic step halfway between a Master's and a PhD. This licentiate thesis is part of a PhD process, and education at Building Design, part of Chalmers Department of Architecture and Civil Engineering. The project is part of a collaboration with Centre of Healthcare Architecture (Centrum vardens arkitetktur) and Architectural Inventions of Dwelling, Ageing and Healthcaring.

> *The Centre for Healthcare Architecture (CVA) is a Swedish platform that focuses on the creation, translation, exchange and dissemination of knowledge about healthcare architecture. As an academic center, CVA conducts research, research training and contributes with basic and further training in the field. The research focus for CVA is buildings and physical environments as a support and a part of the interaction between healthcare, patients and architecture.*

> *Architectural Inventions of Dwelling, Ageing and Healthcaring (AIDAH) focuses on the integration of architectural research, sociology and health care Medical Sciences intends to bridge and expand interdisciplinary collaboration. This way, new qualities in housing design, care processes and creation of healing environments is realized in an operational knowledge development in close consultation with industry and community representatives.*

The PhD position is within Building design, which focuses on on healthcare architecture, the residential architecture, and architectural design with a focus on technology and sustainability. FORMAS, the research council for sustainable development, funds the project.

ACKNOWLEDGEMENTS

It would be impossible to name all of you that deserve to be mentioned. Some of you were there even before I started, motivating me to apply and move abroad. Some of you I met along the way. And all of you contribute to my life and work here. Thank you! Thank you Thank you! You are amazing!

Special thanks to my supervisors who sticked with me throughout this challenging process.

And I hope will be around to enjoy some more roller-coasters and puzzles together ;)

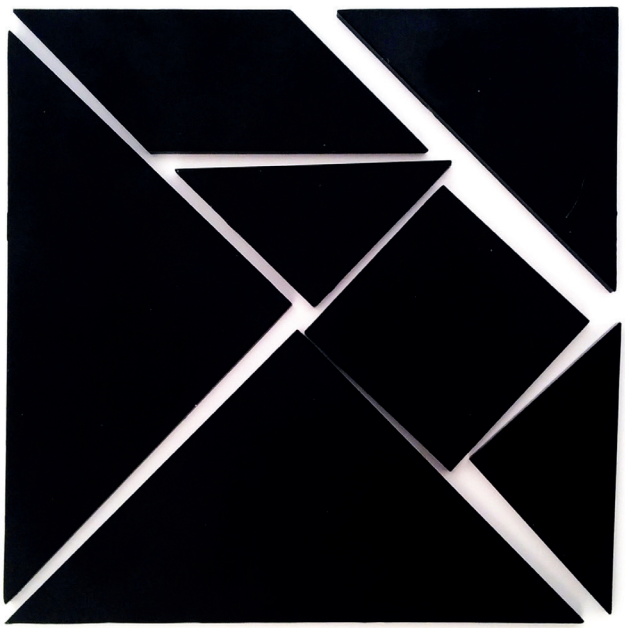

Figure 1. Illustration of a Chinese Tangram puzzle. 'Puzzle for Life'

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1 INTRODUCTION

1.1 CHALLENGES AND OPPORTUNITIES IN CURRENT HEALTHCARE DEVELOPMENT

The design of healthcare facilities is influenced by the societal and physical context in which it is built (Hamilton and Watkins, 2009). Hospitals reflect how society treats its population when injured or ill, and the way in which the hospitals are designed reflect the culture's economics, moral and social concepts (Wagenaar, 2006). Also, as the current healthcare system, models and processes are changing again, it can be expected that healthcare building design will adapt as well.

Previous public health efforts, concentrated on lifestyle changes and medicine, have increased people's life expectancy worldwide, however there is an overall rise in health disparities between countries (Burger et al., 2012). As also brought up in the second paper, Sweden, compared to other European countries, has a relatively well-functioning healthcare system, with a high life expectancy and good performance and quality of health services (Anell et al., 2012). Yet in Sweden, and similarly in other Western European countries, a decline in health equality has been observed between populations or areas within the country itself (UnitedNations, 2017), inequality within healthcare availability and treatment outcomes. Also, there has been an increase in the time one has to wait to visit a doctor, as well as a disproportionate amount of people visiting the emergency department, often for preventable diseases (Anell et al., 2012). This has led not only to the highest allocation of resources to the healthcare sector in Europe (Anell et al., 2012), but also to unnecessary human suffering. Moreover, the ageing demographics have led to renewed importance for lifelong care(Anell et al., 2012). Additionally, patients with chronic, or multiple diseases, are at risk to be lost in the healthcare system, because of complex relations between the various parts of health and social care organizations (Anell et al., 2012).

These challenges require a re-orientation of the healthcare system (Wilson et al., 2010), including a holistic view on health (Figure 2), an individual and community focus (Figure 3) and acknowledgment of the environment's impact on health (Figure 4).

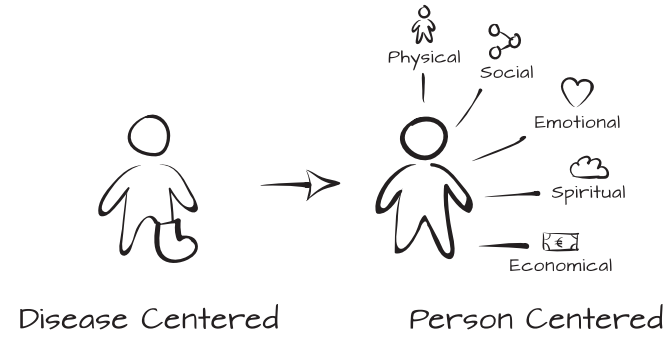

Figure 2. Illustration of the re-orientation from an disease focused perspective to a person centred perspective, considering multidimensional concept of health.

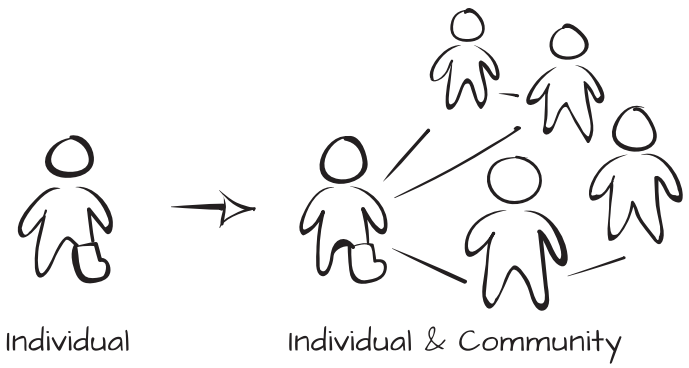

Figure 3. Illustration of re-orientation from an individual perspective to a perspective focused on the individual as well as the community.

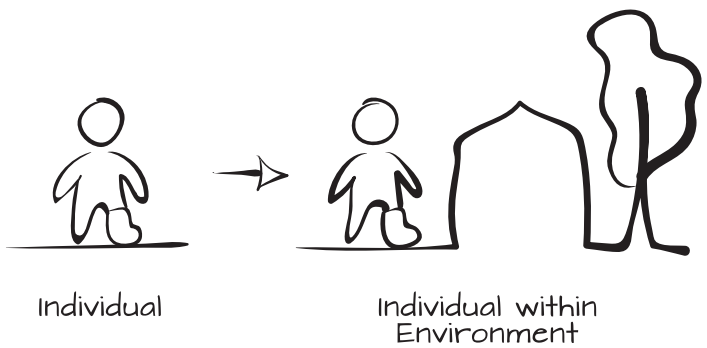

Figure 4. Illustration of re-orientation from individual perspective to considering people's health created in their living environment.

Health professionals should thus work to facilitate health besides limiting disease (Becker et al., 2010), including care approaches such as health promotion. Health promotion is often defined in reference to the WHO as 'the process of empowering people to increase control over, and to improve, their health' (WHO, 1986). In the present thesis, health promotion is understood as a holistic approach to health and focuses on enhancing individual as well as population health and wellbeing. Such an approach includes the need for a robust and well-functioning primary care service, focusing in particular on vulnerable individuals or groups, and aims to support health equality at the population level. At the same time, this approach raises questions as to the need for new ways of managing and organizing healthcare in Sweden (Lindström et al., 2014).

1.1.1 Nearby care and nearby hospitals

One of the new ways to manage and organize healthcare, focused on empowerment of the population, is decentralized care. The Swedish approach to distributed care is called 'Närsjukvård', which does not exactly match community or local care, therefore you use the verbatim translation to nearby care, which is closest to the original terminology. However, others have used 'local' and 'close' care, which are similar, yet use to describe comparable care approaches outside of the Swedish context (Melin, 2012).

Nearby care was developed to reduce the burden on emergency hospitals (Alfredsson & Nordin, 2006) by providing 80% of healthcare services needed in the area. Nearby care is a holistic approach to healthcare that is focused on life-long health and care, thus adjusted to the local context, including a health promotion approach (Miedema). This so-called life-course perspective, is not only living a long healthy life, but acknowledging their social-physical environment.

The nearby hospital is where nearby care takes place. It has been explained as;

> *'By gathering all [healthcare] activities in one place, healthcare will be more accessible for the people in the eastern parts of Gothenburg. This means patients are met and evaluated earlier, thus reducing their total healthcare needs. In this manner, Angered's Nearby Hospital (ANH) seeks to improve public health in the area, which currently has a life expectancy on average nine years lower than in other parts of Gothenburg' (SWECO, 2017).*

This co-location of healthcare services aims to support collaboration between primary care centres, hospitals, community healthcare and other partners like schools and workplaces; it addresses neglected (community) health needs

(Alfredsson and Nordin, 2006), should be easily accessible and adaptable (Melin, 2012). For instance, ANH has a floorplan and structure that allows departments to shrink, grow and be replaced when the local health demands change.

The concept of nearby care/nearby hospitals is developing, and there are discussions to be made concerning what kind of healthcare services this may include (Melin, 2012). In the case of Angered, which is the focus of study 2, the nearby hospital consists of primary and specialized outpatient healthcare (Miedema et al., 2017). However, as local needs might be different, the facilitated healthcare services are also diverse. Nonetheless, all nearby hospitals offer several types of specialized outpatient healthcare, possibly in combination with primary care and inpatient healthcare.

1.1.2 Healthcare building design

Healthcare facilities, including hospitals, belong to the most complex building types, because the planning and building ambitions need to be dynamic enough to embrace new political, societal, technical and medical changes (Hamilton and Watkins, 2009). Research on healthcare building design has largely been devoted to the relation between inpatient healthcare building design and individual health and wellbeing (Ulrich et al., 2008, Ulrich et al., 2010, Dijkstra et al., 2006). In contrast, less attention has been paid to the relation between outpatient healthcare building design and public or population health and wellbeing (Tzeng and Huang, 2009), while there is a growing body of research stressing the importance of the built environment for public health (Perdue et al., 2003).

As mentioned, it is expected that new healthcare models, which include health promotion, will influence the way healthcare buildings are designed(Hamilton and Watkins, 2009). And as the majority of the healthcare buildings in Sweden, which are largely owned by the county councils, have become out-dated and are in need of major renovation or replacement (Lövtrup, 2011), new healthcare facilities have been planned. This upcoming major investment of public money in new healthcare facilities offers a moment for re-evaluation and discussion concerning healthcare models, including health promotion approaches, particularly the influence of these models on the built environment, including healthcare building design.

Health-promoting settings, one of the most successful health promotion strategies, may be useful in trying to understand how health promotion influences the built environment. The settings approach aims to apply abstract health promotion strategies to environments, such as schools, workplaces and hospitals (Green et al., 1999, WHO, 2017). However, while this 'settings approach' (see also 4.5) relates to the physical environment (including the built environment), there is a lack of

knowledge about health promotion in relation to healthcare building design (Korp, 2016).

The present thesis therefore explores conceptualizations of health promotion in the context of outpatient healthcare building design, the aim being to enable a broader platform for incorporating several health promotion perspectives into future healthcare building design.

1.2 RESEARCH DESIGN

1.2.1 Aim

This licentiate thesis explores conceptualizations of health promotion in the context of outpatient healthcare building design, the aim being to enable a broader platform for incorporating several health promotion perspectives into future healthcare building design.

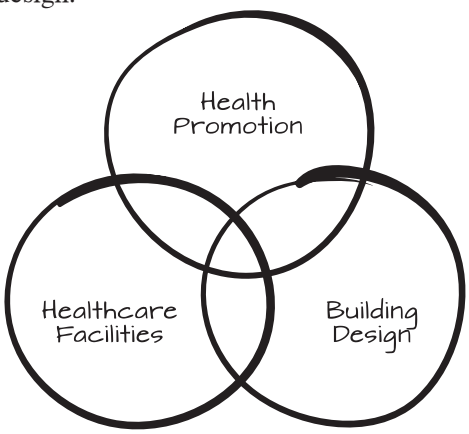

Figure 5. Illustration of research focus : health promotion, healthcare facilities and building design

The main research question is:

- How is health promotion conceptualized in the context of outpatient healthcare building design?

During the course of this research, and the discussions surrounding the two studies, several other questions emerged:

- How is health-promoting building design conceptualized in the literature and practice?
- What tools and outcomes are referred to when evaluating health-promoting building design?
- What makes a health-promoting building design?

1.2.2 Research approach

The research includes two studies with an explorative approach: a scoping review and a content analysis of interviews (see Chapter 2). This combination of studies is intended to provide some understanding of the relation between health promotion tactics and the built environment. Because there is little extant knowledge about the topic, it is explored in two ways: one starting from theory, to understand how it is applied to design, and the other starting from practice to explore how it is linked to health promotion ambitions. The aim is to find the middle ground, by linking health promotion and health facility design to health-promoting building concepts and design principles.

1.2.3 Delimitation

This thesis limits its focus to outpatient healthcare facilities in an urban neighbourhood in a European society.

1.3 PROVIDE DEFINITIONS OF KEY CONCEPTS

Here I will highlight and introduce some core concepts included in the thesis.

Architecture is a multidimensional term that, in the present thesis, includes the skill of designing buildings, the process of designing buildings and the built environment in which people interact.

ANH stands for Angered's Nearby Hospital, a healthcare facility that include nearby care.

Built environment: In the thesis, the built environment is understood as the constructed environment, made and built by people. This includes buildings and infrastructure.

Building design: Similar to architecture, it includes the process of design, the design outcome and the built environment that is designed.

Determents of health: The determents of health are the factors that influence our health: where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family.

Environment: Defined by Merriam Webster as: 'the circumstances, objects, or conditions by which one is surrounded'. The environment consists of a combination and relation between the built, natural and social environment.

Health: Here, health is defined as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'(WHO, 1946).

Healthcare building design: Healthcare building design is the building design of healthcare facilities. This includes the design process of the building project as well as the final result.

Healthcare facility: A healthcare facility is a building that facilitates planned healthcare programmes, such as hospitals, primary care centres, dentists, and care homes.

Health promotion: Health promotion as a concept has different dimensions and interpretations (see chapter 4). The most used definition is by the WHO (1984) the process of empowering people to take control over their health.

Nearby care: Nearby care is a holistic approach to healthcare that is focused on life-long health and care, adjusted to the local context, and includes a health promotion approach (Miedema et al., 2017).

Nearby hospital: a co-location of healthcare services aims to support collaboration between primary care centres, hospitals, community healthcare and other partners like schools and workplaces; it facilitates neglected (community) health needs (Alfredsson and Nordin, 2006), should be easily accessible and adaptable (Melin, 2012).

Outpatient facility: Because outpatient facilities are short-stay facilities, the relation to the built environment is even more complicated to evaluate. However, the outpatient facility is also a workplace for staff. Thus, relations can still be evaluated.

Public Health: Public Health has been defined as 'the science and art of preventing disease, prolonging life and promoting health through organized efforts and informed choices of society, organizations, public and private, communities and individuals'(Winslow, 1920). In addition, it relates to population health, which is defined by the Centre for Healthcare Design as 'not only the overall health of a population, but also the distribution of health'.

2 METHODOLOGY

2.1 RESEARCH DESIGN

As mentioned in the introduction, the present thesis explores conceptualizations of health promotion in the context of outpatient healthcare building design, the aim being to enable a broader platform for incorporating several health promotion perspectives into future healthcare building design.

The main research question is:

- How is health promotion conceptualized in the context of outpatient healthcare building design?

During the course of this research, and the discussions surrounding the two studies, several other questions emerged:

- How is health-promoting building design conceptualized in the literature and practice?
- What tools and outcomes are referred to when evaluating health-promoting building design?
- What makes a health-promoting building design?

This thesis takes a multidisciplinary approach, starting from an architecture perspective involving other domains such as nursing and public health. The chosen qualitative mixed-methods approach is particularly useful in exploring a relatively under-developed research field (Groat L and D., 2002), such as the combination of health promotion and building design.

The research consisted of two main studies, representing two papers;

- Study 1(Miedema, Elf, Lindahl, 2017, to be submitted) is a systematic literature review conducted as a scoping review (Arksey and O'Malley, 2007). The study focused on scanning and mapping literature that addresses health promotion in the context of healthcare building design.
- Study 2 (Miedema, Lindahl, Elf, 2017) is an explorative study involving semi-structured interviews and project documents. The aim was to compare initial ambitions and participants' perceived expectations of ANH and importance of the new building.

The process was iterative and carried out in parallel with a similar focus, i.e. exploring different perspectives and interpretations of health promotion in relation to the built environment, including the various implications of health promotion perspectives in the built environment. The combined results may increase our understanding of the complexity of health promotion and its relation to the healthcare building

design. Study 1 started from an abstract perspective, while study 2 related to the practice and the Swedish context. By combining those approaches, we were able to triangulate results and recognize larger patterns (Groat and Wang, 2013).

2.2 STUDY 1 – SCOPING REVIEW

A 'scoping' supports examination of a wide range of literature addressing the central concepts while a subject is still vague (Arksey, 2007). Additionally, the review provides a mechanism for summarizing the research and disseminating it to people outside academia, who would otherwise not have the means to conduct this type of study (Antman et al., 1992). This 'mapping' can be particularly relevant in providing a direction for future research, including a follow-up and full systematic review (Arksey and O'Malley, 2007).

This study was based on Arksey and O'Malley's framework (2007), which included the following five iterative phases:

1. identifying the research question(s);
2. identifying relevant studies;
3. study selection;
4. extraction of data;
5. collating, summarizing and reporting the results.

The particular aim of our scoping review was to gain insight into the literature on the various perspectives on and understandings of health promotion and building design in the context of healthcare facilities (Miedema et al., 2017, forthcoming).

2.2.1 Data collection

The data were collected from several databases and academic journals; see Table 1. The key search terms – health promotion, healthcare facilities and architecture – were combined with interchangeable and mesh terms, such as salutogenics, health centre and built environment (Table 2). These additional terms came either from mesh term listings or from background knowledge on health promotion or healthcare building design.

Together these key search terms were used to construct search strings (Table 3), which were then adapted to the specific database. The first search string combined health promotion, healthcare facility and architecture (search string 1); however, this only resulted in 7 sources. The search strategy was then adjusted to combine only two out of three key terms, i.e. 'health promotion and architecture' (search 2a), 'healthcare facility and architecture' (search string 2b), and 'health promotion and healthcare facility' (search string2c).

TABLE 1: DATA COLLECTION SOURCES

Databases	**Journals**
Scopus (n=3331)	Health environment and design research (n=146)
Web of science (n=29)	Health & place (n=76)
Proquest (n=1009)	Health promotion international (n=103)
Medline (n=8)	

TABLE 2: SEARCH KEYWORDS

'health promotion' (hp)	'health care facility*' (hcf)	'built environment' (be)
salutogenics	'health facilit*'	architecture
'universal design'	'ambulatory care facilit*'	'physical environment'
wellbeing	'health cent*'	'facility design'
wellness	'outpatient facility'	'building design'

TABLE 3: TABLE SEARCH STRINGS

Pilot search: Health promotion AND Architecture AND Healthcare Facility	('health promotion' or salutogenics or 'universal design' or wellbeing or wellness) and (architecture or 'built environment' or 'physical environment' or 'facility design' or 'building design') and ('health care facility*' or 'health facilit*' or 'ambulatory care facilit*' or 'community health cent*' or 'outpatient facility')
search string 1: Health promotion AND Architecture	('health promotion' or salutogenics or 'universal design' or wellbeing or wellness) and (architecture or 'built environment' or 'physical environment' or 'facility design' or 'building design')
search string 1: Health promotion AND Healthcare Facility	('health promotion' or salutogenics or 'universal design' or wellbeing or wellness) and ('health care facility*' or 'health facilit*' or 'ambulatory care facilit*' or 'community health cent*' or 'outpatient facility')
search string 1: Architecture AND Healthcare Facility	(architecture or 'built environment' or 'physical environment' or 'facility design' or 'building design') and ('health care facility*' or 'health facilit*' or 'ambulatory care facilit*' or 'community health cent*' or 'outpatient facility')

TABLE 4: INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria	Exclusion criteria
Context on a healthcare facility (hcf)	In other sciences outside of medical of architectural science. (biology or it)
Refers to health promotion (hp)	
Refers to the (design of) built environment (arc)	Newspaper articles, dissertations, letter to editor
English	

Figure 6 illustrates the process, including collecting data from the journals and databases, the combining of data, the exclusion of doubles and the further exclusion process (see table 4). First, all 4506 titles were read and rated for relevance, then the same procedure was applied to the abstracts and full texts. Finally, only 15 articles were included in the review.

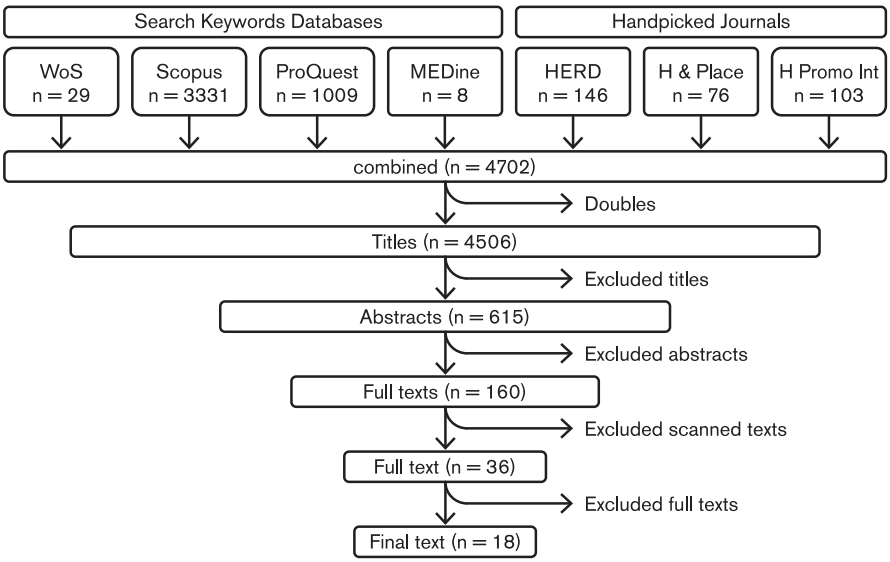

Figure 6. Illustration of inclusion diagram

2.2.2 Data Analysis

The included papers were analysed using directed content analysis. A content analysis is particularly useful when examining patterns and trends in documents (Stemler, 2001). The texts were scanned with a focus on the research questions:

- How is health promotion described in the context of healthcare building design?

- How is health-promoting building design described in the context of healthcare building design?
- What outcomes and methods are used for evaluation of health-promoting building design?

All the answers were collected and charted in one table (see Miedema et al., 2017, to be submitted), Throughout the process, the original quotes were further condensed so as to remain close to the original meaning and readable as separate texts. When fully emerged in the full texts, we were able to recognize some patterns in the way health promotion and health-promoting architecture were addressed.

2.2.3 Limitations

There are several parameters that have influenced the results. For instance, the choice of search terms has influenced the outcomes. We chose the search terms based on health promotion research mesh terms. In addition, we discussed all terms within the research team and other research within the field of healthcare building design. Another research team may have chosen additional search terms, and in retrospective we could have complemented health promotion with terms such as health equality, human rights, health behaviour, health education or healthy lifestyles. Healthcare facility could have been described as local hospital, healthcare centre or primary care facility. Also, based on the knowledge we had gained, we could have made new combinations addressing environmental health, environmental justice or healthcare building design. Still, we discovered these additional terms within our review, not from the background literature we were familiar with.

We included 4 databases (see Table 1) and chose to exclude Google Scholar. Google Scholar does not allow one to search separately in the title, keywords and abstract, and only allows full text searches. Also, the procedure for structuring the results was not convenient for this type of scoping review. Nevertheless, we did include WoS, Scopus and ProQuest owing to their interdisciplinary nature, and based on the advice of the librarians at Chalmers. MEDLine was added owing to its health perspective.

The inclusion and exclusion criteria and strategies also effected the results. For instance, the limitation to English might have excluded studies. However, we felt the studies written in English would be most accessible for the general European and American context.

Most importantly, by choosing a scoping approach to the literature search, we cannot value the different sources of literature. However, it was not our intention to

do so, and the scoping did allow a quick scan of a broad topic. The scoping approach could provide insight into the need for further studies, and help in determining the focus of such studies.

2.3 STUDY 2 – ANGERED NEARBY HOSPITAL

Study 2 aimed to analyse ANH, in Göteborg in west Sweden, and explore the perceptions of health promotion in relation to the new healthcare building typology; the nearby hospital. A building that is developed to support the decentralisation, including nearby care and health promotion.

Why did we choose Angered Nearby Hospital? First of all, ANH was the first newly built hospital for several years in the region where it is located and it was labelled "nearby" and as such seen as setting a precedent and an example for future healthcare development. Second, the organizational ambitions of the nearby hospital align with health promotion strategies, such as increased collaboration between healthcare organisation levels, close proximity to the local population, and trying to meet their specific needs. Third, ANH, more than other nearby hospitals, focuses on reducing the health inequalities in Gothenburg (Lundquist, 2014, Olsson, 2009), as well as other aspects of health promotion. Additionally, at the time of the research, ANH was still under construction, which allowed for a before-and-after study of the expectations of users and other stakeholders.

2.3.1 Sample and Setting

This study explores Angered Nearby Hospital, the first newly built nearby hospital in Sweden, located in the Angered neighbourhood of Gothenburg. The sample consisted of 11 participants, who were either involved in planning process, the design project or future users of ANH. All included participants are what (Morse, 1998) called 'good informants'; they were knowledgeable about the new healthcare facility and its ambitions, were able to provide detailed information about ANH; they could reflect on their perceptions and were willing and able to talk. The sample included 4 men and 5 women, most of whom were selected by the project manager or found in the development documents. The sample included an expert on public health and health inequalities in Gothenburg, initial planning architect and the architect responsible for the final design, the project leader, the director of the new healthcare organization, marketing and heads of care departments. Unfortunately, it did not include the hospital director, and others involved in the initiation phase.

2.3.2 Data collection

The primary data sources for the study were transcriptions of semi-structured interviews with participants involved in the planning and design project. Semi-structured interviews can be useful in narrowing down some areas or topics (Corbin

and Morse, 2003). In the present case, the interviews guided the questions in the direction of building aspects and health-promoting aspects. Also, the interviews were steered by interview guidelines, which included different topics that should be addressed. The interview guidelines can be found in the appendix. To obtain a broader understanding of the project, these questions were not limited to the building or the built environment.

The interviews were held in May, June and July, just before the opening of the building in August 2015. All interviews were audio-recorded after obtaining the participants' consent. The location of the interviews was chosen by the participants, such as their old or new office, my own office at Chalmers and even by phone. Unfortunately, one recording was lost and the transcription was based on written notes. These notes were then sent to the participant for approval.

2.3.3 Data analysis

A qualitative content analysis was performed on the individual interviews according to the method described by Charmaz (2014). This included four phases:

- Transforming the audio recordings of the interviews to transcriptions.
- Converting the transcriptions into meaning units, and then into condensed meaning units.
- Initial coding of the condensed meaning units, including those units that mentioned aspects of the built environment or the design process.
- Coding of the included meaning units.

We charted all the data in one large table, which allowed us to label the different participants and multiple codes for each meaning unit. At this point, some categories emerged (see appendix).

2.3.4 Limitations and Variables

The study was influenced by several parameters:

- The study did not include all stakeholders, meaning we might have missed perspectives on the health promotion aspects of the built environment. We did invite all key stakeholders, but we were not able to schedule them all in the study. Nonetheless, the explorative and qualitative nature of the study does provide a broad insight into different perspectives.
- The timing of the interviews might have influenced the results as well, as they took place just weeks before the beginning in the summer holiday period. This was mostly like a busy time. Yet this period did allow for better-informed participants, as they had already been introduced to the actual building, including their possible concerns.
- All interviews took place at a location chosen by the participant. This could be

in the workplace, in the new building, but also in my own office at Chalmers. It is important that they were able to make this choice, as a comfortable location can help participants feel at ease (Graneheim et al., 2004).

Initially, the idea was to compare the interviews with a morphological study on ANH, unfortunately that study was postponed due to time constraints. However, it might be including in a future study.

In retrospect, questions could have been directed at participants' interpretation of health promotion or aspects of the built environment. However, when constructing the questions these aspects were not yet part of our focus. This insight came through the design and planning documents that were analysed after the interviews. A future study could include this.

2.4 ETHICAL CONSIDERATIONS

> *'(…) although many texts, scholars and philosophers reflect upon the role of architecture in our society, significantly fewer seem to have written about how architects themselves perceive their role' (Mooi, 2014).*

Architecture as well as research in the built environment, including building design, has an effect on individuals and society, either positive or negative, intended or unintended. As architects, researchers, teachers and individuals, it is important to reflect on the possible (ethical) consequences of our work and choices.

I think it is important to contribute to creating healthy and health-promoting environments for people to live, work, play and learn in. And what those contributions may be is dependent on each individual's own interest and resources. I influence my research based on my personal ideologies and standpoints, and I recognise that, in this type of research, it is difficult not to have any bias. I have chosen a certain topic (health promotion) over another (prevention). To me, it is important that my research can complement current knowledge on healthcare buildings, making more planners and architects aware of the (perhaps unintended) consequences of their design decisions.

The core of health promotion has developed from value ideologies such as human rights and the United Nations initiative. It centres on the notion that everyone should have an equal right to a fulfilling life. However, health promotion is often misunderstood and reduced to health education, rather than health empowerment, or to directing people towards healthy behaviour, rather stimulating healthier options. It is thus central to continue to highlight the importance of empowerment and individual choices.

Lastly, I would like to reflect on some possible negative outcomes of this research. For instance, Study 2 is based on semi-structured interviews. The quotes can still be traced back to the participants, even though they have been coded.

While the results are intended to contribute to discussions on improving healthcare facilities, especially regarding reducing health disparities, it may be that these approaches are more quickly adopted in areas that already have high-quality care. Which might increase the health inequalities, rather than reduce them. It thus is important to monitor where the knowledge is implemented, and if poorer areas are not lagging behind.

3 BACKGROUND BUILT ENVIRONMENTS AND HEALTH

The research domain relating the built environment and health is broad, complex and developing (Barton et al., 2010, Bluyssen, 2013, Dijkstra et al., 2006, Ulrich et al., 2010). The domain encompasses multiple perspectives from disciplines such as building design, construction management, nursing, medicine, (environmental) psychology, public health and sociology. These perspectives include different perspectives on health, and they relate closely to the dynamic reality of the healthcare context (Hamilton and Watkins, 2009).

The present thesis started from the domain of healthcare architecture research, the study of the possible health effects of building design in healthcare environments. It starts from the WHO notion that 'Health is being constructed in the environment that we live, work and play in' (WHO, 2009). Consequently, the environment, including the built, natural and social environment, is a factor that influences our health.

3.1 THE BUILT ENVIRONMENT

The built environment is understood as the human-made/constructed/designed environment that constitutes, in combination with the social and natural environment, a physical environment. In this connection, it is important to know that there are different interpretations of the physical environment: a) as the overarching concept that includes the built, natural and social environment, b) as a combination of the built and natural environment, or c) as the built environment, thus constructed by humans.

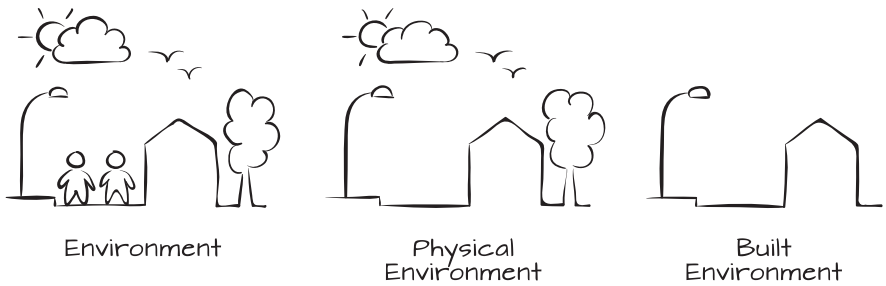

Figure 7. Illustration of different definitions surrounding environment, physical environment and built environment

3.2 HEALTH

While 'health' is a commonly used word, the definitions and interpretations are varied and subject to change (Huber, 2011, Larson, 1999). The WHO (1946) initially defined health as:

> *'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'.*

However, the absolute term complete, as used above, leaves most people unhealthy most of the time (Huber, 2011). Some argue that this definition might even be counterproductive, as the population is ageing and patterns of illness change (Huber, 2011, Jadad and O'Grady, 2008, Larson, 1999). The Australian Aboriginals understand health as:

> *'the physical well-being of the individual and the social, emotional, spiritual and cultural well-being of the entire community (NHAMRC, 1996)'.*

Their holistic view includes a cyclical concept of 'life-death-life', what could be described as a life-course perspective. This life-course perspective, emphasises that health develops of our course of life, and health support should be included in all phases of life. This notion is also an aspect of health promotion perspectives (see 4.3).

These disagreements in definitions are expected, as health consists of multiple components such as the medical, social, economical, spiritual and other aspects of health (Larson, 1999).

Other terms are used to refer to a broad holistic understanding of health. For instance, wellness has been defined as 'a state of optimal well-being that is oriented toward maximizing an individual's potential. This is a life-long process of moving towards enhancing your physical, intellectual, emotional, social, spiritual, and environmental well-being' (Corbin and Pangrazi, 2001). Wellness, however, is only a sub-component of health, because it refers solely to the positive aspects of health (Corbin and Pangrazi, 2001). Thus, in the context of the present thesis, wellness could contribute to our understanding of health promotion. The thesis also adopts a holistic view on health, which includes multiple dimensions of health, a life-course perspective and is influenced by different determents such as genetics, environment and behaviour.

3.3 THE BUILT ENVIRONMENT INFLUENCING HEALTH

It has long been assumed that the built environment has an influence on people's health (Mens and Tijhuis, 1999). And the current pressure on the healthcare system (see introduction) has resulted in a renewed interest in the factors that influence health and wellbeing. Barton et al. (2010) stated that we, as a society, have been building unhealthy conditions into our local human habitat, which relate to health issues such as obesity and asthma being caused by a lack of physical activity and

air pollution, respectively. In addition, Barton et al. (2010) referred to a decrease in environmental equality due to urban planning has been put back on the health agenda, and that cities are being (re)designed to make them more walkable or fit for cycling rather than efficient for car use. As stated by the WHO (2010a):

> *'to a large extent, factors such as where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family all have considerable impacts on health, whereas the more commonly considered factors such as access and use of healthcare services often have less of an impact'.*

These factors determine the health status of individuals or populations, and are defined as the determinants of health (Nutbeam, 1986). These determinants include: the social and economic environment, the physical environment, and the person's individual characteristics and behaviours (Nutbeam, 1986). Here, I focus on the physical environment, which includes the natural and built environment and is closely associated with the social environment.

Christopher Alexander (1977) writes about the importance of healthcare centres in the community that help people to take care for themselves, what he calls health maintenance. He argues that the healthcare centre should be spread out, to create a network of health centres that facilitate recreational and educational activities that help people to keep good health. The present thesis focuses on outpatient healthcare facilities, which facilitate health and care services within restricted hours of the day, possibly decentralised from the central hospitals. Outpatient care can include primary and specialised care, such as consultation, health education, or a specialist operation.

3.4 RESEARCH ON HEALTHCARE BUILDING DESIGN

Malkin (2002) described the research on healthcare building design as the study of the design of healthcare facilities, often in relation to health effects. Three terms are often used in the context of research on healthcare building design; healing environments, Evidence-Based Design (EBD) processes and more recently Research Informed Design (RID), all relating to aspects of healthcare building design research.

The healing environment is psychologically supportive, often addressed in terms of supportive environments and focused on supporting the reduction of stress of specific patent populations (Malkin, 2007). Healing environment research generally incorporates access to nature, positive distraction, access to social support, autonomy, and the elimination of stressors such as noise, glare and poor air

quality (Malkin, 2007). Healing environment research is limited to the context of healthcare facilities, or care homes. A recent literature review (Ulrich et al., 2010) explored the state of the art on health outcomes in relation to healthcare building design. The authors developed a supportive environment framework that included nine design variable categories representing aspects of the built environment: audio environment, visual environment, safety enhancement, wayfinding system, sustainability, patient room, family support spaces, staff support spaces, and physician support spaces.

EBD processes on the other hand are not limited to healthcare environments, and requires contextual solutions and will have different types of outcomes. EBD can be defined as;

> *'a process for the conscientious, explicit, and judicious use of current best evidence from research and practice in making critical decisions, together with and informed client, about the design of each individual and unique project' Hamilton and Watkins (2009).*

The field of EBD, thus, aims to apply scientific knowledge and methods to help guide healthcare facility design and thereby reduce the stress of facility users, improve safety and productivity, reduce resource waste, and enhance sustainability (Berry et al., 2004). This is also underlined by Berg and Wagenaar (2006), who wrote: 'architects who follow the EBD approach use knowledge on health impacts of characteristics of designed spaces on patients, staff or visitors as guiding principles in their design'. EBD is not a guide for straightforward answers to complex problems, rather it is a process focused on collecting knowledge and making informed decisions together with an informed client (Hamilton and Watkins, 2009). In addition, EBD processes include the creation of a research agenda, hypothesis and an study to see whether the design intentions support or fail to support the hypothesis (Malkin, 2007).

Research Informed Design (RID) is similar to EBD, however limited in the application for research (Stichler, 2017). RID, as the name implies, uses published scientific research to inform the design process. However, RID does not include other forms of evidence or the collaboration with and informed client or users.
Where healing environment research is limited to the healthcare environment, EBD and RIF are not (Hamilton and Watkins, 2009). For instance, the results of one of the most influential healthcare building design studies (Ulrich, 1984) resulted in the implementation of views of nature from inside the hospital wards (Ulrich et al., 2010), but also in other contexts outside the hospital (Hamilton, 2009). These effects have typically been related to building users such as patients,

staff or visitors; however, they could also contain organizational outcomes in terms of costs, market shares, or environmental impacts (Ulrich et al., 2010).

To conclude, there is still a great deal of investigation to do if we are to understand the complex relationship between the built environment and health outcomes. Health promotion may be able to complement the existing knowledge based on healthcare building design.

4 CONCEPTUALIZING HEALTH PROMOTION

Health promotion, as a concept, is part of redeveloped holistic healthcare models. And as mentioned, healthcare building design needs to be adjusted to enable health promotion approaches. However, before trying to understand how healthcare building design can influence health promotion, one needs to be able to grasp what health promotion entails.

The term 'health promotion' can be understood as the 'enhancement of health', which then depends on the definition of health (see also 3.1.2). The concept of health promotion is widely used, though it is complex, intensely discussed (Green et al., 1999) and multiple definitions exist (Whitehead, 2004b).

One of the first definitions was from the WHO (1984):

> *'Health promotion is the process of enabling people to increase control over, and to improve, their health'.*

This definition includes a paradox, because it seeks to regulate change through regulation (top-down) and, in contrast, emphasizes participation and empowerment (bottom-up) (Green et al., 1999).

A few years later, (Nutbeam, 1986) extended this definition (Green et al., 1999):

> *'Health promotion is the process of enabling individuals and communities to increase their control over the determents of health and thereby their health.'*

This entails an emphasis on individuals and communities, and their empowerment to 'use their rightful power in making decisions that can improve or damage their health' (Green et al., 1999).

Eriksson and Lindström (2005) defined health promotion as:

> *'the process of enabling* ***individuals, groups or societies*** *to increase control over, and to improve their* ***physical, mental, social and spiritual health*** *through creating clearly structured environments and societies, which includes creating empowering environments where people are able to identify their internal and external resources, use and reuse them to realize aspirations, to satisfy needs, to perceive*

meaningfulness and to change or cope with the environment in a health promoting manner'

This definition of health promotion is extensive, but still it includes both a target group (individuals, groups or societies), a clarification of a holistic interpretation of health (physical, mental, social and spiritual) and the role of both environments and societies. In addition, the definition includes a clarification of empowerment (enabling people to identify their internal and external resources, use and reuse them to realize aspirations, to satisfy needs, to perceive meaningfulness and to change or cope with the environment in a health-promoting manner).

The WHO also developed a new definition:

'Health promotion is enabling people to increase control over their own health. It covers a wide range of social and environmental interventions that are designed to benefit and protect individual people's health and quality of life by addressing and preventing the root causes of ill health, not just focusing on treatment and cure' (WHO, 2016b).

This definition includes 'a wide range of social and environmental interventions', thus emphasizing the complexity and the role of the context. Yet this definition does not include the community perspective explicitly, and seems to focus on preventative strategies, rather than health promotion strategies.

Many other definitions have been developed over the years (Rootman et al., 1997), and it might be impossible to find one correct definition of health promotion (Whitehead, 2004b). However, the different definitions merely represent differences in perspective, rather than fundamentally conflicting meanings (Green et al., 1999). But Poland et al. (1999) identify some criteria for distinguishing health promotion from other approaches while referring others (WHO, 1991b, Downie et al., 1990, Goodstadt, 1995)

- Encouraging public participation by individuals and communities
- Taking a social and cultural perspective in understanding and responding to health issues and problems
- Emphasizing equity and social justice
- Fostering intersectional collaboration
- Including physical, mental, social, and spiritual dimensions of health
- Focusing on enhancing health, not just preventing problems.

The present thesis investigates different conceptualizations of health promotion in the context of healthcare building design.

4.1 HEALTH PROMOTION AND A SALUTOGENIC VIEW ON HEALTH

Health promotion is often confused with disease prevention (Antonovsky, 1996). While health promotion is less specific, more general and more focused on the positive and less culture bound, prevention focuses primarily on specific diseases or risk groups as well as on increasing negative behaviour (Antonovsky, 1996).

This difference can be clarified through the work of medical sociologist Antonovsky. Antonovsky (1987) argued that, in relation to improving health, most of our attention has been focused on understanding the origins of disease (the pathogenic), rather than on the origins of health (salutogenics) (see figure 8). Furthermore, Antonovsky emphasized that pathogenic approaches alone cannot improve health or wellbeing. He adds that salutogenic approaches are needed to complement and contrast with pathogenic strategies (Antonovsky, 1996, Becker et al., 2010). Health promotion is part of a salutogenic approach, while prevention is part of a pathogenic approach to health. Antonovsky (1996) provided an example of maternal and children health departments, which emphasizes the need to combine pathogenic and salutogenic processes; a maternal and child health department does not only immunize the child against disease (pathogenic), but helps children and their parents, who have no direct relation to their children's health, to be **happy** and **healthy (salutogenic)**.

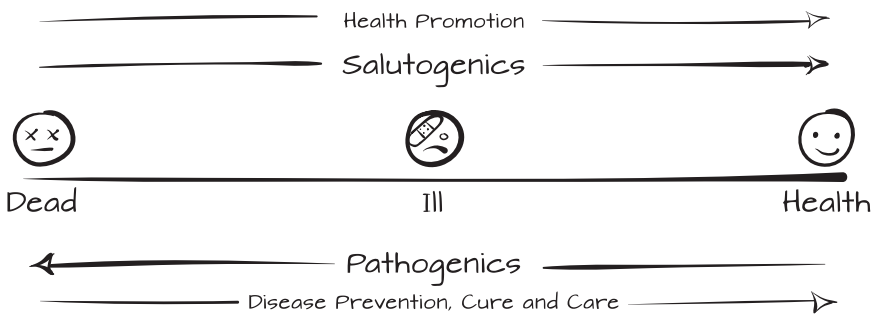

Figure 8. Salutogenic processes including health promotion versus patogenic processes including disease prevention, cure and care.

The work of Becker et al. (2010) might simplify the differences between the two complementary perspectives on health (Table 5).

4.2 OVERVIEW OF HEALTH PROMOTION DEVELOPMENT

A brief historical context can reveal the origins of different aspects of health promotion perspectives. Conceptions of health promotion can be traced back to the history of Ancient Greece (Tountas, 2009), yet the term 'health promotion'

TABLE 5: COMPLEMENTARY PERSPECTIVES ON HEALTH (BECKER ET AL., 2010)

Pathogenesis	**Salutogenesis**
Start Point = Disease or Problem	Start Point = Health Potential
About avoiding problems and its causes	About approaching potential and its causes
Works to eliminate risk factors	Works to create health (salutary) factors
Reactive - react to signs, symptoms, and indications of disease	Proactive - create conditions of physical, mental, and social well-being
Disease or infirmity is an anomaly	Humans flawed and subject to entropy
Idealistic perspective - treat disease	Realistic perspective - go get health
Focus is to prevent pain or loss	Focus is to promote gains or growth
Prepares or help prepare one to live	Enhance capacities and potential so can live fully
Wants to help avoid or prevent a person from being pushed backward	Wants to help or enhance a person's ability to move forward
Against Disease and infirmity	For Health
For those who need healing cures	For those who want better health
Primary focus - Prevention of negative health	Primary focus - Promotion of positive health
Secondary benefit - health promotion	Secondary benefit - Prevention of disease and infirmity
Outcome - absence of problem	Outcome - presence of a gain
Keep from making situation worse	Continuous Improvement
Minimization of problems	Optimization of potential

originated from a report on health in Canada: the Lalonde report (Hancock, 1999). The Lalonde report stressed the need to promote health, rather than to prevent or treat illness (Lalonde, 1974), while still focussing on people's individual responsibility (Tountas, 2009, Whitehead, 2004b).

Later, both Canada and Europe experienced a growing emphasis on identifying economic, social and environmental conditions as the key determinants of health (Hancock, 1999), and these health perspectives came together at one of the international conferences organized by the World Health Organization. These

so-called Charters focused on creating guidelines and strategies for national governments to implement the right to health. The right to health was developed by the United Nations after the WWII. The idea was that everyone has the right to a healthy life within the boundaries of their own possibilities.

Porter and Department of Education (2007) referred to the Ottawa Charter of 1946 as the start of a new health promotion discourse. This first Charter, which focused primarily on health promotion, led to a re-orientation from an individual behaviour perspective to a socio-ecological perspective on health promotion in relation to the determents of health.

Health, as understood in the Ottawa Charter, is 'a broad concept related to personal wellbeing and the capacity to cope with or change the conditions that affect health', which includes peace, food, shelter, education, income, work, a stable ecosystem, sustainable resources, social justice and equity (Hancock, 1999). Porter argued that this new discourse is better aligned with ecological sustainability, holism and interdependency.

Since then, several charters, have guided the development of health promotion, all with specific focal points:

- 1988: Adelaide, Australia: Focused on integrating health and equity in all areas of public policy, to create a social and physical environments health-enhancing that make it easier for citizens to make healthy choices possible, thus enabling people to lead healthy lives (WHO, 1988).
- 1991 Sundsvall, Sweden: Focused on creating supportive environment, involving the combination of physical, social, spiritual, economic and political aspects of our surroundings, which are linked to each other and our health (WHO, 1991b).
- 1997 Jakarta, Indonesia: focused on strong commitments on an international level directed at 'Leading Health Promotion into the 21st Century' (WHO, 1997), focused on reviewing and evaluation of the impact of health promotion, identifies innovative strategies to achieve success in health promotion and facilitated the development of partnerships to meet global challenges (WHO, 1997).
- 2000 Mexico City, Mexico: focused on health equity, and health promotion efforts as an important aspect of economic and social development. Additionally, they state that this development, and thus health promotion, is a responsibility that all sectors in society share (WHO, 2000).
- 2005 Bangkok, Thailand: focused on addressing the determinants of health in a globalized world by reaching out to people, groups and organisations that are critical to the achievement of health.

An important shift is discussed by Porter and Department of Education (2007); while Bangkok Charter's claimed to complement and build upon the Ottawa Charter, Porter concluded that Bangkok actually left the socio-ecological framework and positioned health promotion within new capitalism. Here, in this thesis, the original socio-ecological perspective is preferred as it focuses on 'asking communities what kind of world we should build'. This perspective is closer to a holistic and salutogenic approach including a holistic understating of health and the environment. In contrast, the Bangkok Charter adopts a more pathogenic approach, focusing on individuals who are already at risk.

- 2009 Nairobi, Kenya: focused on the gaps between health promotion ambitions and implementation, challenged by financial crisis, global warming, climate change and security threats. These gaps and challenges have complicated the creation of healthy environments that improves the daily living conditions of disadvantaged populations (WHO, 2009b).
- 2013 Helsinki, Finland: focused on implementing health promotion 'in all policy', and the ways to do so through six central themes: (1) the exchange of experiences and lessons, (2) reviewing approaches and barriers, (3) identification of opportunities, (4) establishing a review committee, (5) addressing the importance of health promotion in primary-care reforms, and (6) review of the health promotion development since Ottawa in 1984 (WHO, 2013)
- 2016 Shanghai, China: aimed to align health promotion ambitions and strategies with the 17 Sustainable Development Goals set out in the Paris agreement in 2015 (Nations, 2016). The most recent Charter on health promotion, in Shanghai (WHO, 2016a), states:

> *'We face a new global context for health promotion. People's health can no longer be separated from the health of the planet and economic growth alone does not guarantee improvement in a population's health'*

The Shanghai charter therefore Figure 9 (next page) illustrates the specific health promotion action in relation to each of the sustainable development goals. The declaration recognizes that health and wellbeing are vital to realizing sustainable development. This was also argued by Harrisson (2002), who said that we should no longer separate sustainable development goals, health promotion and public health. In addition, the declaration ends by stating that 'promoting health demands coordinated action by all concerned, it is a shared responsibility'.

Figure 9. Illustration of Health Promotion and Sustainable Development (WHO, 2016a)

4.3 DIFFERENT DIMENSIONS OF HEALTH PROMOTION PERSPECTIVES

As mentioned, health promotion has many definitions, which do not conflict fundamentally in meaning, but which do stress different aspects of health promotion strategies (see p25). As we would expect, however, these different perspectives lead to different implications for the built environment and healthcare building design. For the present purposes, three of these health promotion perspectives are highlighted.

- A health promotion strategy focused on **health behaviour**
- A health promotion strategy focused on **health equity**
- A health promotion strategy focused on **sense of coherence**

4.3.1 Health behaviour

The health behaviour perspective focuses on strategies that stimulate healthy lifestyles of individuals, such as physical activity, social interaction and healthier diets, that have been shown to effect health (Glanz and Bishop, 2010) (see figure 10). Efforts are also focused on creating environments (socio-physical) that allow for healthier choices in people's everyday life (WHO, 1991b). This includes, but is not limited to, health education (Whitehead, 2004b) and wellness. Health education limits action to medical and preventative approaches for specific individuals who

are already at risk or have been affected by illness, disease or disability. Wellness recognizes individual responsibility for lifestyle changes, and aims to encourage such changes through health education, social marketing and media promotion (Hancock, 1999). In comparison, from this perspective, health promotion includes health education and empowerment and socio-political activities. Health promotion is focused on the whole society, possibly a certain population (Whitehead, 2004b). The health behaviour perspective on health promotion is mostly used by the WHO development. It is the foundation for healthy buildings and healthy cities. Action on this approach in relation to the built environment is aimed at creating healthy settings, which is further explained in health promotion settings and the built environment.

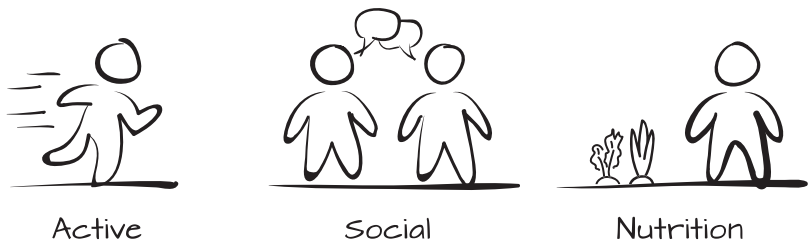

Figure 10. illustration of health behaviours

4.3.2 Health equity

The health equity perspective on health promotion focuses on approaches and solutions that report and correct inequalities which are often at the heart of health inequalities, such as discrimination or unbalanced power relations (WHO, 2015). The interventions related to this health equity approaches include (WHO, 2015);

> *'**Availability;** functioning public health and enough good healthcare services and facilities **Accessibility;** access to health facilities, goods and services for everyone, in which accessibility includes non-discrimination, physical accessibility, economic accessibility (affordability) and information accessibility. **Acceptability;** all health facilities, goods and services must be respectful of medical ethics and culturally appropriate, as well as sensitive to gender and life-cycle requirements. **Quality;** health facilities, goods and services must be scientifically and medically appropriate and of good quality'.*

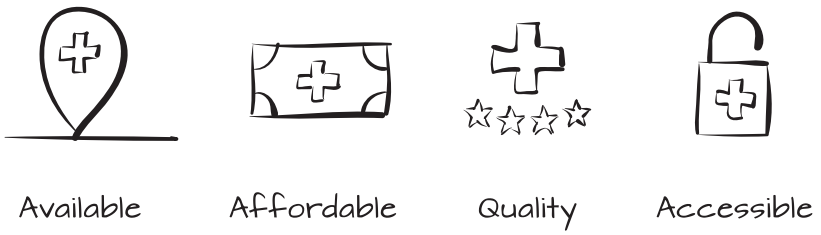

Figure 12. illustration of key concept of health equality perspective

This perspective on health promotion is based upon the right to health. According to the WHO (2009), the right to health – 'the enjoyment of the highest attainable standard of health' – 'is one of the fundamental rights of every human being without the distinction of race, religion, political belief, economic or social condition'. This does not mean everybody must be healthy, rather that 'governments must generate conditions in which everyone can be as healthy as possible' (WHO, 2009). The emphasis is on the accessibility of health services, which should be sensitive to the expectations, beliefs, preferences and skills of different types of patients.

Here, the environmental conditions are considered as one of the underlying determents of health (see Figure 12). Yet this perspective seems to primarily relate to the built environment in terms of the physical accessibility of healthcare services, for instance, the development of disability policy and accessibility regulations. Other aspects of health equity might not have been translated as explicitly.

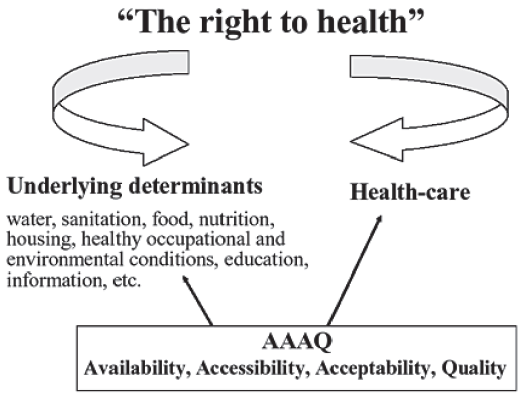

Figure 12. illutration of the right to health (source: WHO, 2009)

4.3.3 Sense of Coherence

The sense of coherence (SoC) perspective on health promotion focuses on strategies that enhance people's health through enriching individual's SoC. SoC developed, as did salutogenics, from Antonovsky's studies on the origins of health (see 4.1).

While developing his salutogenic view on health, he discovered that some people were able to stay healthy, even enhanced their health, while in a stressful situation. (Antonovsky, 1996) argued that people with a strong SoC are better at coping with difficult situations and have a better resilience to illness. The SoC framework consists of comprehension, manageability and meaningfulness (Golembiewski, 2010, Eriksson and Lindström, 2005, Antonovsky, 1996) (see figure 13):

- Comprehension stands for an individual's ability to understand the situation at hand, and to understand what might come next.
- Manageability stands for an individual's perception of having the resources to handle the situation, and feeling in control of the situation.
- Meaningfulness stands for the importance of a situation for the individual.

Figure 13. Illustration of Sence of Coherence perspectives

The SoC perspective on health promotion does not explicitly relate to the built environment. However, Antonovsky mentioned a more 'health-enhancing environment', for which a salutogenic perspective is needed. The built environment and building design might be considered one aspect of a health-enhancing environment.

4.4 EVALUATING HEALTH PROMOTION

Understanding what kind of methods and outcomes are related to health promotion interventions might support increased understanding of the influence of healthcare building design in health promotion.

Health promotion interventions are difficult to evaluate (Green et al., 1999, Beurden et al., 2013, Rootman et al., 1997, Jackson and Waters, 2005), primarily due to the complexity of multi-component interventions with diverse population groups and multiple outcomes measured, within a particular study context (Jackson and Waters, 2005). For instance, a healthy food choices intervention focused on teenagers at a school seeks different outcomes than a physical activity enhancement intervention among people with visual disabilities at home, even though both interventions can be considered to promote health.

There are differences between populations, setting and issues (Green et al., 1999), thus differences in sought outcomes. Additionally, there is a range of different types of health promotion (interrelated) interventions: from health promotion as an outcome (goals and objectives) to health promotion as a strategy (process and activities). As argued by some, Health promotion has been transformed into an evidence-based profession where reductionist approaches pursue quantifiable relations between causes and strategies, and identifiable health outcomes (Beurden et al., 2013, Brownson et al., 2009, Rychetnik and Wise, 2004). However, other researchers state that this reductionist approach is not able to grasp the full complexity of health promotion interventions (Beurden et al., 2013). Beurden et al. (2013) even argued that their reductionist approaches reveal what can be found rather than what needs to be found. Based on this research discussion on evaluation of health promotion, this is of course also relevant for the build environment which is familiar with challenges evaluating outcomes.

4.5 HEALTH PROMOTION SETTINGS AND THE BUILT ENVIRONMENT

Poland et al. (1999) addressed the difficulties associated with implementing health promotion, as the health promotion goals, content and approaches become increasingly complex. One of the most successful strategies of health promotion is the 'setting approach' (Poland et al., 1999, Poland et al., 2009) The setting, as a conceptual boundary, is fundamental to health promotion theory and refers to developing a more ecological and context-sensitive approach, which allows for individuals to be considered within a context rather than in isolation (Green et al., 1999). As stated by the WHO (1998:20);

> *'The goal is to create supportive environments for health that offer people protection from threats to health, and enable people to expand their capabilities and develop self-reliance in health. [These environments] include where people live, their local community, where they work and play, involving people's resources for health and opportunities for empowerment'.*

Here, the environment consists of the social, natural, and built environments and the relation between them. This setting approach allows abstract health promotion strategies to be adjusted and implemented in different contexts, such as the home, workplace, hospital or community. These settings have physical boundaries, incorporating a social and physical situation, keeping them complex and dynamic, just as the socio-ecological view on health promotion requires (Green et al., 1999). Health-promoting actions, in relation to settings, can have different forms, such as organizational development, including changes to the built environment,

organizational structures, administration or management, and often a combination of these (Green et al., 1999). The WHO initiated an international initiative to support hospitals in engaging in health promotion (Groene et al., 2005), and the hospital became one of the 5 major setting for health promotion (Whitehead, 2004a). Here we have to make a distinction between health-promoting hospitals (as an organizational model) and health promotion interventions in hospitals (where the hospital is not part of a health-promoting hospital network and its associated ambitions).

Not everyone, however, was convinced that a hospital is a good setting for health promotion (Hancock, 1999, Johnson, 1999). While hospital organizations are characterized as medicalizing, individualizing and institutionalizing, health promotion emphasizes health and the group or collective, with a focus on the community rather than the institution (Hancock, 1993). And while health promotion is focused on empowering patients, patients are largely dependent on the medical staff and healthcare system (Johnson, 1999). Green et al. (1999) challenged this negative notion:

> *'Where else does one encounter an organisation so predominantly focused on the theatre of health and illness? Where better to play out the full drama, the full dimension of health promotion? In its seeming antithesis of health promotion, the hospital reveals the power of settings as a place for health promotion'.*

The hospital plays an important role in representing the healthcare system (Milz and Vang, 1988); most people will visit a hospital at some point in their live, and the hospital is a major employer in the community (Milz and Vang, 1988, Johnson, 1999). The hospital includes or is part of other health-promoting settings, such as the healthcare facility, the workplace and the community setting (Hancock, 1999, Whitehead, 2004a). The health-promoting hospital must thus be one part of the process of creating healthier communities (Hancock, 1999).

It is important to distinguish the health-promoting hospital from the healthy hospital (Hancock, 1999). A healthy hospital has an inward focus, trying to create a healing environment for users, one that is effective and environmentally friendly, through the building design and operationalization of the hospital (Hancock, 1999). In comparison, a health-promoting hospital, according to Hancock, is externally focused on the health and wellbeing of the community, involving strategies guided by the Ottawa Charter (Hancock, 1999, WHO, 1991a); the health-promoting hospital has been defined as follows:

- It provides high-quality comprehensive medical and nursing services

- It develops a corporate identity that embraces the aims of health promotion
- It develops a health-promoting organizational structure and culture, including active, participatory roles for patients and all members of staff
- It develops itself into a health-promoting physical environment
- It actively cooperates with its community.

Hancock added that hospitals previously focused on medical care for sick individuals, while now there is an increasing awareness of the role hospitals can play in the broader setting of the community (Hancock, 1999). He continued by pointing out that a health promotive hospital 'recognizes that its resources and status within the community can improve the health of the community and narrow the gap in health status within the community'.

Yet while the settings approach focuses on where health promotion happens (Green et al., 1999, Poland et al., 2009), there is however only a small amount of studies relating health promotion settings to the design of the built environment, including healthcare building design.

5 SUMMARY OF PAPERS

5.1 PAPER 1 – HEALTH PROMOTION AND THE BUILT ENVIRONMENT OF HEALTHCARE – A SCOPING REVIEW

The first paper (Miedema et al., 2017, to be submitted) had a theoretical perspective on health promotion and the built environment of healthcare facilities and was the product of collaboration between Elke Miedema (EM), Marie Elf (ME), Peter Fröst (PF) and Göran Lindahl (GL). The topic of the article was decided on through discussion between EM, PF and ME. EM collected the data. Initial data analysis by EM involved regular discussions with ME. ME controlled the method through data checks and helped throughout the filtering process where cases were not evident. The initial writing was done in close collaboration with ME, and the paper was completed in collaboration with ME and GL.

Objective: The main purpose of this study was to map literature addressing conceptualizations of health promotion in relation to healthcare building design to enable and support dialogs on future healthcare building design project. The overall research question was 'How is the concept of health promotion used in the literature and how is the concept connected to building design?'

Background: Today's healthcare models are adapting to embrace holistic healthcare approaches, including health promotion. Health promotion is often considered a possible solution for several challenges in public health, such health inequalities and preventable chronic diseases. These developing healthcare process have led to shifting healthcare building design needs, while increasing number of studies emphases on the importance of the built environment for public health, and others revealed the role of (inpatient) healthcare building design on health of building users, such as the patients, staff and visitors. Yet, there is limited knowledge on how health promotion relates to outpatient building design, and there is a need for a critical review of the literature to grasp the current state of the art.

Method: A scoping review from 4506 papers collected out of 4 databases and 3 scientific journals in 2015, resulted in 15 papers discussing 'health promotion', 'outpatient healthcare facilities' and 'building design'. The following content analysis resulted in themes and subthemes to describe health promotion, health-promoting building design and the tools to evaluate health-promoting building design.

Results; The result revealed different conceptualisation of health promotion related to three health promotion perspectives, health behaviour, health equity and salutogenic perspective. Additionally, the results revealed a range of terms for, and interpretations of health-promotion building design, and methods and outcomes used to evaluate health-promoting building design.

Conclusions: The review exposed opportunities for developing health-promoting building design. Yet the study also exposed scarcity in literature relating health promotion perspectives to building design; including an inconsistent vocabulary to describe health promotion and health-promotion building design, and challenges to evaluate health promotion effect of healthcare building design. Future research should focus on clarifying these fundamental concepts and evaluation approaches.

Keywords: word; accessibility; architecture; building design; health equality; healthcare facility; health promotion; lifestyles; salutogenics.

5.2 PAPER 2 – HEALTH PROMOTIVE AMBITIONS RELATED TO THE BUILT ENVIRONMENT – THE CASE OF ANGERED NEARBY HOSPITAL

The second paper (Miedema et al., 2017) was written for the ARCH17 Conference in Copenhagen. The conference aims to provide a platform for discussing the discourses within healthcare building design research. This article was written in collaboration with Göran Lindahl (GL), Marie Elf (ME) and initially Peter Fröst (PF). EM chose the topic and the direction in the discussions with PF and ME. EM did most of the data collection. PF helped in choosing the initial participants. The analysis and the chosen method were chosen through collaboration between EM and ME. EM did the initial writing, in close collaboration with GL and ME.

The healthcare system in Sweden is re-orienting and transforming to embrace a holistic perspective on health, which includes a focus on Health Promotion. This development has led to new ambitions and processes in healthcare and has thus changed the requirements for related building design. This explorative study, based on a content analysis of 9 semi-structured interviews with stakeholders involved in the planning and design process of Angered Nearby Hospital (Närsjukhus), investigates how the building design was influenced by Health Promotion ambitions. Questions focused on expectations and challenges for the new building. The results illustrate how

Health Promotion was interpreted in the design process and how expectations were described, e.g., as a "welcoming environment" or "active environment". It is found that the understanding of how to interpret Health Promotion in design is vague and performed without any guidelines other than at the policy level. This lack of clarity is also related to the difficulty of finding studies on the topic. The results also point to a need for clarification of how Health Promotion can be interpreted in design, the need for Health Promotion-related design guidelines, and the need for definitions of requirements at the project level to measure health-promotive effects.

Keywords: building design, Health Promotion, Nearby Hospital, design ambitions.

5.3 PRESENTATION 1 – HEALTHCARE BUILDING DESIGN FOR HEALTH AND WELL-BEING FROM HOSPITAL TO NEIGHBOURHOOD CARE (PROARCH)

This presentation was made at the CIB conference in Gothenburg. The purpose of the abstract and presentation was to present the PhD research proposal and receive feedback from the audience. The abstract was written in collaboration with Marie Elf (ME) and Peter Fröst (PF). Elke Miedema held the presentation.

Background: PROARCH will study how, and in what way, healthcare architecture can influence health-promotion. An understudied but highlighted e.g. by the International Network of Health Promoting Hospitals (HPH), initiated by the World Health Organization's (WHO). Health-promotion has been defined as the process of enabling people to increase control over their health and its determinants (WHO, 2005). Although resources have been allocated to prevent illness, such as health information and support for behavioural risk factors (Wilson, 2015), healthcare tends to primarily focus on treating diseases when they occur (Wilson, 2011). More up-stream and proactive solutions are wanted i.e. Identifying people at risk of illness and built in health-promotion in all policy interventions (Wilson, 2015).

Aim: The overall aim is to explore how healthcare architecture can contribute to health and well-being in an outpatient healthcare context. The research-questions are: How can health-promoting architecture be defined and measured? How can new healthcare environments support health and well-being in the neighbourhood? A further aim is to identify the key factors of the architecture and how they interact with

contextual factors in order to increase the understanding of how and what supports health promoting.

Methods: PROARCH has started with a systematic review on how health-promotion architecture can be defined and measured. Further on, a full-scale study of Angered Nearby hospital in Sweden (finished 2015) is planned. Angered, outside of Gothenburg, is a part of the Swedish Million Programs with a weak socio-economic status. Data collection corresponds to mixed methods, with clinical outcomes and interviews, in addition to process and outcome data from non-participant observations and semi-structured interviews. The findings will be compared to the design intentions, developed in the planning process of the Angered Nearby hospital. The results will be used in a design project in which we will conduct experience based co-design in Angered.

Keywords: health promotion, architecture, healthcare, healthy buildings, actor network theory

6 RESULTS & DISCUSSION

As mentioned, the much-needed re-orientation of the healthcare model, also involving health promotion approaches, will lead to new requirements and implications for healthcare building design. And while it was discussed whether the healthcare facility should be the place for health promotion (Hancock, 1999, Johnson, 1999), a healthcare facility is visited by most people during their life course, is a major employer in the community (Johnson, 1999, Milz and Vang, 1988), and plays an important role in representing the healthcare system (Green et al., 1999, Milz and Vang, 1988). This, combination with decentralisation of healthcare facilities requires new healthcare building design that is adapted to the local context and the local needs.

As mentioned (1.2) the thesis explores conceptualizations of health promotion in the context of outpatient healthcare building design, the aim being to enable a broader platform for the incorporation of several health promotion perspectives into future healthcare building design. The main research question of this thesis is: 'How is health promotion conceptualized in the context of outpatient healthcare building design?' Additional questions where added during the process: 'What aspects of building design result in health-promoting building design?', 'How is health-promoting building design conceptualized in the literature and practice?' and 'What tools and outcomes are referred to when evaluating health-promoting building design?'.

The research is based on two main studies; (1) a systematic literature review based on the scoping review (Miedema et al., 2017, to be submitted) and (2) an explorative study of the case ANH involving semi-structured interviews and project documents (Miedema et al., 2017). While the summaries (chaper 5) and the papers (appendix) include results and discussion on the separate studies, this chapter summarizes the overall results and discussions.

6.1 CONCEPTUALIZATIONS OF HEALTH PROMOTION IN THE CONTEXT OF HEALTHCARE BUILDING DESIGN

The research presented in this thesis has identified the need for a clear terminology emphasizing the different conceptualizations of health promotion, preferably linked to existing health promotion perspectives. As mentioned by Green et al. (1999), it is challenging to find one right definition of health promotion, and one needs to clarify the definition or health promotion perspectives to understand what the focal points for health promotion are. Yet, while the concept of health promotion is addressed in the context of healthcare building design, the term health promotion lacks the needed definition or explanation. For instance, health promotion is found

as a term in both Study 1 and Study 2, however, the term is not always explained or defined, leaving interpretation of 'health promotion' to the reader. In the literature review, for example, the term of health promotion is used by several authors, but understood differently (Brittin et al., 2015, Chiou and Chen, 2009, Dilani, 2001, Dilani and Armstrong, 2008). For instance, Brittin et al. (2015) addresses health promotion as focus on long term individual and population health involving similarities and differences amongst local ethnic groups. In comparison, (Chiou and Chen, 2009) refers to the WHO definition developed in Ottawa; health promotion as the process of enabling people to increase control over, and to improve, their health (WHO, 1986). (Dilani, 2001) uses health promotion interchangeable with concepts such as psychosocial care, wellness and salutogenics. Even these vague terms are not explained or defined further.

This lack of use of consistent or strong terminology to describe health promotion makes it challenging to map the knowledge concerning health promotion. This absent explanation of health promotion, as found in study two, made it difficult to reflect on the translation of the health promotion ambitions to the building design solution.

Furthermore, the majority of authors and interviewees do not use the term 'health promotion' at all. Yet the studies demonstrate the use of a wide range of terms, such as wellness or psychosocial effects, to describe what could be noted as health promotion, although these terms are inconsistent, confusing and incomplete. For instance, some use the term 'psychosocial health' as interchangeable with 'salutogenics', while psychosocial is actually one of several aspects of salutogenics.

As mentioned, different definitions of health promotion represent different perspectives and emphasis, rather than fundamental conflicts in meaning (Green et al., 1999). And here these perspectives were simplified to three leading perspectives; behavioural perspective, health equality perspective, and sense of coherence (see p. 37). While these perspectives represent a mere shift in focus, the results showed contradictory implications for building design. For example, the first perspective, focused on promoting healthy lifestyles, might aim at increased physical activity. One implication for the built environment, often mentioned, is the placement of stairs on prominent and visible places. In contrast, the health promotion perspective focused on reducing barriers might choose to locate the escalators and elevators at plain sight, to avoid stigmatizing people who cannot take the stairs.

The designer thus needs to be aware of the different health promotion perspectives. Or, as an undeveloped alternative, take one overall definition that includes the combination of several health promotion factors and aspects:

- Focus on stimulating positive health, in addition to preventing illness
- Focus on local individual and community needs for all, specifically of vulnerable population groups
- Focus on patient-centred care, through cross-disciplinary collaboration between health organizations and a life course perspective.
- Considering patients to be part of everyday life, thus to be influenced by (and in control of) their social, built and natural environment.

If we are to understand how health promotion might be able to contribute to healthcare building design, we need develop our knowledge on the different effects health promotion perspectives have on healthcare building design processes.

6.2 CONCEPTUALIZING HEALTH-PROMOTING BUILDING DESIGN

The previous paragraph highlights the difficulties associated with finding one right definition for health promotion. It may thus come as no surprise that defining 'health-promotion building design' has been equally challenging throughout the process of this thesis.

First of all, it was difficult to discuss 'positive health and wellbeing effects of the (healthcare) building design on both patients, users, staff and the surrounding population' without a dominant terminology. While the literature study included terms such as a health-enhancing physical environment, wellness environment or salutogenic architecture, none of the terms could gasp the full extent of the concept. For instance, the term health-enhancing environment seems to limit the focus to enhancing physical activity, while neglecting vulnerable groups, such as physically and visually disable people.

Initially I found the SoC perspective most usable in the context of healthcare building design. The SOC concepts, manageability, comprehension and meaning, seem to be broad enough to include the aspects of other perspectives. For instance, manageability referring to the availability of healthcare services also can include accessibility, an aspect of health equity perspectives. However, the salutogenic framework has limited focus on the local community and vulnerable populations, which are included in the health equity perspectives. Moreover, limited focus on physical activity and nutrition, while at the same time including social interaction. Golembiewski (2017) argued that salutogenics is essential to healthcare architecture and should be a norm in architectural theory, and thus in architectural education.

6.3 DIFFERENT TYPES OF OUTCOMES WITH WHICH TO EVALUATE HEALTH-PROMOTING (HEALTHCARE) BUILDING DESIGN

One important aspect of the development of health promotion and health-promoting building design is understanding how health-promoting interventions can be evaluated (Rootman et al., 1997). In line with previous work (Beurden et al., 2013, Rootman et al., 1997), the results present the difficulties associated with evaluating health promotion. Moreover, the studies reveal the difficulty of measuring outcomes due to the enhanced complexity and changing nature of health promotion interventions in relation to the built environment.

- Difficult to eliminate the role of the built environment.
- Difficulties associated with evaluating community health outcomes
- Difficulties associated with the difference between actual health status and perceived health outcomes.

The results revealed the need for mixed-methods approaches, and call for using different data sources to evaluate health-promoting building design, such as observations, interviews, organizational data, plans and project documentation. Plus, the results presented argumentation for mixed-methods approaches that would increase our understanding of the complexity of the evaluation. As Green et al. (1999) mentioned, one useful distinction for health promotion approaches, also relevant to evaluation, includes the distinction between health promotion as an outcome (goals and objectives) and health promotion as a strategy (process and activities). While these two are in practice intertwined, the distinction might help in translation to the build environment and evaluation.

Unfortunately, I could not, at this point, provide strategies to create (built) environments that promote health. But, in the next sections, I was able to put forward some of the main challenges and possible opportunities that provide the basis for more in-depth investigations on health-promoting healthcare building design.

6.4 THE CHALLENGES OF DEFINING THE BUILT ENVIRONMENT

Besides the initial questions, several other themes emerged, among them the inconsistent ways of addressing the built environment, and building design. Being able to understand the role of building design for health promotion includes understanding of how building design, built environment and physical environment are used in the health promotion context. I assumed the built environment, the physical environment, the environment and setting would all be defined consistently throughout the research domain:

- The built environment is the constructed environment made by people, such as streets, squares, infrastructure and buildings. The built environment can be used interchangeably with other concepts such as the designed environment, architectural environment and the building design.
- The physical environment is the combination (and interaction) of the built and natural environment.
- The environment is the combination of the social (people and the social networks), the built and natural environment.
- A setting is an environment with physical boundaries, thus including the built, natural and social environment at a certain place, such as the hospital, workplace or community.

However, I realized the terminology for 'built environment' was not as constant as I expected. For example, the term 'physical environment' had been used to describe all of the above concepts. For instance, (Gulwadi et al., 2009) combines the terms as the physical (built) environment, yet then clarifies his interpretation of, as 'built, observable, tangible features within ambulatory care settings, including small-scale and larger-scale features.

This inconsistency in terminology makes it difficult to find literature and projects that might have been helpful for development and it might conceal knowledge gaps. For example, while the literature review in the first instance showed an abundance of literature on health-promoting building design, only 15 out of 4506 papers discussed the topic.

Additionally, this inconsistency made it challenging to distinguish the influence of health promotion on the environment from the influence of built environment, including building design. While, at the same time, this distinction is needed when discussing the role of building design in creating environments that promote health. For instance, in the health-promoting settings approach, it seems as if the built environment is reduced to the physical boundary of a hospital or other settings in which health-promoting action takes place. The building design is then quickly reduced to a set of programmatic functions: the placement of stairs and a set of building requirements based upon a disability act. This causes, however, that the built environment seems to no longer play an active role in the development of health promotion, as it has already been included in the setting.

6.5 HEALTH-PROMOTING BUILDING DESIGN – UP TO NOW

Health-promotion building design is developing, and while this thesis revealed several interpretations of health promotion and health-promoting building design,

proposed new definitions for health promotion and health-promotion building design, and proposed direction for evaluation of health-promotion building design, multiple notions are still undeveloped. Yet, for the sake of discussion, I have added some addition thoughts.

6.5.1 Health-promoting hospital design?

When reflecting on the combined results, several re-occurring health-promoting design objectives emerged, which on an abstract level could be reduced to three different design intentions:

- Healthy hospital design; a building design that aims to create healthy environments for users. This includes responsible resources use and stimulation of healthy behaviours.
- User-friendly hospital design; aims to create environments that reflect the needs of different users and local population, specifically vulnerable user groups. This includes minimizing barriers that might prevent access, and focusing on wayfinding and patient flow.
- Meaningful hospital design; aims to create environments that relate to the values of the users and local population, in addition to their needs, regardless of their background. This includes stimulation of ownership and could possibly link to place-making, and the acknowledgement of

Yet, health-promotion building design is actually the combination of these different types of hospital design.

6.5.2 Building design process and building design result

Based on the literature, the interviews and the project documents from the two studies, we could discern different roles that the built environment plays in relation to health promotion. This includes a distinction of roles for the design process or the designed result.

The design process could contribute to health promotion through empowerment of the local population. The participatory planning and design process in ANH allowed both users and the local population to become part of the project. This approach both contributed to ownership of the project and improved inclusion of their specific needs. Combined, this could be an important part of the empowerment process, in that the local population notices that their voice is being heard as well as represented in the building.

Health-promoting building design can be described as building design that promotes health. Based on the studies, we identified different ways in which building design can contribute to health promotion.

1. Facilitating health-promoting programmes, such as a fitness facility or an educational kitchen that enables healthy behaviour
2. Supporting health-promoting processes, such as space organization that supports collaboration between different levels of care, or large examination rooms to provide sufficient space for the patient, family, health and care team, and even an interpreter.
3. Reflecting a health-promoting organization, such as combined staff and meeting places that stimulate informal relations between staff from different departments, or one reception to guide the patient through the healthcare system.
4. Symbolizing the healthcare ideology, such as the placement of the building close to the local population and their everyday life, and asking the local population to develop the stylistic identity.

6.5.3 Health-promoting building design approaches

Throughout the studies, a range of design approaches were found in combination with health promotion in the context of healthcare building design; Green design, healthy design, active design, accessible design, universal design, inclusive design, wellness design, salutogenic design, psychosocial design and participatory design. While I have not investigated the differences and similarities of these design approaches with health promotion objectives, or with each other. These design approaches may be used as starting points for developing health-promoting building design.

7 CONCLUSIONS

This thesis explored conceptualisations of health promotion in the context of health promotion building design, and several related perspectives were found. Initially the research disclosed studies presenting opportunities for health promotion to influence the healthcare building design. As mentioned in the background, health promotion already successfully relates to the physical environment through the health-promoting settings approach, and as expected aspects of building design were found in relation to these setting approach.

In addition, other health promotion perspectives that have been found relating to the built environment, such as healthy behaviours, sense of coherence and health equity. These distinctive perspectives on health promotion, and their different relations to the built environment, are valuable when discussing the opportunities for each perspective for supporting the translation of health promotion ambitions into design strategies.

7.1 CONCEPTUALIZATION OF HEALTH PROMOTION IN THE CONTEXT OF HEALTHCARE BUILDING DESIGN

Similar to the variety in health promotion definition in general (Green et al., 1999) the results have shown that there are different conceptualizations of health promotion in the context of healthcare building design. These conceptualizations of healthcare building design overlap with different focal points – focused on either empowerment, physical activity, reducing barriers, or stimulating coherence. And while there is no need for just one definition, it is important to clarify which definition is being used when one is discussing health promotion.

However, the thesis also showed that the implications for the built environment, and thus building design, are influenced by the chosen health promotion perspective. Moreover, these implications for the built environment even conflict with each other on occasion. For instance, a health promotion perspective that focuses on stimulation of healthy behaviour resulted in environmental interventions that supported healthy behaviour, such as physical activity. Yet this healthy behaviour perspective often paid little attention to populations that might have difficulties using the stairs and, thus, need ramps or elevators.

This means that when we choose a certain health promotion perspective, which can guide a number of design choices, we neglect other equally important aspects of health promotion. This difficult situation requires the designer to be sensitive to and consider multiple perspectives and their implications for the building design, while not being familiar with the full breadth of the topic of health promotion.

Based on previous definitions, and the research findings, I propose an alternative definition for health promotion, developed specifically to be used in the context of healthcare building design;

> *'Health promotion is a process including a wide range of social-environmental interventions that are designed to enable individuals and populations to gain control over their health and wellbeing through a positive care approach, involving a life course perspective, with special attention to the needs, values and preferences of all people in their everyday life – regardless of their status, age, sex or background'.*

This definition mentions 'social-environmental interventions' as a way to emphasize the dynamic relation between the social, natural and built environment. The definition mentions both individuals and populations, which may prevent reduction to a solely individual focus. This definition includes both health and wellbeing, the aim being to emphasize that it is not merely about biophysical health, which is especially important for those not as familiar with different definitions of health. This definition includes a positive approach, emphasizing the salutogenic approach, rather than the pathogenic (preventative) approach. This definition additionally addresses health and care throughout life by mentioning the life-course perspective. This life course perspective addresses the different phases in life, with different needs for health and care. Moreover, the definition emphasizes the closeness to their environment, their needs and values. It is possible that this overarching definition of health promotion, including the multiple focal points of the three main perspectives, may avoid oversimplification and misunderstanding.

I would like to emphasise again, that there is no need for one perfect definition, but there is a need to clarify the term by describing or explaining what the term means in a specific context.

7.2 CONCEPTUALIZING HEALTH-PROMOTING BUILDING DESIGN

The studies revealed the need for vocabulary to discuss health promotion aspects that influence (healthcare) building design, and the need for over-arching term to describe the concept. For instance, the need to specify what is meant by environment, physical environment, built environment, building design, but also health promotion, wellness, salutogenics and health. This thesis introduced the term 'health-promoting building design', which developed throughout the thesis work to include all health promotion perspectives.

Noteworthy is the distinction between (1) the influence of health promotion (perspectives) on (healthcare) building design and (2) the influence of healthcare building design on health promotion (perspectives). Here the thesis focused on the first, starting to investigate health promotion through the eyes of a building designer. While this thesis did not focus on healthcare building design that might have had health promotion consequences (unintended).

As mentioned, the health promotion implications of building design seem to depend on the health promotion perspective and its focal point. For example, the health equity perspective focuses on accessible healthcare services with attention to vulnerable groups. This perspective, when used in the context of healthcare building design, has been linked to accessibility and universal design approaches. And while both design approaches address contributions to health-promoting building design, they are limited because they pay little attention to other health promotion aspects, such as stimulating physical activity. The SoC framework seemed to include the most dimensions of health promotion; however, it needs to put more emphasis on the community level, including vulnerable groups.

None of the addressed concepts found included all dimensions of health-promoting healthcare building design;

- Empowering
- Accessible
- Manageable
- Understandable
- Focused on users and the local community
- Conscious of user of resources (flexibility)

Alternatively, a new definition was developed based upon the two studies;

> *Health-promoting building design is a combination of building design approaches influenced by health promotion, thus contributing to processes aimed at promoting positive care, stimulating health and wellbeing, involving a life course perspective, with both individual and population focus and with special attention to the needs, values and preferences of all people – regardless of their status, age, sex or background.*

This definition may allow a broader understanding of health promotion, not limited to only one health promotion perspective. This definition may enable the building designers to implement and discuss the full breath and complexity of health promotion.

The new overarching term, and definition, allows the inclusion of building design process as well as building design result. While not developed, it seems as both aspects of healthcare building design could be instrumental for health promotion through:

- facilitating health promotion activities such as physical activity, social interaction and healthy food choices, but also health education.
- supporting health promotion processes, such as patient-centred flows, staff collaboration and empowerment
- reflecting health promotion organization, such as welcoming architecture that is open to all people
- symbolizing a health-promoting care ideology, which places the patient at the centre of the building, and the building at the centre of the community.

7.3 DIFFERENT TYPES OF OUTCOMES FOR EVALUATING HEALTH-PROMOTING (HEALTHCARE) BUILDING DESIGN

As mentioned before, an important aspect of development of health promotion in the context of healthcare building design and health-promoting building design is being able to evaluate interventions. The present thesis confirmed the difficulties associated with evaluating health promotion in general, and exposed similar challenges in the context of healthcare building design. Yet, the studies also showed a range of different approaches and outcomes that can be used to evaluate health-promoting building design.

I argue, on the base of the results, for mixed method approaches, possibly complimented with approaches based upon socio-ecological approaches. Here, the Cynefin framework might be able to support differentiating between different types of measurable relations, by distinguishing between simple (causal), complicated, complex and chaotic relations (Beurden et al., 2013). And I argue for the clarification and differentiation between health promotion outcomes and health promotion strategies.

7.4 OPPORTUNITIES FOR COLLABORATION

As shown in the results, an important aspect of health promotion is to improve collaboration between health organizations, services, patients and their living environment. And discussing health-promoting building design could be used as a tool to discuss health promotion in the healthcare facilities.

The transdisciplinary nature of both architecture and health promotion, as exposed in the studies, might be an advantage in future collaboration. Both research domains are experienced in complex contexts and working in an interdisciplinary

fashion. Moreover, both fields acknowledge the importance of the other domain for their own development. This means that collaboration has mutual gains. Health promotion is increasingly being applied within the scope of urban planning and design, which indicates that the translation to the building domain could be further developed.

The studies also addressed multiple aspects of health promotion building design that could be starting points for future development. First, while not similar in interpretation, both health promotion and healthcare architecture research are associated with different conceptualizations of health, the built environment and empowerment. This gives us a starting point for discussion. Additionally, both health-promoting and healthcare building design involve a complex dynamic view of the world that acknowledges the role of context and everyday life. Nonetheless, the studies also showed several commonalities that could provide a foundation for further health-promoting building design research:

- Empowerment, enablement and control and power are concepts common both in health promotion and in architectural research.
- human behaviour, emphasized in the lifestyle approach, is also studied extensively in building design research.
- Accessibility, particularly physical accessibility, is an example that exemplifies the relation between health promotion and building design.

7.5 FUTURE RESEARCH

The results of research have indicated that healthcare building design has the opportunity to promote the health and wellbeing of patients, staff, visitors and the community. However, the domain of health-promoting built environments has just begun to develop and there is a need to continue and expand efforts to understand the potential of relating health promotion perspectives to (healthcare) building design. Thus, I propose some approaches for future research:

One approach point to the need to discuss the terminology surrounding health promotion (healthcare) building design. When undertaking research in a transdisciplinary field such as health promotion in combination with built environment, one needs to clarify the key definitions so as to avoid misinterpretations. This can either be done by referring to existing definitions or theoretical frameworks, or by creating new definitions/frameworks. Such clarification may, in addition, help to relate and position the research in the broader research domain. The definitions used in this thesis may provide a starting point to develop the vocabulary surrounding health-promoting building design.

Another approach should focus on the need to collect examples of building design influenced by health promotion objectives. These examples may enable discussions

and comparison on the translation of health promotion design into building design solutions. Research within this approach may focus on exploring (possibly generic) possibilities that translate design ambitions into built design solutions.

Yet another approach highlights the need to relate aspects of health promotion to existing and emerging architectural theory and practice discussing similar themes, such as empowerment, control, participatory processes, co-design, place-making and affordances. As part of this we could investigate multidimensional function of the architecture and building design (both process and result) in health promotion (as goal, or as process).

Additionally, efforts may be directed at tools and methods to evaluate health-promotion outcomes of health-promotion building design. These efforts could be guided by qualitative mixed-methods approaches and socio-ecological approaches.

8 REFERENCES

ALEXANDER, C., ISHIKAWA, S. AND SILVERSTEIN, M. 1977. A pattern language. , New York, Oxford University Press.

ALFREDSSON, I. & NORDIN, L. 2006. Angereds Närsjukhus - Utvecklingscentrum för Närsjukvård. Gothenborg: Götenborg Hälso- och sjukhvårdnämnd 12.

ANELL, A., GLENNGÅRD, A. H. & MERKUR, S. 2012. Sweden Health system review. In: MERKUR, S., BUSSE, R., FIGUERAS, J., MCKEE, M. & SALTMA, R. (eds.) Health Systems in Transition. Copenhagen: European Observatory on Health Systems and Policies.

ANTMAN, E. M., LAU, J., KUPELNICK, B., MOSTELLER, F. & CHALMERS, T. C. 1992. A comparison of results of meta-analyses of randomized control trials and recommendations of clinical experts. Treatments for myocardial infarction. Jama, 268, 240-8.

ANTONOVSKY, A. 1987. Unravelling the Mystery of Health, San Francisco, ossey-Bass Inc.

ANTONOVSKY, A. 1996. The salutogenic model as a theory to guide health promotion. Health Promotion International, 11, 8.

ARKSEY, H. O'MALLEY 2007. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology, 8, 19-32.

BARTON, H., GRANT, M. & GUISE, R. 2010. Perspectives in Public Health - Shaping neighbourhoods for local health and global sustainability. . The journal of the Royal Society for the Promotion of Health, Vol 126, pp. 252 - 253.

BECKER, C. M., GLASCOFF, M. A. & FELTS, W. M. 2010. Salutogenesis 30 years later- Where do we go from here? Global Journal of Health Education and Promotion, 13, 1-7.

BERG, V. D. A. & WAGENAAR, C. 2006. Healing by Architcture. In: WAGENAAR, C., DAVIDS, J. & MENDELSOHN, H. (eds.) The Architecture of Hospitals. Rotterdam: NAi Publishers.

BERRY, L. L., PARKER, D., COILE, R. C. J., HAMILTON, D. K., O'NEILL, D. D. & SADLER, B. L. 2004. The business case for better buildings. Frontiers of Health Services Management, 21, 3-24.

BEURDEN, E. K. V., KIA, A. M., ZASK, A., DIETRICH, U. & ROSE, L. 2013. Making sense in a complex landscape: how the Cynefin Framework from Complex Adaptive Systems Theory can inform health promotion practice. Health Promotion International, 28, 73-83.

BLUYSSEN, P. M. 2013. The healthy indoor environment: How to assess occupants' wellbeing in buildings, Routledge.

BRITTIN, J., ELIJAH-BARNWELL, S., NAM, Y., ARAZ, O., FRIEDOW, B., JAMETON, A., DRUMMOND, W. & HUANG, T. T. 2015. Community-Engaged Public Health Research to Inform Hospital Campus Planning in a Low

Socioeconomic Status Urban Neighborhood. Health Environments Research and Design Journal, 8, 12-24.
BROWNSON, R. C., FIELDING, J. E. & MAYLAHN, C. M. 2009. Evidence-based public health: A fundamental concept for public health practice. Annual Review of Public Health, 30, 175-201.
BURGER, O., BAUDISCH, A. & VAUPEL, J. W. 2012. Human mortality improvement in evolutionary context. Proc Natl Acad Sci U S A, 109, 18210-4.
CHARMAZ, K. 2014. Teaching Theory Construction With Initial Grounded Theory Tools. Qualitative Health Research, 25, 1610-1622.
CHIOU, S. T. & CHEN, L. K. 2009. Towards age-friendly hospitals and health services. Archives of Gerontology and Geriatrics, 49, S3-S6.
CORBIN, C. B. & PANGRAZI, R. P. 2001. Toward a Uniform Definition of Wellness: A Commentary. President's Council on Physical Fitness and Sports Research Digest, 3.
CORBIN, J. & MORSE, J. M. 2003. The Unstructured Interactive Interview: Issues of Reciprocity and Risks when Dealing with Sensitive Topics. Qualitative Inquiry, 9, 335-354.
DIJKSTRA, K., PIETERSE, M. & PRUYN, A. 2006. Physical environmental stimuli that turn healthcare facilities into healing environments through psychologically mediated effects: Systematic review. Journal of Advanced Nursing, 56, 166-181.
DILANI, A. 2001. Psychosocially supportive design--Scandinavian health care design. World hospitals and health services : the official journal of the International Hospital Federation, 37, 20-"24, 33, 35".
DILANI, A. & ARMSTRONG, K. 2008. The "salutogenic" approach--designing a health-promoting hospital environment. World hospitals and health services : the official journal of the International Hospital Federation, 44, 32-35.
DOWNIE, R. S., FYFE, C. & TANNAHILL, A. 1990. Health Promotion: Models and Values, New York, Oxford University Press.
ERIKSSON, M. & LINDSTRÖM, B. 2005. Validity of Antonovsky's sense of coherence scale: a systematic review. Journal of Epidemiology and Community Health, 59, 460-466.
GLANZ, K. & BISHOP, D. B. 2010. The role of behavioral science theory in development and implementation of public health interventions. Annual review of public health, 31, 399-418.
GOLEMBIEWSKI, J. A. 2010. Start making sense: Applying a salutogenic model to architectural design for psychiatric care. Facilities, 28, 100-117.
GOLEMBIEWSKI, J. A. 2017. Salutogenic architecture in healthcare settings. The Handbook of Salutogenesis. Cham: Springer International Publishing.
GOODSTADT, M. S. 1995. Health Promotion and the bottom line: What works? Seventh National Health Promotion Conference. Brisbane, Australia.

GRANEHEIM, U. H., LUNDMAN, B., UMEÅ, U., INSTITUTIONEN FÖR, O. & MEDICINSKA, F. 2004. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today, 24, 105-112.

GREEN, L. W., POLAND, B. & ROOTMAN, I. 1999. The Settings Approach to Health Promotion. In: POLAND, B., GREEN, L. W. & ROOTMAN, I. (eds.) Settings for Health Promotion - Linking Theory and Practice. California: SAGE Publishers.

GROAT L & D., W. 2002. Architectural research methods. , Chichester, Wiley.

GROAT, L. & WANG, D. 2013. Systems of Inquiry and standards of research quality. In: GROAT, L. & WANG, D. (eds.) Architectural research methods. 2nd edition ed. Chichester: Wiley Press.

GROENE, O., JORGENSEN, S. J., FUGLEHOLM, A. M., MØLLER, L. & GARCIA-BARBERO, M. 2005. Standards for health promotion in hospitals: development and pilot test in nine European countries. International Journal of Health Care Quality Assurance Incorporating Leadership in Health Services, 18.

GULWADI, G. B., JOSEPH, A. & KELLER, A. B. 2009. Exploring the impact of the physical environment on patient outcomes in ambulatory care settings. Health Environments Research and Design Journal, 2, 21-41.

HAMILTON, D. K. 2009. All Designers use evidence. Alle Ontwerpers gebruiken onderzoek - All Designers use Evidence. Utrecht: Innovatieplatform Architecture in Health & PLatform GRAS.

HAMILTON, D. K. & WATKINS, D. H. 2009. Evidence-Based Medicine and Healthcare Design. Evidence-based design for multiple building types. Hoboken New Jersey: John Wiley & Sons.

HANCOCK, T. 1993. Healthy communities: the role of the academic health centre. Promoting the Health of the Community. Washington, DC: Association of Academic Health Centres.

HANCOCK, T. 1999. Creating health and health promoting hospitals: a worthy challenge for the twenty-first century. International Journal of Health Care Quality Assurance Incorporating Leadership in Health Services, 12, 8-19.

HARRISSON, D. 2002. Health promotion and politics. In: BUNTON, R. & MACDONALD, G. (eds.) Health Promotion: Disciplines, Diversity and Developments. 2nd ed. London: Routledge.

HUBER, M. 2011. HEALTH: HOW SHOULD WE DEFINE IT? British Medical Journal, 343, 235-237.

JACKSON, N. & WATERS, E. 2005. Criteria for the systematic review of health promotion and public health interventions. Health Promotion International, 20, 367-74.

JADAD, A. R. & O'GRADY, L. 2008. How Should Health Be Defined? BMJ: British Medical Journal, 337, 1363-1364.

JOHNSON, J. L. 1999. The Healthcare Institution as a Setting for Health Promotion. In: GREEN, L. W., POLAND, B. & ROOTMAN, I. (eds.) The Settings Approach to Health Promotion. California: SAGE Publications.
KORP, P. 2016. Vad är hälsopromotion?, Lund, Studentlitteratur.
LALONDE, M. 1974. A New Perspective on the Health of Canadians. Ottowa: Health and Welfare Canada.
LARSON, J. S. 1999. The Conceptualization of Health. Medical Care Research and Review, 56, 123-136.
LINDSTROM, B. & ERIKSSON, M. 2006. Contextualizing salutogenesis and Antonovsky in public health development. Health promotion international, 21, 238-44.
LINDSTRÖM, E., ANELL, A., NILBERT, M., TENGVALD, K., LENNARTSSON, F. & ANDERSSON, C. 2014. Strukturreformer i hälso- och sjukvårdssystem [Online]. Stockholm, Sweden: www.vardanalys.se. Available: http://www.vardanalys.se/Rapporter/2014/Strukturreformer-i-halso--och-sjukvardssystem/ [Accessed december 2016].
LÖVTRUP, M. 2011. Nyvård i nya hus Läkartidningen, 108, 1032-1035.
LUNDQUIST, Å. 2014. Inequality in Living Conditions and Health in Gothenburg, 2014. In: CITY, M. G. F. A. S. S. (ed.). Gothenburg: City of Gothenburg, Management Group for A Socially Sustainable City.
MALKIN, J. 2002. Medical and dental space planning, New York, NY, Wiley.
MALKIN, J. 2007. Reflections on Healing Environments and Evidence-Based Design. HERD: Health Environments Research & Design Journal, 1, 26-28.
MELIN, A. 2012. Närsjukhuset - Fysisk struktur för patientfkuserat vård. Licentiate Licentiate, Chalmers Tekniska Högskola.
MENS, N. & TIJHUIS, A. 1999. De architectuur van het ziekenhuis : transformaties in de naoorlogse ziekenhuisbouw in Nederland (The architecture of the hospital : transformations in post war hospital building in the Netherlands) Rotterdam, The Netherlands, NAi Publishers.
MIEDEMA, E., ELF, M. & LINDAHL, G. 2017, to be submitted. Health promotion and healthcare building design – a scoping review. to be submitted to HERD.
MIEDEMA, E., LINDAHL, G. & ELF, M. 2017. Health-promotive ambitions related to building design – the case of Angered Nearby Hospital. In: MATHIASEN, N. & FRANDSEN, A. K., eds. ARCH17 - 3rd international conference on Architecture, research, care and health. , 26-27 April 2017 2017 Copenhagen, Denmark. http://www.arch17.aau.dk/Proceedings+publication/: Polyteknisk forlag, 331-344.
MILZ, H. & VANG, J. O. 1988. Consultation on the role of health promotion in hospitals. Health Promotion International, 3, 425-427.
MOOI, A. 2014. What Will the Architect Be Doing Next? How is the profession of the architect evolving as the focus of society shifts from sustainability to

resilience or reactivist-driven design demands? Footprint, 8, 119-128.
MORSE, J. 1998. Designing funded qualitative research. . In: DENZIN, N. & LINCOLN, Y. (eds.) Strategies of qualitative inquiry. Thousand Oaks, CA: SAGE Publishers.
NATIONS, U. 2016. Sustainable Development Goals - 17 goals to transform our world [Online]. UN Web Services Section, Department of Public Information, United Nations. [Accessed 29 June 2017].
NHAMRC 1996. Promoting the health of Indigenous Australians. A review of infrastructure support for Aboriginal and Torres Strait Islander health advancement. Canberra: National Health and Medical Research Council.
NUTBEAM, D. 1986. Health promotion glossary. Health Promotion International, 1, 113-27.
OLSSON, M. 2009. Styrdokument Angered Närsjukhus Gothenburg: Västra Götlandsregionen Angered Närsjukhus.
PERDUE, W. C., STONE, L. A. & GOSTIN, L. O. 2003. The built environment and its relationship to the public's health: the legal framework. Am J Public Health, 93, 1390-4.
POLAND, B., GREEN, L. W. & ROOTMAN, I. 1999. Settings for health promotion: linking theory and practice, Sage Publications.
POLAND, B., KRUPA, G. & MCCALL, D. 2009. Settings for Health Promotion: An Analytic Framework to Guide Intervention Design and Implementation. Health Promotion Practice, 10, 505-516.
PORTER, C. & DEPARTMENT OF EDUCATION, C. U., ITHACA, NY 14853, USA 2007. Ottawa to Bangkok: changing health promotion discourse. Health Promotion International, 22, 72-79.
ROOTMAN, I., GOODSTADT, M., POTVIN, L. & SPRINGETT, J. 1997. Toward a framework for health promotion evaluation. Copenhagen: World Health Organization Regional Office for Europe.
RYCHETNIK, L. & WISE, M. 2004. Advocating evidence-based health promotion: Reflections and a way forward. Health Promotion International, 19, 247-257.
STEMLER, S. 2001. An overview of content analysis. Practical Assessment, Research & Evaluation, 7, 1-10.
STICHLER, J. F. 2017. State of the Science in Healthcare Design. HERD: Health Environments Research & Design Journal, 10, 6-12.
SWECO. 2017. Angered Local Hospital Gothenburg [Online]. Gothenburg. Available: http://www.sweco.se/en/our-offer/architecture/vard/angereds-local-hospital-gothenburg/ [Accessed 30 May 2017].
TOUNTAS, Y. 2009. The historical origins of the basic concepts of health promotion and education: the role of ancient Greek philosophy and medicine. Health Promotion International, 24.
TZENG, S.-Y. & HUANG, J.-S. 2009. Spatial Forms and Signage in Wayfinding

Decision Points for Hospital Outpatient Services. Journal of Asian Architecture and Building Engineering, 8, 453-460.
ULRICH, R. S. 1984. View through a window may influence recovery from surgery. Science, 224, 420-421.
ULRICH, R. S., BERRY, L. L., QUAN, X. & PARISH, J. T. 2010. A conceptual framework for the domain of evidence-based design. Health Environments Research and Design Journal, 4, 95-114.
ULRICH, R. S., ZIMRING, C., ZHU, X., DUBOSE, J., SEO, H. B., CHOI, Y. S., QUAN, X. & JOSEPH, A. 2008. A review of the research literature on evidence-based healthcare design. Health Environments Research and Design Journal, 1, 61-125.
UNITEDNATIONS. 2017. Sustainable Development Goals: 17 Goals to Transform Our World [Online]. United Nations. Available: http://www.un.org/sustainabledevelopment/ [Accessed 27 Feb 2017].
WAGENAAR, C. 2006. The Culture of Hospitals. In: WAGENAAR, C. (ed.) The Architecture of Hospitals. Rotterdam, the Netherlands: NAi Publishers.
WHITEHEAD, D. 2004a. The European Health Promoting Hospitals (HPH) project. How far on? Health Promotion International, 19, 259-267.
WHITEHEAD, D. 2004b. Health promotion and health education: advancing the concepts. Journal of Advanced Nursing, 47, 311-320.
WHO 1946. Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946 (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. New York: WHO.
WHO. Ottawa Charter for health promotion. an International Conference on Health Promotion, the move towards a new public health, 1986 Ottowa, Canada. World Health Organization.
WHO. Adelaide Recommendations on Healthy Public Policy. Second International Conference on Health Promotion, 5-9 April 1988 Adelaide, South Australia.
WHO 1991a. The Budapest Declaration of Health Promoting Hospitals. Copenhagen, Denmark: WHO (World Health Organisation).
WHO. Sundsvall Statement on Supportive Environments for Health. Third International Conference on Health Promotion, 9-15 June 1991b Sundsvall, Sweden, .
WHO. New Players for a New Era - Leading Health Promotion into the 21st Century. The Fourth International Conference on Health Promotion, 21 to 25 July 1997 Jakarta.
WHO. Health Promotion: Bridging the Equity Gap. In: HEALTH, M. M. S. F. T. P. O., ed. Fifth Global Conference on Health Promotion, June 5th 2000 Mexico City, Mexico.
WHO 2009a. Milestones in Health Promotion - Statements from global

conferences. Geneva: World Health Organisation.
WHO. 2009. The Nairobi Call to Action for Closing the Implementation Gap in Health Promotion. 7th Global Conference on Health Promotion, 2009b Nairobi, Kenya. Geneva: WHO.
WHO. 2010. The determinants of health [Online]. World Health Organization. Available: http://www.who.int/hia/evidence/doh/en/ [Accessed 2016].
WHO. The Helsinki statement on Health in All Policies. The 8th Global Conference on Health Promotion, 10-14 June 2013 Helsinki, Finland.
WHO. 2015. Health and human rights [Online]. Available: http://www.who.int/mediacentre/factsheets/fs323/en/ [Accessed Fact sheet N°323 2017].
WHO. Shanghai Declaration on promoting health in the 2030 Agenda for Sustainable Development. 9th Global Conference on Health Promotion, 2016a.
WHO. 2016b. WHO | Health promotion [Online]. World Health Organization. Available: http://www.who.int/topics/health_promotion/en/ [Accessed Nov 2016].
WHO. 2017. Introduction to Healthy Settings [Online]. WHO International: WHO. Available: http://www.who.int/healthy_settings/about/en/ [Accessed 22 February 2017].
WILSON, D. M., HARRIS, A., HOLLIS, V. & MOHANKUMAR, D. 2010. Upstream thinking and health promotion planning for older adults at risk of social isolation. International Journal of Older People Nursing, 6, 282-288.
WINSLOW, C. E. A. 1920. The untilled fields of public health. Science, 51, 23-33.