

Small spaces need smart solutions

Designing furniture for small spaces, in connection with human wellbeing.

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ABSTRACT

Small apartments are a result of the on-going growing population and the urban housing development. The marketing prices and the increasing urbanization forces people into less space. The human needs are still the same. How does the lack of space affect the people living there? Several articles are underlining and discussing the health risk of this housing development. Both a crowding and claustrophobically feeling is proven.

Since furniture is a necessity and not a luxury, everybody need it. Furniture is tacking almost 50 % of a normal floorspace. Therefore, living in a small space requires smart and space saving furniture solutions to maintain the human wellbeing.

Based on literature, this article seeks to investigate the relationship between furniture, small apartments and human wellbeing. Topics like urban housing development, population growth, furniture and fundamental human needs are investigated. The connection between these topics is later discussed.

The article concludes with insight important to have in mind when designing furniture for small apartments, with the human wellbeing as a focus.

KEYWORDS: Population growth, urban development, small spaces, furniture, human wellbeing, human needs.

1. INTRODUCTION

Today's society is affected by an on-going growing population and urbanization. (United Nations, 2014) This is resulting in an increasing demand of housing in the cities, which has led to higher marketing prices and smaller apartments. (Lem, 2009)

The perception of what a small apartment is, has totally changed. For almost 30 years ago the small apartments offered a floorspace of about 55 square meters. (Jørgensen, 1990) Today you will find apartments as small as 10-15 square meters,

and that is just the floorspace. (Schmidt, 2009) Furniture and belongings are taking up just as much space as before.

The urban housing development is affecting the citizens; they are forced into less space. It is said that the space surrounding us affect our perception of space, and how we relate upon it. (Jacobsen, 2013) How does the housing development affect the human wellbeing?

The human needs are still the same or maybe even bigger than before. There are a lot of fundamental needs that need to be maintained and fulfilled to create human wellbeing. According to research

from the Royal Institute of British Architects, lack of space is the most common cause of dissatisfaction people cite in relation to their homes. (RIBA, 2012)

The goal of this article is to investigate what the relationship between small apartments, furniture and human wellbeing are? Does furniture in an apartment have an effect on the wellbeing of the people living there?

1.1 Methods

This article's findings are based on literature review. The chosen literature is a combination of articles regarding small apartments and urban housing development, along with papers about furniture and psychological articles about human needs and wellbeing. Relevant literature was found by using search engines such as Google Scholar and Bibsys, as well as the NTNU library. Key words such as "Small living", "Human Wellbeing", "Multipurposed furniture" and "Human needs" were applied.

1.2 Structure

The article will first summarize the investigated literature and discuss the relevant findings. Then, it will provide a concluded insight that might be reasonable for designing furniture for small spaces, in connection with human wellbeing.

2. URBAN HOUSING DEVELOPMENT

Living in a small space is not a new phenomena. For several years, people have been living in small apartments, in e.g. Asia. (The Guardian, 2014) This is mainly because of a very high population density in the bigger cities.

According to the United Nation's Urbanization-report from 2014, the number of people living in big cities will increase with 66% by 2050. (United Nations, 2014)

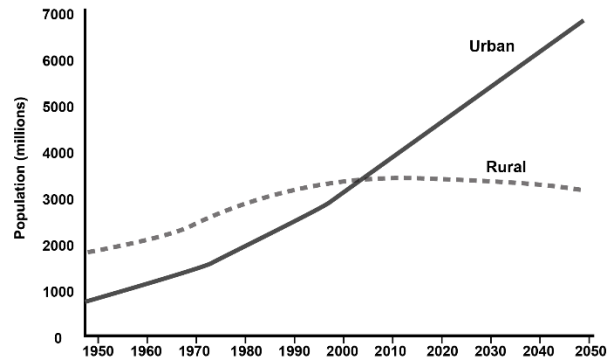


Figure 1: The increasing population of the world. (United Nations, 2014)

A result of the increasing urban population is: more people, less space and a higher demand for apartments. This development is a big issue that is discussed in the western world and especially in Norway. Their solution: small apartments. (Garathun, 2017)

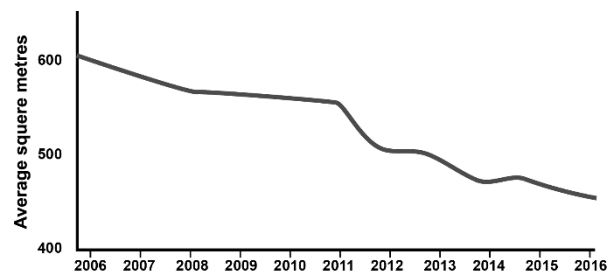


Figure 2: Development of average apartments size in the big cities. (Otet, 2016)

3. SMALL APARTMENTS

According to "Byggteknisk forskrift", TEK10, the minimum size for a one-bedroom apartment is between 7-10 square meters. (Byggteknisk forskrift, 2017) The smallest apartment you can find today in Oslo, Norway, only have a floorspace of 10 square meters. (Johansen, 2017)

The high demand for apartments, is also resulting in higher market prices. Today, e.g. in Oslo, Norway, the average square meter price is around 70 700 NOK. (Krogsveen, 2017)

This is something the landlords are taking advantage of, and many of the existing apartments are divided into what is called subdivided units. This makes the apartments even smaller.

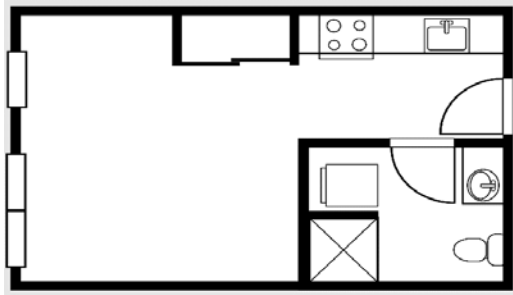


Figure 3: Example of a small apartment. This apartment has a floorspace of 20 square meters.

Like figure 3 shows, most small apartments only have one or two rooms. This means that you have to use the same room for several activities which are normally separated into different rooms. This is called multipurpose spaces. (Sullivan et al., 1997) The multipurposed space can accommodate a number of functions. Figure 3 gives an example of the variety of “areas” the rooms need to accommodate. Here you have both the livingroom, bedroom and kitchen in the same room. Each one of these “areas” have their own specific requirements to function optimal.

Multipurposed spaces are actually quite normal in other settings. For example sailboats and recreational vehicles have small spaces that function both as a livingroom, a kitchen and as a sleeping area. These are tiny spaces serving a lot of functions.

On the other hand, small multipurpose spaces, can quickly give a crowded feeling. A crowded feeling is a psychological feeling of not having enough space available. (Kulkarni, 1984) According to SSB, one out of ten people in Norway are living in a crowded space. (SSB, 2017) A survey done in 2012, in Britain, support this stating that half the people surveyed claimed they don't have

enough space for the furniture they own and not enough storage space. (RIBA, 2012)

“Bokvalitet i små boliger”, a case study by SINTEF discuss the missing qualities in small apartments:

- An entrance is wither missing or way too small.
- Too little storage space.
- The kitchen is too small.
- Not a dedicated bedroom.
- Not handicapped accessible.

(Støa et al, 2006)

There are not only negative sides of small apartments. A positive factor about the smaller apartments is the environmental aspect. The small apartments require less resources to build and less resources to maintain. Hence the human footprint and the impact on the environment is reduced. (Kilman, 2016)

3.1 Living situation

The market prices and the apartment sizes are changing. The living situation has changed as well. People live more separately and by themselves. The number of single-person households is rising. (Bachman, 2015) According to research done by SINTEF, the single-person households consist of people between the age of 18 and 30. They also point out that these inhabitants actually look at their apartments just as a contemporary home. (Støa et al, 2006)

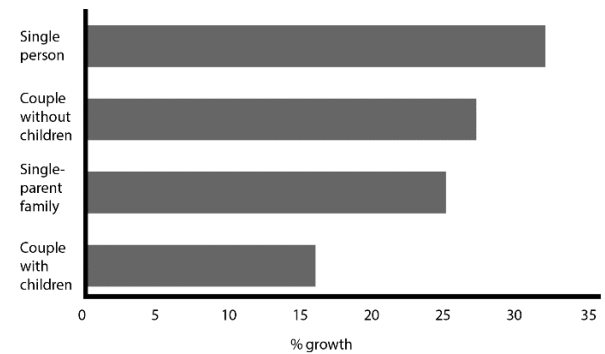


Figure 4: Global households by family type 2016-2030. (Euromonitor International, 2017)

4. FURNITURE

Today, furniture is considered by most to be a necessity, and not a luxury. (Pandhi, 2017) According to Carl A. Eckleman, professor of Wood Science, a furniture is one of man's most prized possessions. "He sits on it, sleeps on it, eats on it, and perhaps most importantly, puts his most valuable belongings into it". (Eckleman, 2003)

Furniture comes in all kinds of shapes and sizes, all depending on the function and purpose. The size and scale of the furniture is a matter of function and practicality, e.g. the height and depth of a sofa can determine how comfortable it feels.

4.1 Furniture in an apartment

Furniture is an essential part of an apartment. It is taking up about 40-50 % of the floorspace. (Waswo, 2013) Figure 5 represents which furniture is most common in people's homes and especially one bedroom apartments. The data comes from a survey for people living in small apartments.

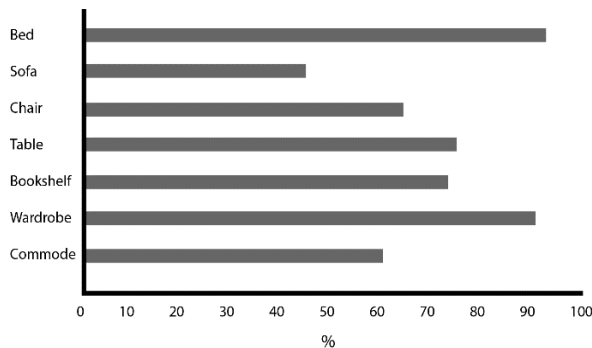


Figure 5: Main furniture in a small apartment. (Thøgersen, 2017)

Due to the development of smaller apartments, there is no longer enough space to hold basic standard sized furniture like a bed, a table and a couch at the same time. The demand for smart and space saving furniture solutions is therefore increasing.

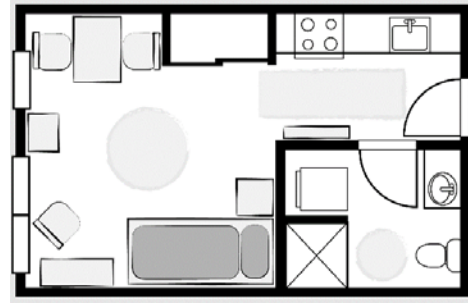


Figure 6: Example of how much floorspace furniture occupy.

Living in a small apartment, like figure 6, could lead to feeling cramped. Several news articles and blogs state that furniture are getting bigger and bigger. (Alter, 2013) This is justified by the human evolution: the physical measurements of the human body are changing. Over the past 50 years, the average human height has increased by nearly 10 centimeters. (Игумнова, 2016)

An example of this furniture development, is the size of the bed. Earlier in the 90's, a furniture company produced a special made bed, with the length of 240 cm for a basketball player. The standard size then was about 200 cm, but today, in almost any furniture store, you can get a 210-220 cm sized bed as a standard. (Dreams, 2017)

This, together with the urban housing development is not the best combination. The apartments are getting smaller and the furniture bigger.

4.2 Today's solutions

Findings shows that there are some ways of solving the issue of small spaces, but it is still a demand for furniture to become more innovative to accommodate small living spaces. (SSS, 2016)

Both multifunctional furniture, modular furniture and special designed rooms that can be transformed into different living areas, are used. All solutions aim at saving space and bettering space efficiency.

4.2.1 Multifunctional furniture

A multifunctional furniture goes by several names: multipurposed furniture, space saving furniture and transformable furniture. The basic idea of multifunctional furniture is that they, as the name suggests, perform more than one function.

There is a lot of different versions at the market. An example, the furniture illustrated in figure 7 below. This furniture performs the function as a bookshelf, as storage as well as a table and chairs.

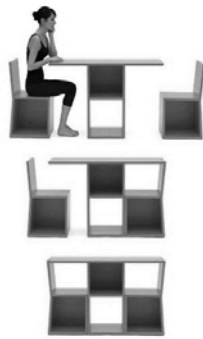


Figure 7: Example of a multifunctional furniture.

4.2.2 Modular furniture

Modular furniture is furniture divided into several pre-made parts, that you as a customer can put together to fit your preferences.

An example of this is modular couches., which is a good thing when you have limited space and need a couch that fits your measurements. Figure 8 shows different parts that can be put together to create the couch you need.

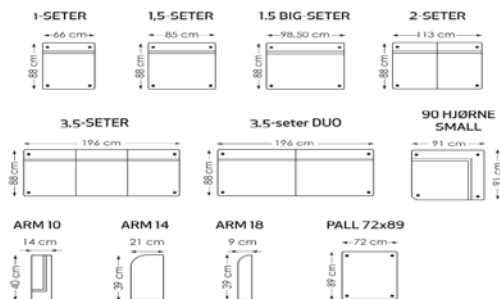


Figure 8: Example of a modular couch.

4.2.3 Transformable rooms

Transformable rooms are based on the traditional murphy bed: the bed inside the wall. (Wikipedia, 2017) The interior of new and concept based small apartments have an interior existing of special made furniture that fits the apartment perfectly. The walls contain several different functions and mechanisms. You can for example open a door and find a bed, a table, a wardrobe, a bathroom and so on. Figure 9 shows an example of a transformable room, where a bed is pulled out of the wall over a couch.



Figure 9: Example of a transformable room.

5. HUMAN NEEDS AND WELLBEING

There is not one specific definition of human wellbeing. According to Anneli Sarvimäki, wellbeing can be considered as a unifying concept and a characteristic of both the objective and subjective factors which constitute health and quality of life. (Sarvimäki, 2006)

Human wellbeing is driven by fundamental needs. Manfred Max-Neef, is in his book "Human Scale Development", divides the fundamental human needs into the nine factors:

- Subsistence
- Protection
- Affection
- Understanding
- Participation
- Leisure
- Creation
- Identity
- Freedom

(Max-Neef, 1992)

All nine factors are important for human wellbeing, but in connection with furniture and living in small spaces, the following factors should be most essential:

- Subsistence
- Protection
- Affection
- Identity

The factors are explained using four existential categories shown in figure 10. The content of the table is customized towards elements that can have a connection with, and an effect on, the topic of small space living.

Fundamental Human Needs	Being (qualities)	Having (things)	Doing (actions)	Interacting (settings)
Subsistence	Physical and mental health	Shelter	Feed, rest, work	Living environment, social settings
Protection	Care, adaptability	Security	Co-operate, plan, take care of, help	Social environment, dwelling
Affection	Respect, sense of humor, generosity, sensuality	Friendship, family	Share, take care of, make love, express emotions	Privacy, intimate spaces of togetherness
Identity	Sense of belonging	Home, work, customs, values	Make choices, grow	Places one belongs to, everyday settings

Figure 11: Max-Neef's explanation of the most essential factors. (Max-Neef, 1992)

An apartment could be defined as a platform to meet different needs. The factor of subsistence concerns both physical and mental health. An apartment is a satisfier of subsistence and should provide a healthy and good environment for the resident. In other words, providing a shelter, a place to eat, a place to sleep etc.

An apartment also provides protection and security of the resident from the outer environment. The furniture itself might also provide some protection from the inner environment of an apartment.

In relation to affection, most people refer to an apartment as a home. At home, the residents have a need of emotional communication. This need

could be satisfied by other residents such as family or friends. If the resident lives alone, the need for emotional communication could be satisfied by guests. With regards to the fact that more and more people live alone, the need for inviting friends to come over for a visit is increasing. However, the lack of space might make this difficult. Smart furniture solutions for social gatherings are therefore important.

An apartment also serves an important role in communicating our values and goals, or what is called identity claims. As said, people often refer to their apartments as "my home". The word "my" can reflect their inner senses of occupation.

The residents will often furnish their own apartment, and this is creating an own exclusiveness and identity of the home. This could affect the satisfaction of the resident in a good way. (Schmidt et al., 2009)

6. HUMAN WELLBEING IN SMALL APARTMENTS

The relationship between size of a living space and human wellbeing has never been more topical in the western world. (Foyel, 2017) Articles point out the health risks of small apartments. It is said that tiny spaces can cause psychological problems. (Urist, 2013)

A home is supposed to be a safe place. It serves a function on a physical and psychological level. Max-Neef points out that fundamental human needs are the same in all living situations. (Max-Neef, 1992) This is important in relation with the urban housing development; The living situation is changing but the human needs are still the same. The influence by the physical surroundings and our attitude towards it may affect our behavior and experience of the environment.

Small apartments tend to be crowded and cluttered. This could have an effect of giving the people living there a stressed, trapped and claustrophobic feeling. The reason behind this is

not only a tiny floorspace, but also physical items such as furniture and belongings placed in the apartment. (Urist, 2013)

In the article “Housing and Family Wellbeing”, Rachel Bratt presents three key connections between housing and human wellbeing. The first connection is concerning the physical attributes of the house, such as the quality and the size of the dwelling. The second is concerning the relationship between a resident and the feeling of a room. The third is concerning the neighborhood conditions surrounding the dwelling. (Bratt, 2002) The last is less relevant because this articles focus is concerning the inner environmental effects on the wellbeing.

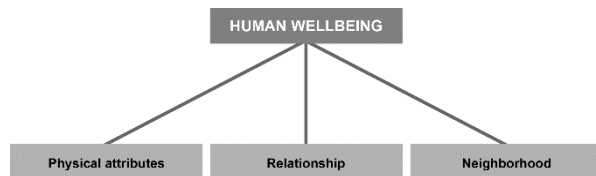


Figure 13: The key connections between housing and human wellbeing. (Bratt, 2002)

The first connection presented, is really important in relation with the human wellbeing, especially when talking about how small the apartments have become. This is affecting the second connection; the feeling of a room.

6.1 Furniture’s impact

The furniture plays a big role in how residents feel within an apartment. It is said that furniture affects the actions and behavior of humans. Rosemary and Otie Kilmer, both Professor Emeritus of Interior design, explain:

“Furniture selection and placement can complement or detract from feelings and needs. For example, some pieces that are large scaled can seem to overpower a person, and storage units that require too much stretching or are difficult to operate can be frustrating for the user.” (Kilmer et al., 2014)

This could mean that the size of a room, the furniture and the placements of these, could make a difference in the way people behave and feel within an environment.

Because most of the apartments are too small to contain all the basic furniture at the same time, the need for smart and space saving furniture solutions is significant. The main result from the lack of furniture space, is the residents having to use the apartment as a multipurposed space. They have to refurnish and/or transform their apartments throughout the day. This is where multifunctional furniture, modular furniture and transformable rooms are supposed to have a function. In practice, this means that they have to e.g. transform a couch to serve as a bed, fold down a table from the wall or/and store away some chairs in designated smart storage areas.

This might seem easy in the beginning, but it could quickly end being a real struggle. Just going to sleep or making breakfast could be a hassle. Most people do not like adding extra steps to everyday tasks. In this case, the residents might eventually stop folding up or transform their furniture.

It is a lot of examples of this fact, e.g. a sleeping couch. It might be a hassle to change between the function of a bed and a couch. The user often ends up have it like a bed or a couch the entire time.

As a result of this the apartment will start feeling even more constrained, cluttered and cramped. This is just the opposite of how the “smart” and “space saving” furniture solutions are supposed to function. (Urist, 2013)

Not only the function of how a furniture works could affect the resident. Also, the visual effect a furniture serves in a room is important. If the furnishing and the interior design of an apartment is not well thought out, it might be affecting the residents living there in a negative way.

Tsunetsugua, Miyazakia and Sato explain:

“Differences in the designs of rooms can cause different physiological responses. It is essential to consider the physical effects of the visual surroundings when designing interhousing environment.” (Tsunetsugu et al., 2005)

The physical effects comes from how a furniture look, the placement of the furniture and also the colors they have. The appearance of a furniture could have a big impact of the perception of space in a room.

The topic of perception of space mostly comes down to visual tricks applied to make the resident perceive a space to be bigger than it really is. (Kilmer et al.,2014) Furniture could tend to feel big and heavy in a small apartment.

A furniture’s impact on the wellbeing of the resident as well as the room, have already been discussed; What effect does the physical surroundings in an apartment actually have on the residents living there?

6.2 The effect on the residents

Alvin Schorr claims it is clear that housing affects perception of one’s self, contributes to or relieves stress and affects health. (Schorr, 1966)

It is shown that especially people’s performance in particular is affected by the surroundings in an apartment.

McMains and Kastner explain:

“Multiple stimuli present in the visual field at the same time compete for neural representation by mutually suppressing their evoked activity throughout visual cortex, providing a neural correlate for the limited processing capacity of the visual system” (McMains et al.,2011)

This could mean that when an environment is cluttered, it might restrict the resident’s ability to focus and concentrate. It could also limit the brain’s ability to process information. This could

result in trouble when it comes to e.g. work and studying.

In addition, according to Dak Kopec, research has shown that stress related to crowded and cluttered spaces, can increase rates of domestic violence and substance abuse. (Urist, 2013)

To find more results about the relationship between furniture, small apartments and human wellbeing, it is important to seek even deeper into the effect different furniture and solutions have on the residents living in small spaces. How small is too small for living well? What is the best way to solve this problem? Do the residents have to change their needs of living?

7. FINAL REMARKS

This article points to a significant connection between furniture, small apartments and human wellbeing, as well as the physical surrounding in an apartment having a large impact on its residents.

Furthermore, the article puts forward relevant literature showing that there are in fact several ways of functionally furnishing small apartments. The solutions are smart and they are making it possible to live in a small space. However, regards to human wellbeing, it seems that the different solutions available are effective only on a practical level. They serve a function of space efficiency, but might not be ideal for the wellbeing of the people living there.

Whether or not there is a defined way of designing furniture for small apartments, keeping the wellbeing of the resident in focus, is uncertain. It might be difficult, but based on the literature investigated in this article, there are three key factors that is important to keep in mind.

Firstly it is important to keep in mind that just as people are different physically, they also have different emotional and psychological profiles.

Even though the fundamental needs are the same, everyone will see this differently. As individuals, one thing that might affect one, might not affect another.

This is relevant in relation to living in small apartments and furniture. Everyone does not have the same needs for furniture. Some of today's transformable furniture might work perfectly for some, and be terrible for others.

With this individuality in mind: It is important to understand the preferences and activities of the user before designing or choosing furniture for a space. The main focus should be on the user and which values the furniture will give him or her. It is important to have the different needs of wellbeing in mind.

It is also important to arrange opportunities for personalization. This could give the residents a way of creating their own identity, which could affect their satisfaction in a positive way. This could be done by applying different colors, materials, etc.

Secondly, having a furniture with more than one function is essential to save as much valuable space as possible. A "rule of thumb" is to make things as simple and intuitive as possible. The user should not have to think about the different functions of a furniture as an extra task throughout the day. This should be a natural thing and not a hassle. A furniture could serve several functions without the residents having to think about it.

To keep the apartment from feeling cluttered or cramped, which affects human wellbeing in a negative way, it is important to design furniture that contributes to give an illusion of more room when there is not. This could be done by designing furniture which is small and simple, with intuitive and "easy to use" functions.

Thirdly, the arrangement of the furniture could be used to affect the flow and feeling of an apartment. Therefore, it is important to make a furniture that are light and movable.

With these three factors in mind when designing furniture for an apartment, the result could end up affecting the human wellbeing in a positive way.

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