

This item was submitted to [Loughborough's Research Repository](#) by the author.  
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

## Plus size and inclusivity in design

PLEASE CITE THE PUBLISHED VERSION

[https://ehf2016.exordo.com/files/papers/125/final\\_draft/125.pdf](https://ehf2016.exordo.com/files/papers/125/final_draft/125.pdf)

PUBLISHER

© Chartered Institute of Ergonomics and Human Factors.

VERSION

AM (Accepted Manuscript)

PUBLISHER STATEMENT

This work is made available according to the conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. Full details of this licence are available at:  
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

Koesten, Laura, Diane E. Gyi, Annabel E. Masson, and Patrick Jordan. 2019. "Plus Size and Inclusivity in Design". figshare. <https://hdl.handle.net/2134/21969>.

# Plus size and inclusivity in design

Laura KOESTEN, Diane GYI, Annabel MASSON, Patrick JORDAN

*Loughborough Design School, Loughborough University, Loughborough,  
Leicestershire, LE11 3TU, UK.*

**Abstract.** The number of people classed as ‘plus size’, meaning overweight or obese is increasing and many feel excluded from every day activities and environments. Whilst the need to cater for a diverse population in terms of anthropometry is recognized, rarely are the emotional and social aspects of interactions with design/environments taken into account. This paper presents the findings of an interview study to explore barriers affecting plus size people with regard to inclusivity in their lives. The findings suggest that emotional responses to physical issues are important to consider and will contribute to recommendations to raise awareness and facilitate empathy.

**Keywords.** Plus size, inclusive design, emotional design

## 1. Introduction

The number of people classed as ‘plus size’, meaning overweight or obese is increasing (Department of Health, 2011). Literature suggests that aspects of current design may exclude plus size people from engaging in activities in every day environments (work, transport, leisure). Physical barriers to inclusivity can be defined as a form of stigma (Lewis et al., 2011) further exacerbating the problem and the influence of this has been recognized (Foresight, 2007). Whilst the literature recognizes the need to cater for a diverse population in terms of anthropometry, with respect to size and shape (Masson et al, 2014), it rarely takes the emotional and social aspects of plus size peoples interactions into account. The inherent visibility of ‘plus size’ makes it a sensitive topic that is influenced by the social context of where user-product interactions take place. The design of the environment also seems to contribute to the stress experienced by people who feel stigmatized directly or indirectly because of their weight (Brewis, 2014).

This paper presents the findings of an interview study to understand the barriers affecting plus size people with regard to inclusivity and design in their lives. The findings will contribute to recommendations to raise awareness, facilitate empathy and ultimately enable better engagement.

## 2. Methods

### 2.1 Sampling

Due to the target population being difficult to access and potentially widely dispersed, a combination of purposive and snowball sampling was used. The inclusion criteria for recruitment were age over 18 years, and a BMI of approximately 30 kg/m<sup>2</sup> or more.

### 2.2 Interviews

Data collection took place in July 2015 – initially a preliminary questionnaire was

completed followed by in-depth interviews. Telephone interviews were conducted as an emotionally safe way to take part in a study without stigma. The literature also suggests that interviews dealing with sensitive topics should have a one-off feel, reducing embarrassment and facilitating trust. The schedule was developed around the inclusiveness of design in public environments - work, getting around, and leisure covering both physical and emotional issues. As well as size and fit, this included feelings of exclusion, being uncomfortable, particular difficulties, and any positive/good design.

### 3. Results

Ten participants were recruited for this exploratory study (9 females and 1 male), age range 25-64, with a BMI of 29-54 kg/m<sup>2</sup>.

Seating was the most prevalent design problem throughout the interviews (work, transport and leisure), such as seating options not appropriate for their weight, feeling unsafe and unstable, the low height of sofas/chairs/stools causing difficulties getting up, and poor fit limiting access. At work the majority of participants felt generally unhappy with seating design and felt limited by their body weight and shape. Toilet cubicles and uniforms were also frequently mentioned in relation to inclusive design.

Emotional responses could be divided into those in anticipation of the experience (e.g. safety fears, risk, humiliation, embarrassment) and those resulting from the experience itself (e.g. self-conscious, isolated, judged, unwanted, uneasy, guilty). Across all comments in the context of products or environments, feeling 'uncomfortable' and 'embarrassed' were most frequent. Participants talked about 'taking up more space than they were supposed to' and a common reaction was to 'never question the design' but just to feel 'guilty and embarrassed about their size'. Feelings of constant awareness, anticipating problems, planning, and weighing up different possibilities when confronted with products or environments that were uncomfortable or inaccessible were commonly discussed. This is expressed by a female, age 45-64, BMI 45:

"...in your head you are thinking, if I am going to use the loo, am I going to get in it, does the door still close, how embarrassing that would be..."

The findings of this exploratory study suggest that consideration of the emotional responses to physical issues are important, to encourage engagement of plus size people in work and leisure activities. Feeling different, induced by the physical world around them perpetuates weight stigma and may have a negative effect on health outcomes.

### References

- Brewis, A.A. (2014) Stigma and the perpetuation of obesity. *Social Science and Medicine*, 118, 152-158.
- Department of Health (2011) Healthy Lives, Healthy People: A call to action on obesity in England. Available from <https://www.gov.uk/government/publications/healthy-lives-healthy-people-a-call-to-action-on-obesity-in-england>. (Accessed 22/3/15).
- Lewis, S., Thomas, L., Blood, R.W. et al (2011) How do obese individuals perceive and respond to different types of obesity stigma they encounter in their daily lives? A qualitative study. *Social Science and Medicine*, 73, 1349-1356.
- Masson, A., Hignett, S., Gyi, D. (2014) Exploring and describing workplace issues for plus size people. Proceedings of the *3rd International Conference on Ergonomics Modelling, Usability & Special Population / 5th International Conference on Applied Human Factors and Ergonomics*. Krakow, Poland. 21- 25 July.