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The effect of knowledge on healthcare professionals' perceptions of obesity

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ABSTRACT

Aims: We aim to investigate the link between obesity prejudice and knowledge of obesity, and any differences in prejudice and knowledge amongst healthcare professional (HCP) groups.
Methods: A survey consisting of two previously validated questionnaires assessing obesity prejudice (Attitudes Towards Obese Persons, ATOP[1]) and knowledge (Obesity Risk Knowledge Scale, ORK-10[2]) were sent to HCP groups in an East Anglian NHS trust. An R^2 coefficient was used to determine a correlation between the two scores, and one-way analysis of variance (ANOVA) to assess differences between HCP groups.
Results: 436 responses were received, 372 of which were complete and analysed. HCP groups included consultants, junior doctors, nurses, health care assistants, operating department professionals, and pharmacists. The average ATOP and ORK-10 scores were 69.1/120 and 7.09/10 respectively. A statistically significant difference was found between HCP groups' ORK-10 scores ($p < 0.05$); there was no statistically significant difference demonstrated between the ATOP scores ($p = 0.50$).
Conclusions: Obesity prejudice was demonstrated amongst HCPs, although this did not correlate with knowledge of obesity. Knowledge of obesity was low amongst many HCPs and could be improved via targeted educational strategies aiming to aid staff in the care of people with obesity.

1. Introduction

Negative attitudes towards people with obesity is a widely described issue still prevalent today (Andreyeva et al., 2008; Puhl et al., 2008). This obesity prejudice, otherwise known as weight bias or anti-fat prejudice, has been shown to affect job opportunities for those affected and often leading to rejection from peers (Puhl and Brownell, 2001). This stigma translates to detrimental effects on health and psychological functioning (Tomiyama, 2014). It also does not lead to weight loss, often perpetuating unhealthy coping mechanisms causing the opposite effect (Tomiyama, 2014). Despite this evidence, obesity prejudice is frequently described amongst healthcare professionals (HCPs), with concerning implications.

The number of patients seeking care in the NHS with obesity is increasing. In 2014/15, 525,000 patients were admitted to hospital with obesity recorded as a primary or secondary diagnosis (National Statistics, 2017). Healthcare professionals in every specialty will inevitably be expected to manage these patients, yet it is well-documented that negative attitudes to obesity is prevalent amongst this group. A systematic review of 15 mixed-methods studies investigated the attitudes of multiple HCP groups, including physicians, nurses, dieticians, and both medical and nursing students, found bias amongst all groups (Budd et al., 2011). Some studies found that a proportion of HCPs held stereotypes of people with obesity being “lazy”, “unsuccessful” and “stupid”, amongst other negative beliefs (Maroney and Golub, 1992; Culbertson and Smolen, 1999; Schwartz et al., 2003).

Worryingly, these prejudices can alter the management and care given to affected patients. Gudzune et al. (2013) conducted a cross-sectional analysis correlating physician-patient rapport shown in audio-recorded appointments and patient BMI (Gudzune et al., 2013). They concluded that physicians were more likely to show less emotional rapport towards people with a higher BMI than those without. The weight of a patient has been shown to affect the clinical judgement of physicians, for instance by assigning more negative psychological symptoms to those who are obese than those who are not (Young and Powell, 1985). Negative attitudes about obesity leading to discriminative behaviours is apparent in other HCPs, for example nurses and dieticians (Stone and Werner, 2012; Tanneberger and Ciupitu-Plath, 2017). Furthermore, the discrimination demonstrated can ultimately cause a barrier to accessing healthcare. Friedman et al. (2010) conducted a qualitative analysis assessing reasons why women with obesity were less likely to attend mammography screening for breast cancer. They found that insensitive comments about weight and gowns that could not accommodate them were contributing factors (Friedman

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et al., 2012). From this evidence, it is clear that weight bias amongst HCPs detrimentally affects patient healthcare, which would contradict the ethical principles of non-maleficence and justice that are part of the four pillars of medical ethics. It is therefore necessary to understand the factors contributing to this prejudice in order to discover how it can be reduced amongst healthcare professionals.

Previous research into other forms of prejudice have suggested knowledge as a factor in reducing stigma. For instance, in an analysis of public attitudes towards mental illnesses in Korea, Jang et al. (2012) found levels of prejudice decreased with higher educational backgrounds (Jang et al., 2012). Additionally, in the field of mental health, Australian states participating in public health initiatives to improve public knowledge about depression led to changes in belief in the benefit of treatment and seeking help compared to states that did not implement the programme (Jorm et al., 2005). Obesity is often seen as a condition that is completely in the control of the individual, thus leading to blame and the ideology that these negative attitudes are acceptable. Studies looking at reducing negative attitudes of obesity by increasing knowledge on the uncontrollable factors of weight have found conflicting results. O'Brien et al. (2010) randomised health promotion and public health degree students into three obesity curriculums focusing on the controllable or uncontrollable factors affecting obesity, or a neutral curriculum (O'Brien et al., 2010). They found that two forms of implicit anti-fat prejudice were reduced in the uncontrollable factors group, and one form increased in the controllable factors group. Similarly, Hilbert (2016) found that weight prejudice was reduced in 128 university students following an educational session focusing on the genetic and environmental interactions in the aetiology of obesity (Hilbert, 2016). Conversely, Teachman et al. (2003), found that informing adult participants that obesity is mainly due to genetic factors did not result in a decrease in bias (Teachman et al., 2003). However, it is possible that participants' existing knowledge affected the results of these studies. There is a paucity of research looking into the effect of knowledge on obesity prejudice in HCPs, as many of these papers predominantly investigated students. Therefore, this study aims to explore the association between prejudice against people with obesity and knowledge of obesity amongst healthcare professionals specifically. A secondary aim is to assess differences in prejudice and knowledge between HCP groups.

2. Subjects, materials and methods

Ethical approval was obtained from the faculty of medicine and health sciences research and ethics committee at the University of East Anglia (reference 2014/2015 53) (University of East Anglia, 2018).

Two previously validated questionnaires were combined into a survey and distributed to HCPs in a large East Anglian NHS trust. The Attitudes Towards Obese Persons (ATOP) is a tool to measure the prejudices held by individuals towards people with obesity (Allison et al., 1991). The ATOP score demonstrates an inversely proportional relationship, such that a higher score (maximum 120) indicates less prejudice; the average ATOP score attained in the study by the authors developing ATOP ranged from 63.9 to 67.6 (Allison et al., 1991). The Obesity Related Knowledge-10 (ORK-10) measures the level of knowledge an individual has regarding obesity via 10 questions, with a maximum attainable score of 10 (Swift et al., 2006). A higher score indicates greater knowledge regarding obesity as measured by the ORK-10; *Swift* et al. indicate that a score of 4 may be viewed as low, given that it was the median score achieved by non-experts; 9 may be seen as a high score, as achieved by the expert group. Both questionnaires demonstrate high internal consistency, with Cronbach's $\alpha = 0.8–0.84$ and $\alpha = 0.83$ for the ATOP and ORK-10 questionnaires respectively (Allison et al., 1991; Swift et al., 2006).

The combined questionnaire was initially uploaded as an online survey on SurveyMonkey®. Participant recruitment was conducted at two separate time points. Initially, the online survey was distributed amongst medical students at Norwich Medical School in April 2015. Further responses were collected from HCPs between March and June 2017. For this second wave, surveys were distributed both via Survey Monkey® and paper handouts, which were collected later. All medical students at Norwich Medical School in 2015 were eligible to participate in this study, as were all healthcare professionals at the East Anglian NHS Trust in 2017. Sufficient information regarding the purpose of this study was provided at the beginning of the survey, and consent was implied if participants completed the questionnaires. Basic demographic data, gender and occupation, were collected alongside, and all responses received were kept anonymous.

Both descriptive and inferential statics were planned as the means of data analysis. R^2 Coefficients of determination were used to determine whether a correlation exists between knowledge of obesity (ORK-10 score) and prejudice against people with obesity (ATOP score). One-way analysis of variance (ANOVA) was used to determine whether there were statistically significant differences between HCP groups with regards to both ATOP and ORK-10.

3. Results

We received 436 responses from healthcare professionals. Of these, 64 did not fully complete the surveys and thus were excluded from analysis. For each question in the survey, a range of 1–15 participants left it unanswered. Consequently, we analysed the data of 372 participants who completed the survey fully. Complete surveys were necessary in order to calculate the ATOP and ORK-10 scores without skewing results. Participant demographics are summarised in Table 1. The largest group was composed of 124 medical students and the smallest of 8 dieticians. The group labelled “other” included radiographers, midwives, theatre technicians, pharmacy assistants and assistant practitioners. Fig. 1 illustrates the average ATOP and ORK-10 scores achieved by each occupational group. The mean ATOP score was 69.1/120 (SD ± 14.9, range 66.8–80.1); the mean ORK-10 score was 7.09/10

Table 1
Participant demographics.

Occupation	Total number of participants		Number of participants fully completing survey	
	Frequency (%)	Sex distribution: Female (%)	Frequency (%)	Sex distribution: Female (%)
Medical Student	136 (31)	90 (66)	124 (33)	82 (66)
Nurse	74 (17)	64 (86)	61 (16)	52 (85)
Consultant	69 (16)	25 (36)	59 (16)	23 (39)
Junior Doctor	43 (10)	25 (58)	38 (10)	22 (58)
Healthcare Assistant (HCA)	21 (5)	18 (86)	17 (5)	14 (82)
Operating Department Practitioner (ODP)	22 (5)	5 (23)	15 (4)	4 (27)
Pharmacist	18 (4)	12 (67)	14 (4)	8 (57)
Dietician	10 (2)	10 (100)	8 (2)	8 (100)
Other	44 (10)	42 (73)	36 (10)	26 (72)
Total	437	281 (64)	372	239 (64)