Obesity Facts
The European Journal of Obesity

Review Article

Obes Facts 2010;3:33–40
DOI: 10.1159/000276992

Published online: February 11, 2010

Weight Bias in Work Settings – a Qualitative Review

Katrin Elisabeth Giel[a] Ansgar Thiel[b] Martin Teufel[a] Jochen Mayer[b] Stephan Zipfel[a]

[a] Department of Psychosomatic Medicine and Psychotherapy, Medical University Hospital Tübingen,
[b] Institute of Sport Sciences, University Tübingen, Germany

Key Words
Obesity · Overweight · Psychological aspects · Stigmatization · Discrimination

Summary
Background: Studies have repeatedly demonstrated the influence of physical appearance on behavior and treatment of individuals in work settings. A high proportion of obese individuals in the USA have reported perceived discrimination in the work place due to their body weight. The present review examines the specific kind, context and extent of a weight bias in work settings. **Methods:** We performed a literature search in the scientific databases PubMed and PsychINFO to identify studies which have investigated aspects of a potential weight bias in the occupational context. **Results:** There is evidence from self-report data, surveys, and laboratory research for a weight bias in five aspects of work life. Evidence shows that obesity is a general barrier to employment, certain professions and professional success. Obese individuals are at higher risk of encountering stereotypes concerning their work-related qualities and for general unequal treatment in the work place. **Conclusion:** Current evidence reveals a weight bias in several areas in the work place. The ecological validity of results is limited due to the predominant reliance on laboratory studies with student samples. Field studies are needed to examine weight-based discrimination in actual work environments as well as to uncover underlying mechanisms.

Introduction

On the surface, individual properties which might be considered relevant to success in work-related contexts include educational background, cognitive abilities and motor skills – skills and qualities that are required to fulfill the qualifications of a certain job or position. However, research has consistently shown that physical appearance also plays a role in the work place, even in professions which do not deal with physical appearance themselves and where performance is unrelated to bodily characteristics [1]. The attractiveness bias for job-related outcomes [2] where individuals benefit from their physical appearance is well-documented. Physical appearance can contribute to biased attitudes or treatments in terms of stereotypes, discrimination or stigmatization. *Stereotypes* refer to beliefs about members of a social group [3]. These beliefs are kinds of generalizations that serve as categories or concepts and can be both negative or positive [3]. D*iscrimination* is visible in behavior that prefers or rejects an individual or group solely due to their affiliation to a certain group or social category [4]. The privilege of physically attractive employees [2] would thus be an example of a positive discrimination. While discrimination can be limited to certain contexts and social categories, the *stigmatization* concept goes further. According to Goffman [5], stigmatization comprises a deep and generalized devaluation and social exclusion of a person as a whole, due to an individual deviance in a certain attribute. This stigma emerges in a context of social processes of normative expectations and appraisals of special individual characteristics. Abnormalities in bodily attributes are especially prone to be considered as stigma [5].

Body weight is a salient attribute of physical appearance, and studies have recently identified body weight as a perceived source of discrimination in the American society with a prevalence close to that of perceived racial discrimination [6]. In large nationwide representative surveys in the USA, overweight and obese individuals have reported that they have also encountered this weight discrimination in work settings [6–8]. Carr and Friedman [7] found that individuals with a BMI above 35 were 84% more likely to report job-related discrimination as persons of an average weight. Rudolph and co-

KARGER
Fax +49 761 4 52 07 14
Information@Karger.de
www.karger.com

Accessible online at:
www.karger.com/ofa

Dipl.-Psych. Katrin Elisabeth Giel
Department of Psychosomatic Medicine and Psychotherapy
Medical University Hospital Tübingen
Osianderstraße 5, 72076 Tübingen, Germany
katrin.giel@med.uni-tuebingen.de

workers [9] have recently subsumed studies which have investigated this issue under laboratory conditions to provide an interesting and important meta-analysis. Their results clearly confirm an overall negative effect of a weight-based bias on various workplace outcomes [9]. However, a meta-analysis by nature focuses on effect sizes and the overall extent of weight discrimination while the specific kinds and contexts of this phenomenon remain to be investigated.

Following up earlier qualitative reviews [10, 11] and a recently published update of evidence in this field [12], the aim of the present review is a comprehensive overview, integrating early and recent evidence and a closer examination of weight bias in work settings. The literature search and review was guided by the question if typical patterns of exclusion of obese individuals from work-related fields can be identified. Concerning the relationship between an individual and a job, different aspects can be discriminated. A first level refers to the question of whether this individual is skilled and competent enough to qualify for a certain job. On a second level, the question arises of whether a certain job stands open for every individual in an equal way or if systematic exclusion from the access to some jobs is evident (as for example dependent on gender). Thirdly, it is conceivable that certain professions might not equally be accessible for individuals dependent on their gender, social or ethnic background. A fourth level deals with the question if different individuals have the same opportunities to achieve professional success and make professional career. The fifth level addresses the treatment of individuals in social interactions in the work place.

Subsequently, we discuss potential discriminating behavior in these five work-related fields. First, methodological procedures and results of experimental and survey studies are presented and discussed. Second, we summarize what can be concluded from present evidence. Finally, we recommend future directions in this field of research.

Method

The scientific databases PubMed and PsychINFO were searched for potential studies both interesting and eligible for the present review. The search was performed using the key words 'overweight', 'obesity', 'weight', 'BMI', 'work', 'occupation', 'occupational', 'profession', 'professional', 'employment', 'hiring', 'bias', 'stigma', 'stigmatization', 'discrimination', 'stereotype', 'stereotypization'. Cross-references from potentially interesting studies, earlier reviews and meta-analyses in this field were also examined for inclusion in the review.

In order to be included in the review, studies had to i) include body weight of individuals as independent variable and ii) report quantitative or qualitative data concerning at least one work-related outcome variable (e.g. hiring decision, income). Unpublished manuscripts and dissertations were excluded.

Evidence

General Work-Related Stereotypes towards Obese Individuals

Evidence about stereotypical beliefs concerning work-related abilities and qualities of obese individuals is documented by various studies. In most of these investigations, amongst other experimental tasks, participants were asked to rate fictional individuals on a number of job-relevant criteria. While all other information about these individuals was held constant, they differed with respect to body weight (obese/overweight versus average weight). Table 1 gives an overview on work-related categories where fictional obese individuals have been differently evaluated compared to fictional average-weight person.

This overview demonstrates the existence of stereotypical beliefs towards obese individuals concerning a wide variety of different skills and qualities relevant in work life. Studies found these beliefs not only in student samples [e.g. 13–15] but also in professional staff members who supervise employees [e.g. 16–18]. Given the fact that these appraisals stem from laboratory studies where 'information about the (fictional) employees is carefully controlled, differences between weight conditions can be interpreted as attributable to weight-based inferences', as Roehling [11, p. 983] previously stated.

Obesity as a General Barrier to Employment

A number of experimental studies have investigated the potential influence of applicants' BMI on hiring decisions. Most of these studies are based on the principle of holding the qualification of fictional applicants constant (as for example in a résumé), while varying their BMI. According to either written information or as apparent on pictures or videotapes, applicants were of average weight, overweight and/or obese. Subjects were then asked to judge job-related qualities and the employment of the respective applicant.

Studies using photographs [19] and videotapes [13–15] found that the participating students were less likely to recommend one of the obese candidates for a fictional position. Possible other confounds in the physical appearance of the fictional job applicants beyond body weight could have partly played a role in these effects. Pingitore et al. [20] applied the elegant method of body suits used as a requisite in theaters to create obese appearance in professional actors. This allowed them to control for other confounds in physical appearance as these actors played both a normal-weight and an obese applicant in videotaped simulated hiring interviews. Subjects who have watched these videotapes recommended the obese applicant less often for employment and were even less likely to choose obese female applicants than their male counterparts. In a similar way, Polinko and Popovich [21] used photographs of normal-weight individuals in original appearance and morphed to appear overweight. However, body weight did not play a role in the hiring decision of their student participants.

Table 1. Evaluation of fictional obese individuals compared to fictional average-weight individuals on work-relevant categories

Category	Belief	Study
General job performance	lower job success lower job performance incompetent lower abilities poorer work habits less effective/productive at work work slowly have to put in greater effort	Larkin and Pines, 1979 [15] Larwood, 1995 [51] Jasper and Klassen, 1990 [38] Klesges et al., 1990 [14] O'Brien et al., 2008 [19] Hebl and Heatherton, 2008 [52]
Particular job suitability	unfit for a challenging job lower leadership potential lower supervisory potential receive easier work assignments lower ability to perform a physically strenuous job	Rothblum et al., 1988 [53] Larwood, 1995 [51] Popovich et al., 1997 [30] Bellizzi and Hasty, 1998 [16] O'Brien et al., 2008 [19] Hebl and Heatherton, 2008 [52]
Interpersonal skills/problems	fewer interpersonal skills more interpersonal problems less accepted by subordinates less trusted lower popularity	Jasper and Klassen, 1990 [38] Klesges et al., 1990 [14] Bordieri et al., 1997 [18] Finkelstein et al., 2007 [13] Hebl and Heatherton, 2008 [52]
Self control / willpower	lack of self-discipline lazy less ambitious	Larkin and Pines, 1979 [15] Rothblum et al., 1988 [53] Bellizzi and Norvell, 1991 [17] Klassen et al., 1993 [39]
Motivation / drive	idle need prompting sluggish do not take initiative inactive give up easily	Larkin and Pines, 1979 [15]
Intelligence	less intelligent	Hebl and Heatherton, 2008 [52]
Reliability	less conscientious and reliable more non-medical absenteeism less serious	Klesges et al., 1990 [14] Bellizzi and Norvell, 1991 [17]
Self confidence / emotional stability	(emotionally) insecure unstable low self regard weak	Larkin and Pines, 1979 [15] Bellizzi and Norvell, 1991 [17] Klassen et al., 1993 [39]
Other	less adaptable indecisive less clean cut untidy disorganized	Larkin and Pines, 1979 [15] Bellizzi and Norvell, 1991 [17] Finkelstein et al., 2007 [13]

Taken together, a number of experimental studies provide evidence for a weight bias in hiring decisions [13–15, 19, 20], while one study did not find this bias [21]. Applicants of higher BMI were less likely chosen for employment while other information given was held constant (as for example job qualification). One study suggests that obese females might be even more affected by this hiring bias than obese males [20]. Remarkably, Hebl and Mannix [22] were able to demonstrate that it is not only the applicants' BMI that matters in hiring decisions but also the BMI of a person seen in the presence of the applicant. The authors presented a fictional normal-weight male applicant on photographs either seated next to a normal-weight woman or to an obese woman. The study participants rated the applicant as being less desirable to be hired when he was presented next to the obese women – the hiring bias has spread to a person proximal to an obese individual.

Data from large representative national surveys conducted in the USA, Canada and several European countries suggest

that obese individuals are not only discriminated in experimental studies but are indeed less likely employed. Analyzing data from the 1980s to 2003, these surveys consistently document lower labor market participation of overweight and obese individuals [23–26]. After adjusting for sociodemographic and health-related variables, an increase in BMI was associated with a lower percentage of total working years [23], a lower rate of employment [24–26] and a lower probability of regaining employment [23]. Two studies found that these barriers to employment were significantly more pronounced in obese women [23, 25] while a British study found a weight-associated barrier to employment exclusively in obese women [27].

Obesity as a Barrier to Certain Professions

It seems conceivable that obesity might not only be a barrier to employment, as presented above, but secondly a barrier to certain professions. Survey data published in 1997 [28] demonstrate an occupational segregation of normal-weight and overweight employees in the USA. Both obese men and women were underrepresented in managerial and technical occupations, obese men additionally in four other professional areas, while obese women were highly overrepresented in administration and service classification. Different mechanisms may account for this segregation – labor market discrimination, self-selection of obese individuals or work situations in certain professions which promote the development of overweight.

Up to now, studies investigating the question of whether obesity might be a barrier to certain professions have been concerned with the discrimination perspective. They have particularly investigated the hypothesis that the physical appearance of obese individuals might be considered as a drawback in hiring them for more publicly visible professions. Evidence from studies in the sales field point in this direction as obese applicants were considered as more appropriate for a sales position in the same territory when it involved telephone contact rather than face-to-face encounter [16, 29]. Two experimental hiring studies have tested this assumption by varying the job the candidates were applying for. One job was chosen as to represent a position of high public contact (receptionist [13], sales person [20]) and the other as to be fulfilled with rare public contact (data entry keyer [13], system analyst [20]). While both studies report an overall weight bias in hireability, they did not find a significant interaction of hireability and type of job. Consistently, Rudolph and co-workers [9] report in their recent meta-analysis including 25 laboratory studies that 'job type did not significantly moderate the effects of weight-based bias' (p. 6). The study by Popovich and colleagues [30] suggests that another criterion might contribute to the explanation why certain occupations are not considered appropriate for obese individuals. They presented a sample of students with descriptions of 40 occupations that require a similar educational background and asked them whether they would hire an obese applicant for each of the described jobs. A secondary analysis revealed that the occupations for which obese individuals were predominantly not hired had in common that they are perceived as requiring high physical activity.

Survey data reveals an occupational segregation between normal-weight and obese employees in the USA [28]. Obese individuals are over- and underrepresented in certain professions. This might be a sign that obesity is a barrier to certain professions; however, the origin of this skewed dispersal is not clear. Current evidence suggests that obese individuals are not discriminated against with respect to more publicly visible occupations [9]. One study suggests that there might be barriers for obese persons to professions requiring high physical activity [30].

Obesity as a Barrier to Professional Success

In an early experimental study, Bellizzi and co-workers [31] have investigated an employment placement decision by applying a similar paradigm as used by experimental hiring studies described above. They asked students to assign three fictional applicants for a sales position to three fictional sales territories. One of the territories was described as inferior with respect to income potential, importance to the company and desirability to work in. All applicants had comparable résumés; but one was additionally characterized as a heavy smoker and one as being extremely overweight. The participants' placement decisions turned out most disadvantageous for the obese applicant whom they most often allocated to the unfavorable sales territory. This effect was even larger for female fictional applicants. Bellizzi and Hasty [16] later replicated this placement bias in a sample of professional sales managers. They found that the obese candidate were assigned significantly less to the sales territory described as challenging and important compared to a second negligible sales area. However, the gender effect found earlier was not replicated. The decisions of both study samples can be interpreted as posing a barrier for obese candidates to achieve in their occupational career. They were assigned to a working environment that is considered less important or even negligible, with fewer challenges and opportunities to perform well and, hence, recommend oneself for a higher position.

Bordieri and co-workers [18] asked supervisors and managers in the manufacturing industry to evaluate the promotion prospect of hypothetical employees with no health problems and with different disabilities or health problems (as for example cancer, diabetes, amputation, obesity). The participants rated the obese person as less likely to be promoted than the nondisabled counterpart – despite sharing the same job qualifications.

The results of all three studies suggest that obese individuals may encounter barriers to an occupational career – they were considered less likely to achieve in a challenging work setting and have fewer prospects for promotion although having comparable qualities to non-obese co-workers [16, 18, 31].

This evidence is especially remarkable as these judgments mostly reflect the opinion of professional managers who decide upon careers in the real work setting. Survey data on the representation of obese individuals in management positions would be a valuable supplement to the evidence, but to our knowledge is not available.

Obesity as a Risk Factor for Unequal Treatment in the Work Place

As shown above, research suggests that obesity can be a barrier to employment in certain occupations and to a successful professional career.

Finally, there are other work-related aspects which have been found to be influenced by the body weight of an employee. Inequity in pay between obese and non-obese employees is documented by several studies from different countries which have analyzed data from large representative national surveys. All have controlled for standard variables possibly contributing to disparity in income (as for example educational background, area of residence). Baum and Ford [32] report a wage effect for American obese individuals earning 0.7–6.3% less than non-obese participants of the American National Longitudinal Study of Youth (NSLY) in the time period 1981–1998. This effect was consistently present across occupations and was even larger for obese females. Pagán and Dávila [28] specifically investigated the NSLY sample of 1989 and also report an income disparity, but only with female obese individuals earning less. An analysis of the 1988 wave of the NSLY confirms this gender difference while even reporting a wage premium for mildly obese males [33]. While in white women, a 1-unit increase BMI was instantly associated with a wage decline of 1.4%, mildly obese white and black men experienced a wage increase between 7.1 and 16% compared to their normal-weight counterparts, and wage penalties were only seen in severely obese males [33]. Data from Europe confirm weight-related inequity in pay. Brunello and D'Hombres [34] analyzed income records from eleven countries of the European Union for the time period 1998–2001, covered by the European Community Household Panel (ECHP). They found that a 10% increase in BMI lowered the hourly earnings of males by 1.9% and of females by 3.3% [34]. While the ECHP did not gather information on weight and height of British survey participants, Sargent and Blanchflower [35] report data from the British National Child Development Study (NCDS). They also found lower wages in British young obese females of the sample, while obese men were not affected by this bias [35]. Data from Finland is also in line with these findings from other European countries [36, 37]. The Finnish Survey on Living Conditions (FSLC) suggests that for women, obesity is associated with lower individual income, but not for men [36]. A more detailed analysis revealed that Finnish females with higher education were strongly affected by this wage effect having 30% lower income compared to their non-obese peers while body weight had no effect on income in women with lower educational levels [37]. Baum and Ford [32] have additionally postulated different hypotheses on mechanisms of this so-called wage penalty for obese individuals (as for example anticipation of higher health costs for obese employees by employers) and tested them in various regression models. However, none of these models revealed a clear conclusive result.

Bellizzi and co-workers [16, 17] investigated the question of whether body weight influences the way an individual is treated by a supervisor in a disciplinary case. They presented a scenario of unethical sales behavior to a sample of sales managers who then disciplined both male and female fictional employees more harshly when described as obese.

Two studies have also investigated the acceptance of obese individuals as potential co-workers. Jasper and Klassen [38] found that men desired less to work with an obese woman while female subjects were indifferent concerning the body weight of their co-worker of either sex. Klassen et al. [39] presented female students with written summaries on behaviors and body shape of female employees and found that the participants preferred thin individuals as co-workers while barely considering further given information.

Taken together, there is strong evidence from large surveys [28, 32, 34–37] of an income disadvantage among obese women in different western societies. Findings on unequal pay in obese males are less clear and suggest that they might not experience this wage penalty, or at least to a lesser degree [28, 32, 34], while one study has even reported a wage premium in mildly obese men [33]. On the basis of earlier studies, Roehling [11] has mentioned two interesting aspects concerning this gender difference. While both overweight men and women are less likely to be married, this circumstance seems to have a much larger effect on the family income of women. Secondly, men who are slightly above their ideal weight turned out to experience a wage premium whilst the wage disadvantage in women probably follows a different dispersal and immediately starts in the overweight band [33]. The studies by Bellizzi and co-workers [16, 17, 31] suggest that body weight might also lead to disparate treatment by the supervisor. Finally, obese persons might also be less desired as co-workers [38, 39].

Conclusion

Data on a potential weight bias in work settings is available from both surveys and experimental studies. In representative surveys in the USA, overweight and obese individuals were consistently more likely to report subjectively perceived discrimination in the work place. Numerous experimental studies have documented stereotypical beliefs towards fictional obese individuals concerning a wide variety of work-related abilities and qualities (as for example job performance, motivation). Concerning possible origins of the described stereo-

typical beliefs towards obese individuals, processes of judgmental mistakes and biases have been discussed [40, 41]. A common judgmental bias is the halo effect [42]. The halo effect refers to the phenomenon that a single person's outstanding characteristic influences the total judgment of that person [42]. Body weight is an early perceptible personal characteristic and can serve as an outstanding attribute for a halo effect [43]. As obesity often is associated with laziness and low self-discipline [40], it is well conceivable that this primary impression and judgment serves as the basis of a halo effect and extends to other characteristics to be evaluated, such as work-related abilities and qualities. In a further step, the stereotypical belief that obese individuals show minor work-related abilities and qualities possibly lead to their discrimination in hiring decisions. This relationship between attitudes and behavior is supported by experimental hiring studies which have also documented the common stereotypical beliefs towards obese individuals in their samples [14, 15, 19].

Furthermore, many experimental studies have demonstrated that a fictional obese job candidate is less likely chosen to be hired compared to a normal-weight counterpart with identical qualification. Survey data suggests that this weight-related hiring bias is not restricted to laboratory conditions, but could account for the fact that in many western countries obese individuals participate less in the labor market. Statistical modeling suggests that obesity causes unemployment and not vice versa [25]. One interpretation of this relationship might be that obesity is accompanied by health problems that reduce productivity and therefore employment. However, some studies have thoroughly controlled for health-related confounding factors and nonetheless found employment barriers associated with an increased BMI [24, 26]. A second interpretation of this relationship is discrimination against obese individuals, which might partly be grounded on the above outlined stereotypical beliefs concerning their work-related abilities and qualities.

Moreover, there is also strong evidence for an income disadvantage for obese women in western societies, as representative survey data reveals. This gender difference suggests that socioeconomic status is more independent of body weight in men than in women. A possible explanation for this circumstance can be seen in the ideal of beauty in today's western societies and the interpretation of overweight. The beauty ideal puts more pressure on women to be slim than on men [44]. Thus, women might be penalized earlier by society for being overweight. In contrast, men who are slightly overweight even experienced a wage premium [11, 33]. This could reflect a different interpretation of overweight in men where a higher body weight could be firstly seen as sign of potency and strength, and not predominantly as a violation of societal expectations.

Other aspects of a potential weight bias in work settings have been investigated less or with more mixed results, as for example the question of whether obesity is a barrier to certain professions or to an occupational career. Moreover, some studies have reported an additional gender bias, with obese women being even more disadvantaged, while others have found equal results for obese men and women.

From a methodological point of view, one major limitation has to be taken into account when drawing conclusions from the evidence reviewed above. While the issue of a weight bias in work settings is an applied research topic, no field studies have been conducted, and there are only a few investigations from samples with a real-life professional background (as for example recruitment personnel, supervisors). There are impressive results from laboratory studies which support a weight-caused discrimination against obese applicants; but their ecological validity is limited by the artificial experimental setting and the predominant reliance on student samples. College students are untrained in human resource questions. Therefore, their understanding as for example of hiring or other occupational processes possibly differs from those of recruitment personnel and managers. Gordon and colleagues [45] have criticized the reliance upon students as subjects especially for applied research, as the ecological validity of the results might be limited. However, at the same time, the few studies conducted with participants with a professional background support the findings of a weight bias. As these studies addressed only a small number of occupational sectors, generalizability to other fields is limited.

Taken together, there is evidence for a weight bias in several areas in the work place from self-report data, surveys and laboratory research. Evidence shows that the discrimination against obese employees leads to serious socioeconomic and psychosocial consequences. At the very least, obese individuals have a lower rate of employment, and obese women verifiably experience an income disadvantage compared to normal-weight female employees. The subjective belief that one has been discriminated against due to weight was associated with lower levels of self-acceptance [7], depression and lower self-esteem [46]. Concerning these psychosocial aspects, it has to be considered that experiences of discrimination might often not be first encountered when entering work and business. Weight-caused discrimination starts early and is already prevalent in childhood and youth, as we have previously demonstrated [41].

The present qualitative review presents a comprehensive, up to date overview and discussion of evidence on a weight bias in work settings. The organization of reported evidence follows a clear structure according to five aspects of work life, ranging from beliefs concerning work-related qualities and the general access to employment to career and payment issues. A limitation of the present review lies in the strategy of literature search. With PubMed and PsychInfo, two very common databases were used which cover a wide range of scientific literature, but concentrate on medical and psychological studies. Thus, it cannot be excluded that articles published in journals with an economic or sociological background have not been accounted for.

Future Directions

Given the large number of obese individuals potentially affected in today's societies, weight bias in work settings must be considered a serious problem, requiring both more research efforts and effective strategies to counter it.

We consider field studies and the inclusion of samples from real-life employment settings a priority for future research to support the findings from surveys and laboratory studies. These investigations should consider different occupations, lines of business and positions. Our work group currently plans a study with a sample of individuals from various occupational backgrounds and branches who have hiring authority and personal responsibility in larger companies. Their judgments upon different fictional job candidates varying according to BMI will be compared to those of an unselected sample drawn from the general population.

Secondly, and as a major step towards effective prevention strategies, we believe that the mechanisms of weight bias have to be examined. Up to now, the causalities and pathways of weight-caused discrimination are not fully clear and have been scarcely studied. The results of the majority of studies cited above, especially those conducted under experimental conditions, suggest that discrimination emanates from an outside individual who judges an obese person. However, the study designs employed are fairly unidirectional in nature and may bias towards this conclusion. This approach neglects the bi- and often multi-directionality of communication and interaction between individuals in the real work life and, thus again, poses limitations to the ecological validity of evidence. Some studies have illustrated that discriminating behavior is a complex process which cannot be predicted by the anti-obesity attitudes of the social environment alone [19, 21]. It is reasonable to assume that the behavior of obese employees also contributes to how they are treated in the work place.

Goffman [5] who formulated the concept of stigma management has postulated that individuals who perceive stigmatization for a certain deviant characteristic develop techniques to deal with this stigma. These techniques can include attempts to hide or acknowledge the stigma or self-sorting behavior of individuals to environments and situations where they believe they are less likely to encounter discrimination. The experimental hiring study by Hebl and Kleck [47] impressively demonstrates the differential effects of individual stigma management. While fictional applicants needing a wheelchair were more positively evaluated when acknowledging their handicap, the obese counterparts did not profit from this strategy. A recent field study by King and colleagues [48] contributes to the explanation of this phenomenon, by demonstrating that experimentally manipulated information about an obese customer can either result in enhanced or reduced discrimination by sales personnel. The information was either potentially justifying the expression of prejudice (the obese customer did not seem to control her weight as she drank a high-calorie drink) or suppressing it (the obese customer seemed to control her weight as she drank a calorie-free drink). Obese customers experienced more discrimination when information was given which tended to justify this kind of behavior [48]. This evidence is not only highly ecologically valid as it stems from a field study, but also highlights an important aspect concerning the mechanisms of discrimination and possibilities for their prevention and management. Because it is a common belief that being overweight is an easily controllable condition, the mere acknowledgment of being obese will often not be effective for persons concerned [49, 50]. At the same time, remediation strategies on this issue might be a first step towards the reduction of discriminating behavior [48].

Taken together, more evidence is needed on weight-caused stigmatization in the real work environments and on the mechanisms of such a weight bias. This would enable the development of prevention strategies for discrimination on an individual level, in teams and organizations and, on a larger scale, emphasize the need for the consideration of weight discrimination in company policies and legislation.

Acknowledgement

We would like to thank Eyal Drimmer for his help in literature research. We are also thankful to Eric Muth and Catherine Hastings for proof reading and their helpful comments on this manuscript. The preparation of this manuscript was supported by a grant of the ScienceCampus Tübingen: Human Development, Learning and Education in Informational Entertainments.

Disclosure

The authors declared no conflicts of interest

References

1 Bell MP, McLaughlin ME: Outcomes of appearance and obesity in organizations; in Konrad AM, Prasad P, Pringle JK (eds): Handbook of Workplace Diversity. London, Sage Publications, 2006.

2 Hosoda M, Stone-Romero EF, Coats G: The effects of physical attractiveness on job-related outcomes: a meta-analysis of experimental studies. Pers Psychol 2003;56:431–462.

3 Kanahara S: A review of the definitions of stereotype and a proposal for a progressional model. Individ Dif Res 2006;4:306–321.

4 Major B, Quinton W, McCoy S: Antecedents and consequences of attributions to discrimination: theoretical and empirical advances. Adv Exp Soc Psychol 2002, 34, pp 251–329.

5 Goffman E: Stigma: Notes on the Management of Spoiled Identity. New York, Simon and Schuster, 1986.

6 Puhl RM, Andreyeva T, Brownell KD: Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America. Int J Obes 2008;32:992–1000.

7 Carr D, Friedman MA: Is obesity stigmatizing? Body weight, perceived discrimination, and psychological well-being in the United States. J Health Soc Behav 2005;46:244–259.
8 Roehling MV, Roehling PV, Pichler S: The relationship between body weight and perceived weight-related employment discrimination: the role of sex and race. J Vocat Behav 2007;71:300–318.
9 Rudolph CW, Wells CL, Weller MD, Baltes BB: A meta-analysis of empirical studies of weight-based bias in the workplace. J Vocat Behav 2009;74:1–10.
10 Puhl R, Brownell KD: Bias, discrimination, and obesity. Obes Res 2001;9:788–805.
11 Roehling MV: Weight-based discrimination in employment: psychological and legal aspects. Pers Psychol 1999;52:969–1016.
12 Puhl RM, Heuer CA: The stigma of obesity: a review and update. Obesity 2009;17:941–964.
13 Finkelstein LM, Frautschy DeMuth RL, Sweeney DL: Bias against overweight job applicants: further explorations of when and why. Hum Resource Manage 2007;46:203–222.
14 Klesges RC, Klem ML, Hanson CL, Eck LH, Ernst J, O'Laughlin D, Garrott A, Rife R: The effects of applicant's health status and qualifications on simulated hiring decisions. Int J Obes 1990;14:527–535.
15 Larkin JC, Pines HA: No fat persons need apply: experimental studies on the overweight stereotype and hiring preferences. Soc Work Occup 1979;6:312–327.
16 Bellizzi JA, Hasty RW: Teritory assignment decisions and supervising unethical selling behavior: the effects of obesity and gender as moderated by job-related factors. J Personal Selling Sales Manage 1998;18:35–49.
17 Bellizzi JA, Norvell DW: Personal characteristics and salesperson's justifications as moderators of supervisory discipline in cases involving unethical salesforce behavior. J Acad Marketing Sci 1991;19:11–16.
18 Bordieri JE, Drehmer DE, Taylor DW: Work-life for employees with disabilities: recommendations for promotion. Rehabil Counsel Bull 1997;40.
19 O'Brien KS, Latner JD, Halberstadt J, Hunter JA, Anderson J, Caputi P: Do antifat attitudes predict antifat behaviors? Obesity 2008;16:S87–S92.
20 Pingitore R, Dugoni BL, Tindale RS, Spring B: Bias against overweight job applicants in a simulated employment interview. J Appl Psychol 1994;79:909–917.
21 Polinko NK, Popovich PM: Evil thoughts but angelic actions: responses to overweight job applicants. J Appl Soc Psychol 2001;31:905–924.
22 Hebl MR, Mannix LM: The weight of obesity in evaluating others: a mere proximity effect. Pers Soc Psychol Bull 2003;29:28–38.
23 Paraponaris A, Saliba B, Ventelou B: Obesity, weight status and employability: empirical evidence from a french national survey. Econ Hum Biol 2005;3:241–258.
24 Klarenbach S, Padwal R, Chuck A, Jacobs P: Population-based analysis of obesity and workforce participation. Obesity 2006;14:920–927.
25 Morris S: The impact of obesity on employment. Labour Econ 2007;14:413–433.
26 Tunceli K, Li K, Williams LK: Long-term effects of obesity on employment and work force limitations among U.S. Adults, 1986 to 1999. Obesity 2006;14:1637–1646.
27 Viner RM, Cole TJ: Adult socioeconomic, educational, social, and psychological outcomes of childhood obesity: a national birth cohort study. BMJ 2005;330:1–5.
28 Pagán JA, Dávila A: Obesity, occupational attainment, and earnings. Soc Sci Q 1997;78:756–770.
29 Everett M: Let an overweight person call on your best customers? Fat chance. Sales Marketing Manage 1990;142:66–70.
30 Popovich PM, Everton WJ, Campbell KL, Godinho RM, Kramer KM, Mangan MR: Criteria used to judge obese persons in the workplace. Percept Mot Skills 1997;85:859–866.
31 Bellizzi JA, Klassen ML, Belonax JJ: Stereotypical beliefs about overweight and smoking and decision-making in assignments to sales territories. Percept Mot Skills 1989;69:419–429.
32 Baum CL, Ford WF: The wage effects of obesity: a longitudinal study. Health Econ 2004;13:885–899.
33 Maranto CL, Stenoien AF: Weight discrimination: a multidisciplinary analysis. Employee Responsib Rights J 2000;12:9–24.
34 Brunello G, D'Hombres B: Does body weight affect wages? Evidence from Europe. Econ Hum Biol 2007;5:1–19.
35 Sargent JD, Blanchflower DG: Obesity and stature in adolescence and earnings in young adulthood. Analysis of a British birth cohort. Arch Pediatr Adolesc Med 1994;148:681–687.
36 Sarlio-Lähteenkorva S, Lahelma E: The association of body mass index with social and economic disadvantage in women and men. Int J Epidemiol 1999;28:445–449.
37 Sarlio-Lähteenkorva S, Silventoinen K, Lahelma E: Relative weight and income at different levels of socioeconomic status. Am J Pub Health 2004;94:468–472.
38 Jasper CR, Klassen ML: Perceptions of salespersons' appearance and evaluation of job performance. Percept Mot Skills 1990;71:563–566.
39 Klassen ML, Jasper CR, Harris RJ: The role of physical appearance in managerial decisions J Business Psychol 1993;8:181–198.
40 Puhl RM, Brownell KD: Psychological origins of obesity stigma: toward changing a powerful and pervasive bias. Obes Rev 2003;4:213–227.
41 Thiel A, Alizadeh M, Giel K, Zipfel S: Stereotyping of overweight children by their contemporaries. Psychother Psychosom Med Psychol 2008;58:462–469.
42 Thorndike EL: A constant error on psychological rating. J Appl Psychol 1920;4:25–29.
43 Wade TJ, DiMaria C: Weight halo effects: Individual differences in perceived life success as a function of women's race and weight. Sex Roles 2003;48:461–465.
44 Sypeck MF, Gray JJ, Ahrens AH: No longer just a pretty face: Fashion magazines' depictions of ideal female beauty from 1959 to 1999. Int J Eat Disord 2004;36:342–347.
45 Gordon ME, Slade LA, Schmitt N: The 'Science of the sophomore' revisited: from conjecture to empiricism. Acad Manage Rev 1986;11:191–207.
46 Friedmann KE, Reichmann SK, Constanzo PR, Zelli A, Ashmore JA, Musante GJ: Weight stigmatization and ideological beliefs: Relation to psychological functioning in obese adults. Obes Res 2005;13:907–916.
47 Hebl MR, Kleck RE: Acknowledging one's stigma in the interview setting: effective strategy or liability? J Appl Soc Psychol 2002;32:223–249.
48 King EB, Shapiro JR, Hebl MR, Singletary SL, Turner S: The stigma of obesity in customer service: a mechanism for remediation and bottom-line consequences of interpersonal discrimination. J Appl Psychol 2006;91:579–593.
49 DeJong W: The stigma of obesity: the consequences of naive assumptions concerning the causes of physical deviance. J Health Soc Behav 1980;21:75–87.
50 Hilbert A, Rief W, Braehler E: Stigmatizing attitudes toward obesity in a representative population-based sample. Obesity 2008;16:2535–2540.
51 Larwood L: Attributional effects of equal employment opportunity. Group Organ Manage 1995;20:391–408.
52 Hebl MR, Heatherton TF: The stigma of obesity in women: the difference is black and white. Pers Soc Psychol Bull 2008;24:417–426.
53 Rothblum ED, Miller CT, Garbutt B: Stereotypes of obese female job applicants. Int J Obes 1988;7:277–283.