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Prevalence of overweight and obesity in Austrian male and female farmers

Summary

Objectives: Risk factors for chronic and degenerative diseases, especially overweight and obesity are rarely examined among farmers. Objective of the study was to determine subjective health and health-related lifestyle among Austrian farmers.

Methods: The study was performed in 1999/2000 as a nationwide survey by mail among all Austrian farmers, men and women, all insured by the Health Insurance Agency of Farmers.

Results: 15.2% of the farmers were obese. 42.9% were overweight. The prevalence of overweight and obesity was high amongst 15–19 year olds, and reached a second peak among the age groups 50–59 and 60–69 years old. Geographically, the highest concentration of overweight and obese farmers was found in the eastern, flat regions of Austria and the lowest concentration in the western, mountainous areas of Austria.

Conclusions: Prevalence of overweight and obesity is very high among Austrian farmers, especially when compared to the general population. The results of this study emphasize the need for further work, with respect to the development of prevention strategies to reduce the prevalence of overweight and obesity among Austrian farmers.

Keywords: Prevalence – Overweight – Obesity – Austria – Farming community.

It is well known that overweight and obesity are associated with an increased risk of chronic degenerative disease (Manson et al. 1995; Lamon-Fava et al. 1996; Mokdad et al. 2003; Bergstrom et al. 2001)

The prevalence of obesity has also been found to vary according to geographical location and socio-economic group or occupation. Prevalence of obesity varied greatly between

different US states with a minimum in Colorado (14.4%) and a maximum in Mississippi (25.9%) (Mokdad et al. 2003). Overweight and obesity is slightly more common in southern Europe than in northern European countries (Bergstrom et al. 2001). In the European Prospective Investigation into Cancer and Nutrition (EPIC) Study the prevalence of obesity, compared in 25 centres across Europe, was found to be highest in the centres in Spain, Greece, Ragusa, and Naples (Italy) and lowest in the French centres (Haftenberger et al. 2002). In Finland farmers have a higher odds ratio for overweight than white-collar workers (Rahkonen et al. 1998).

The epidemiological situation shows the urgent need not only to treat overweight and obesity, but also to prevent this condition, although, as yet, weight gain prevention studies have had only limited success (Crawford 2002).

The aim of this particular survey was to describe the distribution of overweight and obesity among Austrian farmers. In addition, we explored subjective health and health-related self-reported lifestyle.

Methods

In Austria, all farmers have social/national insurance, provided by the Health Insurance Agency of Farmers. In the year 1999/2000 33 529 farmers were registered in Austria, representing 0.50% of the Austrian population aged 15 years and over (according to 2001 census). All insured farmers, active and retired, received a structured questionnaire by post, compiled by the Health Insurance Agency of Farmers and the Institute of Social Medicine, Vienna University. The questionnaire contained questions addressing anthropometric measures, subjective health and lifestyle associated factors. The body mass index (BMI) was computed as kg/m² from self-reported data of weight and height of the responding farmers.

Descriptive statistics and the chi-square test for comparison between groups were used for the analysis of data.

Results

A total of 33 529 questionnaires were distributed (19 070 to men and 14 459 to women). 11 144 questionnaires were returned, equivalent to 33.2% (28.3% of the men and 35.7% of the women responded). 5.6% did not specify their region, so the response rate of people, who specified a region was 27.2%. The response was greatest in Salzburg (30.3%), then Upper Austria (29.4%), Lower Austria (28.2%), and Carinthia (27.7%), followed by Tyrol (27.3%), Vorarlberg (26.7%), and Styria (26.3%) and lowest in Burgenland (22.6%) and Vienna (20.9%). A consideration should, however, be that the number of farmers in the capital area of Vienna is relatively low.

The mean age of the responders was 55.5 years (men: 54.2 years, women: 56.3 years) with a range from 15 to 99 years. 299 people did not specify their age. The remaining 10 845 people were distributed according to age: 15–19 years (0.2%), 20–29 years (3.5%), 30–39 years (16.4%), 40–49 years (19.5%), 50–59 years (17.3%), 60–69 years (19.5%), 70–79 years (17.0%), 80–89 years (5.7%) and ≥ 90 years (1.0%). The age distribution for both men and women was similar.

In total 15.2% of the farmers were obese (BMI ≥ 30 kg/m²), 42.9% were overweight (BMI between 25 and 29.9 kg/m²), 38.1% had a BMI between 20 and 24.9 kg/m², and 3.8% had a BMI of less than 20 kg/m². More men than women were found to be overweight 47.9% compared with 39.9% respectively ($p < 0.001$).

Overweight and obesity were high among the age group 15–19 years old (41.2%), and decreased to 31.3% of the 20–29 year olds. Prevalence of overweight and obesity reached a peak for the age groups 50–59 (66.4%) and 60–69 (69.6%) years old. Obesity alone was most prevalent in the age group 60–69 years old (21.3%). Overweight and obesity, as well as obesity alone were found to be statistically significant between the different age groups ($p < 0.001$). The greatest proportion of subjects with a BMI under 20 kg/m² were farmers in the age group of 20–29 years (9.8%) and farmers older than 90 years (14.5%) ($p < 0.001$).

More men than women in the age groups 30–39 (56.4% of the men vs 35.0% of the women) and 40–49 (65.9% of the men vs 50.7% of the women) were found to be overweight or obese ($p < 0.001$). Whereas in the age group 70–79 more women than men (18.4% of the women vs 13.4% of the men) were found to be obese ($p < 0.001$).

A difference was observed in the proportion of overweight and obesity in the different Austrian provinces with the

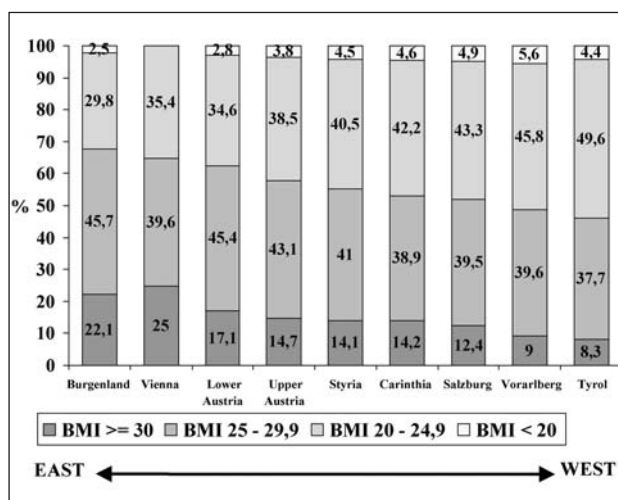


Figure 1 BMI among Austrian farmers in different geographical regions

highest concentration of overweight and obese farmers found in the eastern parts of Austria – 67.7% in Burgenland and 64.6% in the Austrian province Vienna. Prevalence of overweight and obesity was lowest in the western parts of Austria (48.6% in Vorarlberg and 46.1% in Tyrol). Obesity alone was also most prevalent in the eastern provinces Burgenland (22.1%) and Vienna (25.0%). There was a statistical significance between the different Austrian regions regarding overweight and obesity and obesity alone ($p < 0.001$; see Fig. 1). When asked to identify which weight classification they would fall into 33.3% of the Austrian farming community estimated themselves to be overweight, 25.3% of men and 38.6% of women ($p < 0.001$). 65.6% of men and 54.6% of women defined their weight as normal ($p < 0.001$).

Discussion

The proportion of overweight and obese farmers is significantly ($p < 0.001$) higher than the national average (Statistik Austria 2002). Prevalence of obesity in the general Austrian population was 9.1% in 1999 (Statistik Austria 2002). In our study prevalence of obesity amongst Austrian farmers was found to be higher at 15.2%.

The response rate of 33.2% appears low, possibly due to no reminder being sent, and is a potential limitation of this survey, however it must be taken into consideration that 33 529 questionnaires were distributed to the entire farming community. 33.2% represents 11 144 responses, which was considered a substantial study group. If the responding farmers represent a relatively health conscious group, that would underestimate the proportion of overweight and obese farmers.

Overweight and obesity varied in the different Austrian provinces. In the general Austrian population similar fluctuations in BMI across the various geographic regions have been recorded, with a lower BMI observed in the western, mountainous, Austrian provinces compared with the eastern “flat” Austrian provinces (Kiefer et al. 2001).

In an Austrian survey performed in 2003, farmers represented the occupational group with the highest body mass index having a mean BMI of 26.6 kg/m², followed by blue-collar workers with a mean BMI of 25 kg/m². The number of subjects, however, was very low (IMAS 2003). The results of our survey are in line with those findings.

Self-assessment of weight class shows clearly the underestimation of weight. Approximately half of the overweight farmers actually regard themselves as overweight. However, the self-assessed distributions, for overweight, over geographical location and age showed a similar pattern compared with those graded by BMI. Female farmers estimate their weight class as “overweight” more often than male farmers. Again this pattern has also been observed in the general Austrian population (Kiefer et al. 2000).

It has been found previously in studies of self-reported weight and height, that height is often overestimated and weight underestimated, especially at higher weights (Palta et al. 1982; Rowland et al. 1990; Bergstrom et al. 2001). It is, therefore, possible that our calculated BMI underestimates the true value amongst overweight and obese subjects.

In our study only 10.6% believed they had an unhealthy diet. Other studies have, however shown the opposite. Nutrition as a lifestyle habit, possibly responsible for the great prevalence of overweight and obesity among farmers, was examined in a survey on risk factors for osteoporosis among

women in different occupational groups in Austria. The consumption of sausage was three times greater and the consumption of alcohol 1.5 times greater among female farmers compared to housewives (Rasky et al. 1998). Nutrition could also play a role in the higher prevalence of overweight and obesity amongst 15–19 year olds.

Farmers represent an occupational group having a relatively large amount of physical activity required for their job. This circumstance might lead to a reduced risk for development of overweight and obesity, however, this does not, in fact, appear to be the case. The results of a survey performed in 2000 in the general Austrian population showed similar statistics to those we observed among Austrian farmers. 52% of the Austrians (48% of the men and 57% of the women) reported they never or seldom partook in physical exercise. Farmers represented the occupational group with the smallest proportion of people, only 13%, reporting physical exercise regularly (Pratscher 2000). These figures are similar to another Austrian survey performed in 1998, which showed, that with higher education the proportion of those exercising regularly is rising. White-collar workers report doing more exercise compared to blue-collar workers, farmers and foresters. As in the farming community, in the general population physical exercise is practiced more often in the western Austrian provinces, than in the eastern Austrian provinces (Zeidler 2000).

The results of this study should be considered as a step towards reinforcing the need for health promotion to reduce overweight and obesity among farmers, and for the development of prevention strategies and programs specifically targeting this occupational group.

Zusammenfassung**Prävalenz von Übergewicht und Adipositas bei österreichischen Bauern und Bäuerinnen**

Fragestellung: Bei Bauern sind Risikofaktoren für chronische und degenerative Erkrankungen, besonders Übergewicht und Adipositas kaum untersucht. Das Ziel der Studie war, die subjektive Gesundheit und den gesundheitsassoziierten Lebensstil bei österreichischen Bauern zu untersuchen.

Methode: Der Gesundheitssurvey wurde 1999/2000 mittels Fragebogen bei allen bei der österreichischen Sozialversicherungsanstalt der Bauern versicherten Bauern und Bäuerinnen durchgeführt.

Ergebnisse: 15,2% der Bauern waren adipös, 42,9% waren übergewichtig. Die Altersgruppe von 15–19 Jahren zeigte eine hohe Prävalenz von Übergewicht und Adipositas und erreichte einen Höchstwert in den Altersgruppen 50–59 und 60–69 Jahren. Geographisch zeigte sich die höchste Konzentration von übergewichtigen und adipösen Bauern in den östlichen, flachen Bundesländern und die niedrigste in den westlichen, gebirgigen Bundesländern.

Schlussfolgerung: Die Prävalenz von Übergewicht und Adipositas ist bei österreichischen Bauern sehr hoch, höher als in der Gesamtbevölkerung. Weitere Arbeit hinsichtlich der Prävention von Übergewicht und Adipositas bei österreichischen Bauern wäre erforderlich.

Résumé**Prévalence de la surcharge pondérale et de l'obésité chez les agriculteurs et agricultrices autrichiens**

Objectifs: Les facteurs à risques concernant les maladies chroniques et dégénératives telles que la surcharge pondérale et l'obésité, chez les paysans autrichiens, ont été jusqu'à présent à peine étudiés. L'objet de cette étude est d'examiner d'une manière subjective l'état de santé de ces agriculteurs en rapport avec leur mode de vie.

Méthodes: L'enquête médicale a été menée en 1999/2000 à l'aide de questionnaires remis aux agriculteurs et agricultrices assurés auprès de l'assurance sociale des agriculteurs autrichiens.

Résultats: 15,2% des paysans sont obèses, 42,9% sont atteints de surcharge pondérale. Le groupe d'âge des 15–19 ans montre une forte prévalence de surcharge pondérale et d'obésité qui atteint sa valeur maximale dans les groupes d'âge des 50–59 et des 60–69 ans. Quant à la répartition géographique, on trouve les taux les plus élevés de surcharge pondérale et d'obésité chez les agriculteurs habitant les plaines de l'est de l'Autriche, tandis que les taux les moins élevés se trouvent dans les provinces montagneuses de l'ouest.

Conclusion: Il apparaît que la surcharge pondérale et l'obésité chez les paysans autrichiens sont très élevées, plus élevées que pour l'ensemble de la population. D'autres travaux visant à prévenir ces pathologies dans ce groupe de population seraient donc nécessaires à l'avenir.

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