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Impact of obesity on health-related quality of life, sleep and work – a multinational survey

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Analysis funded by Eli Lilly and Company

International Society for Pharmacoeconomics and Outcomes Research – 26th Annual European Congress; Copenhagen, Denmark; 12-15 November 2023

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OBJECTIVE

- To describe the impact of obesity on health-related quality of life (HRQoL), sleep and work productivity, delineated by body mass index (BMI) and the presence of comorbidities across countries

CONCLUSION

- People/patients with obesity (PwO) in the 'above obesity threshold' and 'with comorbidities' consistently reported impaired HRQoL - in particular, general health status – and activity/work domains
- Our results suggest that obesity and the presence of comorbidity impact HRQoL, sleep and work. This should be considered in the future management of PwO, to allow implementation of optimal treatment strategies and improve outcomes for PwO

BACKGROUND

- Obesity is a chronic, progressive disease with a morbidity prevalence of over 4 million people per year[1]. Obesity is strongly linked with chronic diseases and comorbidities such as type 2 diabetes, hypertension, cardiovascular disease, resulting in dramatic decrease of life quality and expectancy[2,3]. Obesity is defined as a body mass index (BMI) of ≥30kg/m^2 (or ≥28kg/m^2 in China, ≥25kg/m^2 in Japan)
- Research regarding the impact of obesity on HRQoL, sleep and work on PwO across countries is limited and has not been readily comparable due to methodological differences in data collection

STUDY DESIGN

- Data were drawn from the Adelphi Real World Obesity Disease Specific Programme (DSP)™, a real-world, cross-sectional survey of physicians and the PwO they manage, conducted in Brazil, Canada, China, Japan, Kingdom of Saudi Arabia (KSA) and United Arab Emirates (UAE) between April and December 2022. 1435 PwO completed all patient-reported outcome measures (PROMs) and were included in the analysis
  - The DSP methodology has been published and validated previously[4-6]
- Physicians responsible for managing PwO were recruited with specialties varying by country:
  - **Brazil:** primary care physicians (PCP), diabetologist/endocrinologists and cardiologists; **Canada:** PCPs and diabetologist/endocrinologists; **China:** Internists and diabetologist/endocrinologists; **Japan:** Internists, diabetologist/endocrinologists and cardiologists; **KSA/UAE:** PCPs, diabetologist/endocrinologists and obstetricians/gynaecologists
- Physicians reported demographics and clinical characteristics for up to eight of their consecutively qualifying PwO
- PwO inclusion criteria: at time of data collection must be aged ≥18 years old, not involved in a clinical trial for obesity, on a weight management programme and/or have a BMI of ≥30 in Brazil, Canada, KSA and UAE, ≥28 in China and ≥25 Japan and recruited via one of two groups:
  - **No anti-obesity medication (AOM) PwO:** not on an AOM at time of data collection
  - **AOM PwO:** on an AOM at time of data collection
- The same PwO completed a voluntary questionnaire containing the following PROMs: Jenkins Sleep Evaluation Questionnaire[7] (JSEQ; where 0 indicates no sleep problems and 20 most sleep problems), the Short-form Health Survey version 2[8] (SF-36v2, T-scores interpretated in relation to the 2009 United States (US) general population [mean=50, standard deviation (SD)=10]; a T-score of between 47–53 is considered within the "normal" range for the US general population. Scores <47 are considered indicative of impairment in the specific domain)[9] and the Work Productivity and Activity Impairment Questionnaire[10] (WPAI; scores range from 0-100%, where higher scores indicate greater impairment/less productivity)
- Analysis criteria: only PwO who completed all three PROMs were included in the analysis. These PwO were grouped by BMI and presence of comorbidities at time of data collection:
  - **below obesity threshold:** PwO with a BMI <30 (or <28 in China/<25 in Japan), indicating success on weight management programme; **above obesity threshold**: PwO with a BMI ≥30 (or ≥28 in China/≥25 in Japan)
  - **without comorbidities:** no comorbidities; **with comorbidities:** ≥1 comorbidity
- All respondents provided informed consent; ethics exemption was obtained from Pearl IRB. All analyses descriptive

RESULTS

- A total of 431 physicians provided data on 2839 PwO (Table 1). Of these, 1435 PwO were included in the analysis (Table 2), and were grouped as follows: 243 (17%) 'below obesity threshold'; 1192 (83%) 'above obesity threshold', 262 (18%) 'without comorbidities' and 1173 (82%) 'with comorbidities'

Table 1: AOM status among PwO*

A	n	AOM, n (%)
Total	2839	1121 (39)
Brazil	895	480 (54)
Canada	199	156 (78)
China	801	-
Japan	543	285 (52)
KSA	200	100 (50)
UAE	201	100 (50)

*Target quotas by country were established to ensure enough number of PwO in each group and were representative of prescribing in each country

Table 2: Demographic/Clinical Characteristics

Mean ± SD or n (%)	Total (n=1435)
Age (years)	40.4 ± 12.5
Female	822 (57)
BMI (kg/m^2) at diagnosis	34.2 ± 8.4
BMI (kg/m^2) at time of data collection	32.2 ± 7.6
Employment status	
Employed (part-/full-time)	1012 (71)
Not employed (student, unemployed, on long-term sick leave, retired or homemaker)	423 (29)
- Not employed (unemployed, on long-term sick leave or retired)	217 (15)
- Unemployed, on long-term sick leave or retired due to obesity	27 (12)
Number of comorbidities	2 ± 1.8
Receiving AOM at time of data collection	365 (25)
Top three comorbidities	
Dyslipidaemia	495 (34)
Hypertension	466 (32)
Type 2 diabetes	261 (18)

- The mean ± SD JSEQ scores were 4.9 ± 4.3 for the 'below obesity threshold' group and 5.0 ± 4.1 for the 'above obesity threshold' group
- For the 'without comorbidity' group, this was 4.3 ± 3.9 and for the 'with comorbidity' group, this was 5.2 ± 4.2, indicating some sleep impairment across each of the groups

Figure 1a: PwO in the 'above obesity threshold' showed HRQoL impairment in four SF-36v2 domains as the averages are <47. PwO in the 'below obesity threshold' showed no impairment in nearly every SF36v2 domain as the averages are >47

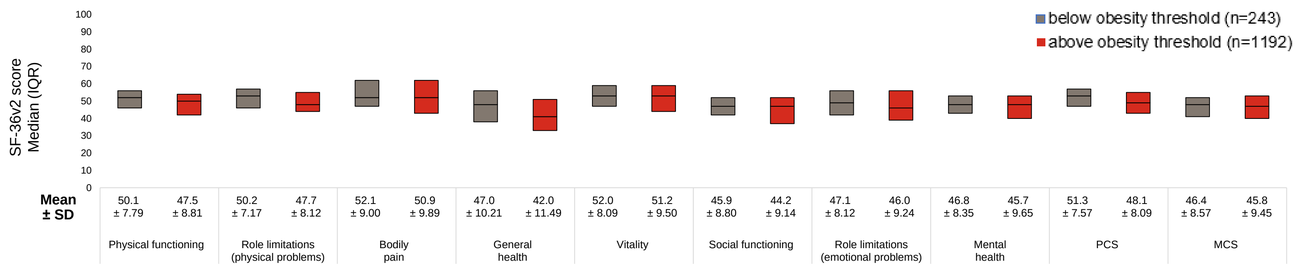


Figure 1b: PwO 'with comorbidities' showed HRQoL impairment in four SF-36v2 domains as the averages are <47. PwO 'without comorbidities' showed no impairment in nearly every SF36v2 domain as the averages are >47

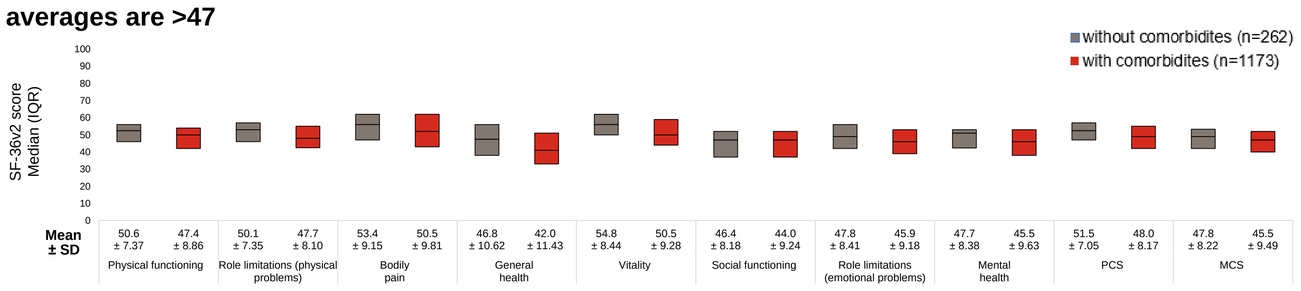


Figure 2a: PwO in the 'above obesity threshold' group showed activity and overall work impairment and impaired presenteeism. PwO in the 'below obesity threshold' group showed very low absenteeism and only some activity and overall work impairment

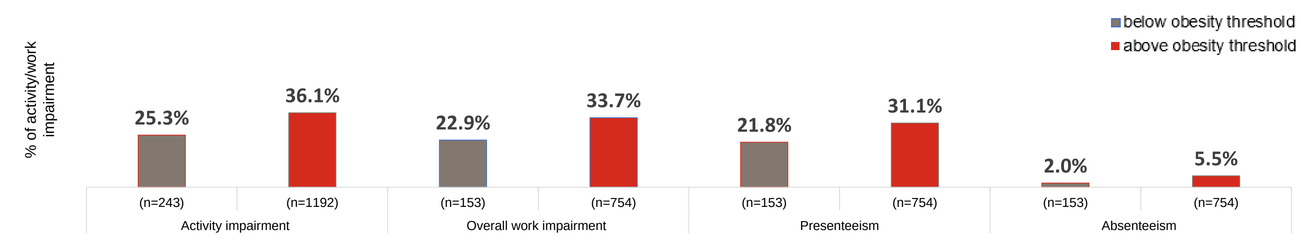
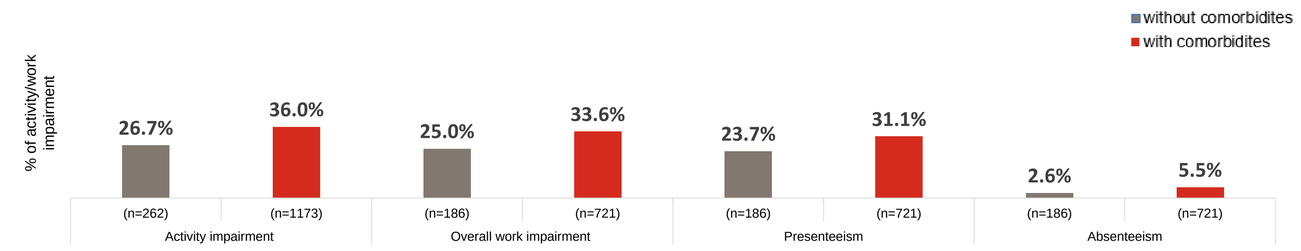


Figure 2b: PwO 'with comorbidities' showed activity and overall work impairment and impaired presenteeism. PwO 'without comorbidities' group showed very low absenteeism and only some activity and overall work impairment



LIMITATIONS

- Physician participation could have been influenced by willingness to complete the survey
- Recall bias, a common limitation of surveys, may have affected responses to the questionnaires. However, physicians had access to patient records during the survey, minimising recall bias
- The cross-sectional design of this study prevents any conclusions about causal relationships, however identification of significant associations is possible
- No p values were calculated. Any differences noted in reported results are based on summaries of descriptive data, rather than reflecting formal hypothesis testing[1]

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Abbreviations: BMI, Body mass index; **HRQoL**, Health-related quality of life; **IQR,** interquartile range; **JSEQ**, Jenkins Sleep Evaluation Questionnaire; **KSA,** Kingdom of Saudi Arabia; **MCS,** Mental component score; **PwO,** People/patients with obesity; **PCS,** Physical component score; **PROM**, Patient reported outcome measure; **SF-36v2,** Short-form Health Survey version 2; **SD,** standard deviation; **UAE,** United Arab Emirates; **WPAI,** Work Productivity and Activity Impairment Questionnaire

Disclosures: VH, AL and AM are employees of Adelphi Real World. SK, JR, AT and EA are employees and shareholders of Eli Lilly and Company. The DSP is a wholly owned Adelphi product. Eli Lilly and Company was one of multiple subscribers to the DSP