

# Comparing Health Outcomes Among People with Type 1 Diabetes in Europe and the United States

Sydney Chanen, Alan Beltran, Alison Zeng, Trevor Bell, Richard Wood

dQ&A Market Research, Inc., San Francisco, CA, United States



## BACKGROUND AND AIMS

People with Type 1 diabetes (PWT1) in Europe (EU) and the United States (US) have similar access to diabetes technologies. However, despite similar therapy regimens, many factors impacting diabetes management – such as the nutritional landscape, and the cost and availability of healthcare – differ across these regions, potentially impacting patient wellness. Therefore, this study aimed to compare health outcomes for PWT1 on the same therapy regimens between Europe and the United States.

## METHODS

From March – November 2023, adults with Type 1 diabetes in the US, France, Germany, Italy, the Netherlands, Sweden, and the United Kingdom who have had diabetes for more than two years took online surveys in which they self-reported their height, weight, A1c, and diabetes-related complications (ranging from high blood pressure to sleep problems). Additionally, respondents indicated whether they take insulin through multiple daily injections (MDI), a non-CGM integrated insulin pump (pump, non-AID), or an automated insulin delivery system (AID system). Furthermore, mental well-being was assessed using the World Health Organization – Five Well-Being Index (WHO-5), a five-item, positively worded assessment ranging from 0 (at no time) to 5 (all the time). Poor well-being is operationalized as a cumulative score of < 13.

Table 1. Baseline demographics of respondents.

Demographics	EU (n=2,095)	US (n=2,248)
<b>Age in years, mean (SD)</b>	42 (13)	53 (17)
<b>Diabetes duration in years, mean (SD)</b>	23 (13)	31 (17)
<b>Diabetes care regimen</b>		
MDI	35%	19%
Pump, non-AID	29%	12%
AID system	35%	69%
<b>Gender</b>		
Female	62%	69%
Male	38%	30%
<b>Household income (SEK &amp; GBP converted to EUR)</b>	(€)	(\$)
<50,000	47%	17%
50,000-100,000	26%	27%
>100,000	8%	33%
Undisclosed	19%	23%
<b>Country of residence</b>		
France	15%	
Germany	25%	
Italy	19%	
Netherlands	11%	
Sweden	8%	
United Kingdom	22%	
<b>Education</b>		
Less than secondary school	4%	0.3%
Secondary school graduate	23%	4%
Some college	22%	23%
Bachelor's degree or higher	48%	71%

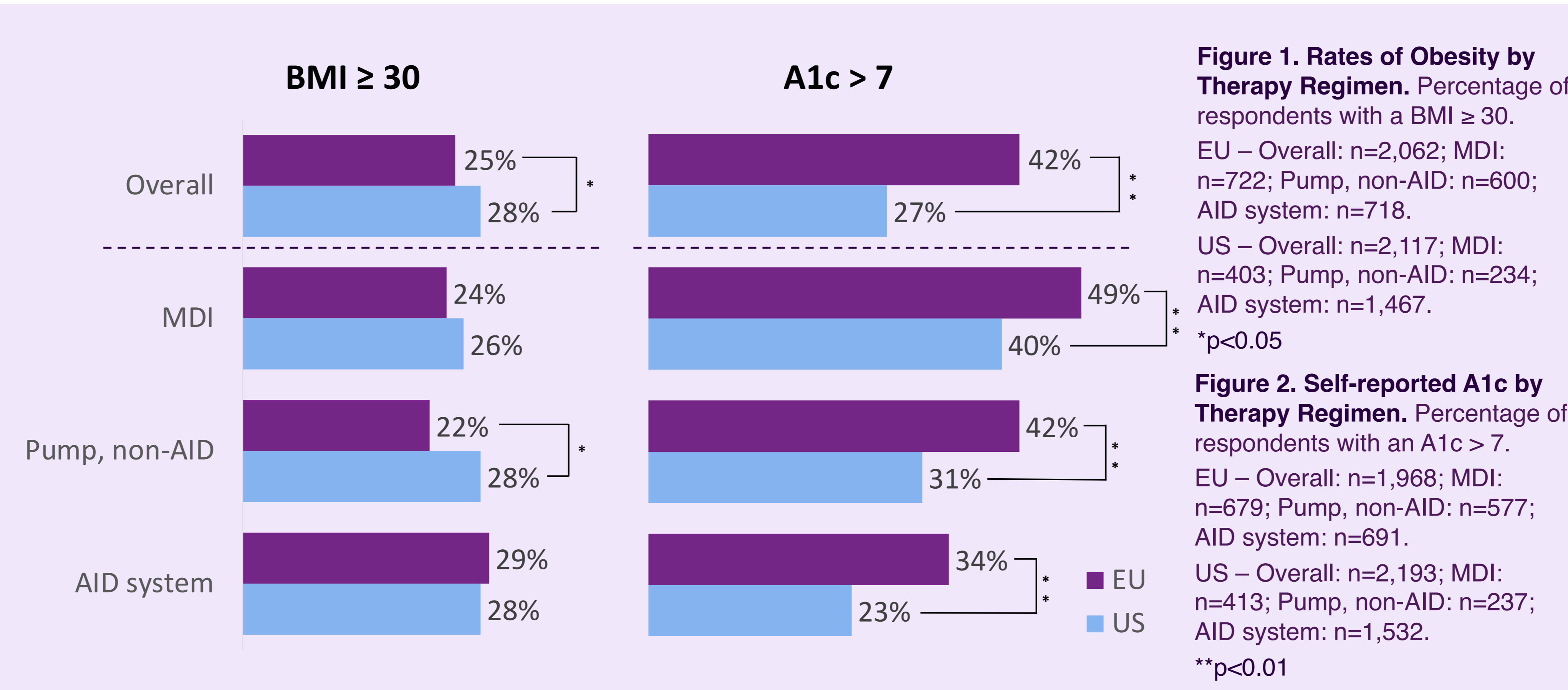


Figure 1. Rates of Obesity by Therapy Regimen. Percentage of respondents with a BMI ≥ 30.

EU – Overall: n=2,062; MDI: n=722; Pump, non-AID: n=600; AID system: n=718.

US – Overall: n=2,117; MDI: n=403; Pump, non-AID: n=234; AID system: n=1,467.

\*p<0.05

Figure 2. Self-reported A1c by Therapy Regimen. Percentage of respondents with an A1c > 7.

EU – Overall: n=1,968; MDI: n=679; Pump, non-AID: n=577; AID system: n=691.

US – Overall: n=2,193; MDI: n=413; Pump, non-AID: n=237; AID system: n=1,532.

\*\*p<0.01

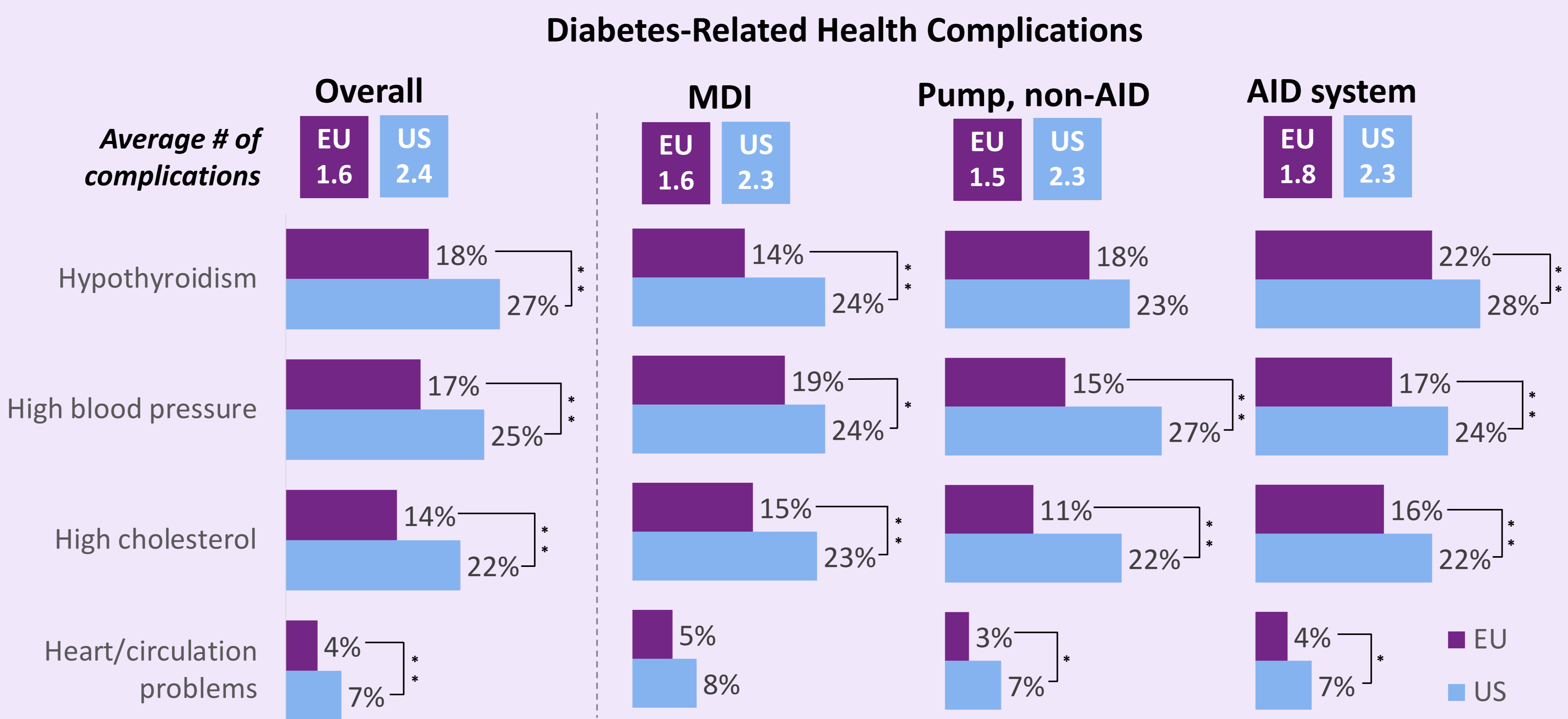


Figure 3. Diabetes-Related Health Complications by Therapy Regimen. Percentage of respondents self-reporting each diabetes-related health complication. Top 5 complications charted. EU – Overall: n=2,040; MDI: n=718; Pump, non-AID: n=595; AID system: n=705. US – Overall: n=2,102; MDI: n=399; Pump, non-AID: n=231; AID system: n=1,459. \*p<0.05, \*\*p<0.01

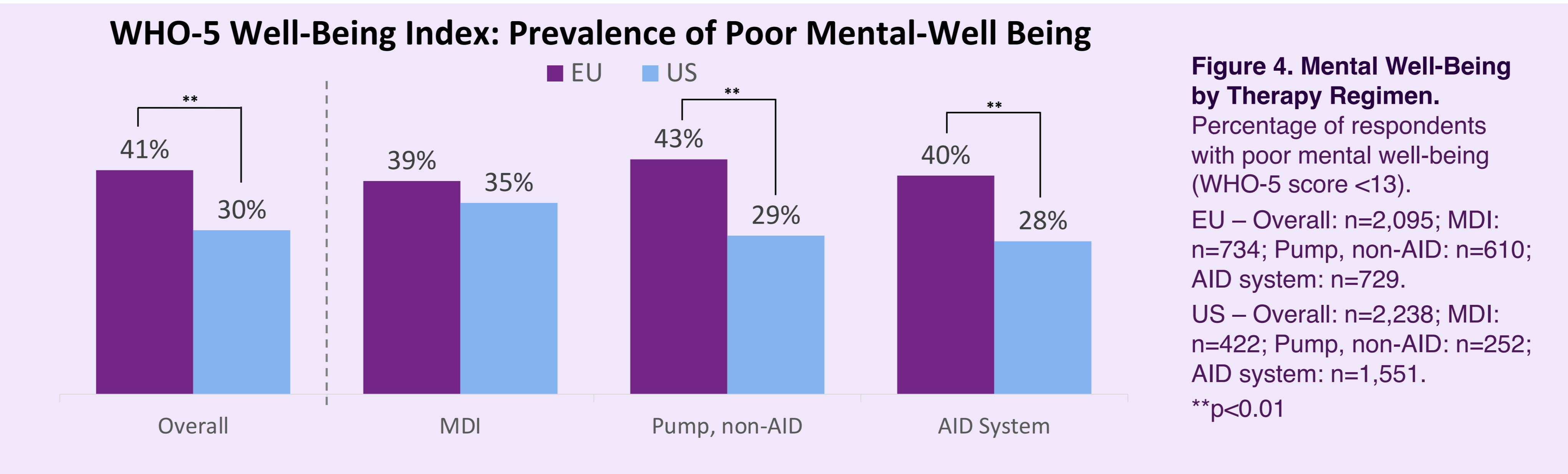


Figure 4. Mental Well-Being by Therapy Regimen. Percentage of respondents with poor mental well-being (WHO-5 score < 13).

EU – Overall: n=2,095; MDI: n=734; Pump, non-AID: n=610; AID system: n=729.

US – Overall: n=2,238; MDI: n=422; Pump, non-AID: n=252; AID system: n=1,551.

\*\*p<0.01

## RESULTS

Significantly more PWT1 in the US experience obesity (BMI ≥ 30) compared to people with PWT1 in the EU (28% vs. 25%, p<0.05), especially among those who take insulin through a non-CGM integrated pump (28% vs. 22%, p<0.05). However, significantly more PWT1 in the EU report an A1c > 7 compared to PWT1 in the US (42% vs. 27% overall, p<0.01), regardless of therapy regimen.

PWT1 in the US have a higher average number of diabetes-related health complications compared to PWT1 in the EU, regardless of therapy regimen (2.4 vs. 1.6 overall, p<0.01). Apart from heart/circulation problems among MDI users and hypothyroidism among non-CGM integrated pump users, PWT1 in the US have significantly higher rates of all reported diabetes-related health complications – hypothyroidism, high blood pressure, high cholesterol, and heart/circulation problems – compared to PWT1 in the EU, regardless of therapy type.

Although PWT1 in the US have worse physical health outcomes, PWT1 in the EU have higher rates of poor mental well-being. Both non-CGM integrated pump users (43% vs. 29%, p<0.01) and AID system users (40% vs. 28%) in the EU experience significantly higher rates of poor mental well-being compared to the respective groups in the US, contributing to an overall greater prevalence of poor well-being in the EU (41% vs. 30% overall, p<0.01). However, no significant differences in mental well-being are seen between the EU and the US in PWT1 using MDI.

## CONCLUSION

PWT1 in the EU have worse glycemic control, as well as worse overall mental well-being. Conversely, PWT1 in the US have stronger glycemic control, but higher rates of obesity and health complications, emphasizing the prevalence of poor weight-related outcomes in the US. Further research is needed to identify and solve the drivers of elevated A1c and the mental health burden facing PWT1 in the EU. Beyond developing new diabetes treatments, both regions must focus on improving non-medical determinants of health – such as diet, exercise, and mental healthcare – to achieve health parity for PWT1 across the world.

## DISCLOSURES

The research in this presentation was carried out and funded by dQ&A Market Research, Inc., which provides research services for a fee to its clients. dQ&A has several clients (>10) in the diabetes field.