

Prevalence and predictive factors of psychological distress among people with diabetes in France



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Background

High levels of diabetes distress can lead to reduced quality of life and increased likelihood of incident depression. Therefore, relevant factors regarding diabetes distress should be examined explicitly. The aim of this study was to measure the level of diabetes distress in France and analyze potential independent risk factors for elevated diabetes distress. The insights in significant factors can lead to effective treatment approaches and a reduction of diabetes distress and its consequences.

Materials and Methods

We conducted a patient-centered cross-sectional survey from April to July 2022, including 280 people with diabetes (T1D n = 130; T2D n = 150) living in France. Diabetes distress was measured using the Problem Areas in Diabetes (PAID-5) questionnaire (higher scores indicating higher diabetes distress). We defined following predictors of diabetes distress: Age (categorical), sex (female = 1; male = 2; nonbinary = 3), type of diabetes (1; 2), duration of diabetes, health status (categorical, higher scores indicate lower health status), treatment regimen, treatment satisfaction (categorical, higher scores indicate lower satisfaction), diabetes-related complications (number) and non-diabetes-specific complications (number). In order to identify the risk factors of diabetes distress we conducted a multivariate regression analysis after weighting the sample according to the age distribution of the French population (INSEE report 2021). We integrated the predictors of the model block wise and analyzed the increase in explained variance for each model. Each model included the variables of the previous models.

Table 1. Sample characteristics.

		All N=280	Type 1 Diabetes N=149	Type 2 Diabetes N=131	p-value
Age group	18 - 35 years, n (%)	17 (6.1)	15 (10.1)	2 (1.5)	< 0.001
	36 - 45 years, n (%)	21 (7.5)	16 (10.7)	5 (3.8)	
	46 - 60 years, n (%)	98 (35.0)	61 (40.9)	37 (28.2)	
	>60 years, n (%)	144 (51.4)	57 (38.3)	87 (66.4)	
Diabetes duration	< 1 year, n (%)	6 (2.1)	6 (4.0)	0 (0.0)	< 0.001
	1 - 4 years, n (%)	25 (8.9)	9 (6.0)	16 (12.2)	
	4 - 9 years, n (%)	38 (13.6)	11 (7.4)	27 (20.6)	
	≥ 10 years, n (%)	211 (75.4)	123 (82.6)	88 (67.2)	
Sex	Female, n (%)	147 (52.5)	86 (57.7)	61 (46.6)	0.100
	Male, n (%)	132 (47.1)	62 (41.6)	70 (53.4)	
	Nonbinary, n(%)	1 (0.3)	1 (0.7)	0 (0)	
PAID-5 score, mean (SD)		11.0 (±4.5)	11.3 (±4.6)	10.6 (4.4)	0.169
Perceived health status	Excellent	5 (3.4)	5 (3.4)	0 (0.0)	0.011
	Very good	31 (11.1)	22 (14.8)	9 (6.9)	
	Good	137(48.9)	76 (51.0)	61 (46.6)	
	Intermediate	75(26.8)	32(21.5)	43(32.8)	
	Poor	32 (11.4)	14 (9.4)	18 (13.7)	
Number of complications	None	180 (64.3)	110 (61.1)	70 (53.4)	<.001
	At least 1 complication	65 (23.2)	21 (32.3)	44 (33.6)	
	> than 1 complication	35 (12.5)	18 (12.1)	17 (13.0)	
Number of diabetes complications	None	197 (70.4)	116 (77.9)	81 (61.8)	.007
	At least 1 complication	49 (17.5)	17 (11.4)	32 (24.4)	
	> 1 complication	34 (12.1)	16 (10.7)	18 (13.7)	

Results

The mean PAID-5 score (11.3 ± 4.3) was rather high (Fig. 1). For a better interpretation, the PAID-5 score can be standardized to the 20-item PAID, which results in a total PAID-20-score of 56. Elevated PAID scores (PAID Score ≥ 40) were present in 68.1% of the sample. The beta coefficients of the final model, shown in Figure 2, indicate the strength and direction of the independent association between diabetes distress and the individual predictors. Increased diabetes distress was associated with younger age ($\beta=-0.21$, $p<.001$), lower treatment satisfaction ($\beta=0.21$, $p<.001$) and lower self-reported health status ($\beta=0.34$, $p<.001$).

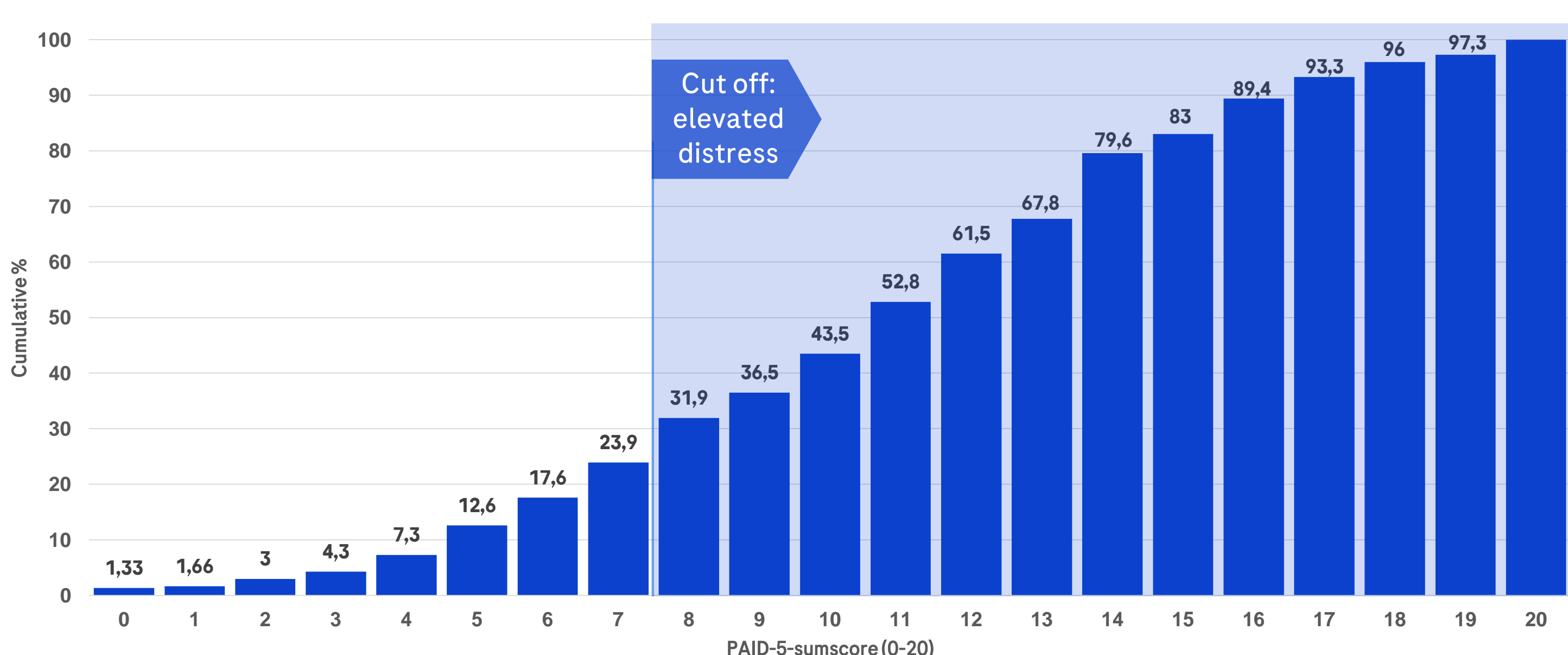


Figure 1. Cumulative distribution of the PAID-5 scores.

Non-significant predictors were gender ($\beta=0.05$, $p=.964$), diabetes duration ($\beta=0.10$, $p=.075$), diabetes type ($\beta=-0.12$, $p=.082$), treatment intensity ($\beta=0.01$, $p=.903$), non-diabetes-specific complications ($\beta=0.03$, $p=.563$) and diabetes-related complications ($\beta=0.10$, $p=.062$).

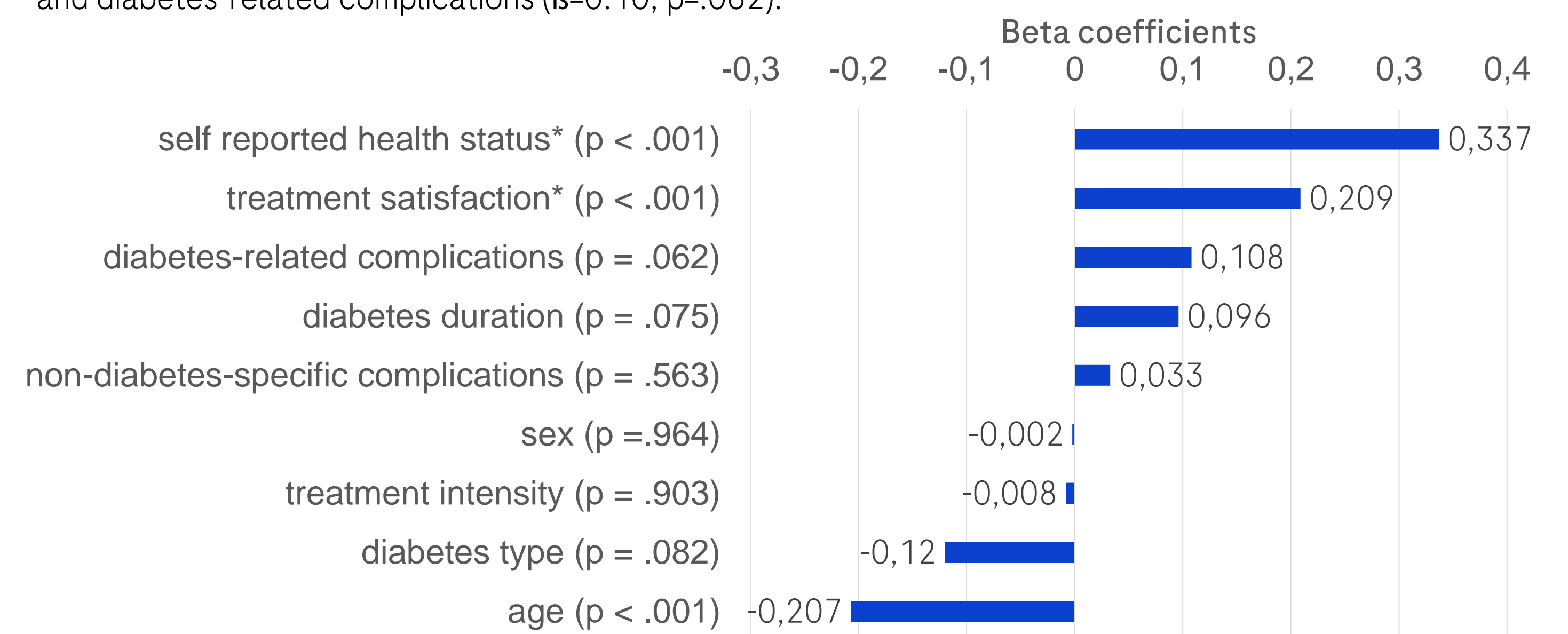


Figure 2. Beta coefficients of the predictors of psychological distress.

* = higher scores indicate lower health status / satisfaction.

The regression analysis showed that a total of 27.1% of the variance in PAID scores could be explained by the model including all nine selected predictors (Figure 2). The single predictors that explained the largest proportion of variance were low self-reported health status and low treatment satisfaction, accounting for 17.2% of the total variance explained.

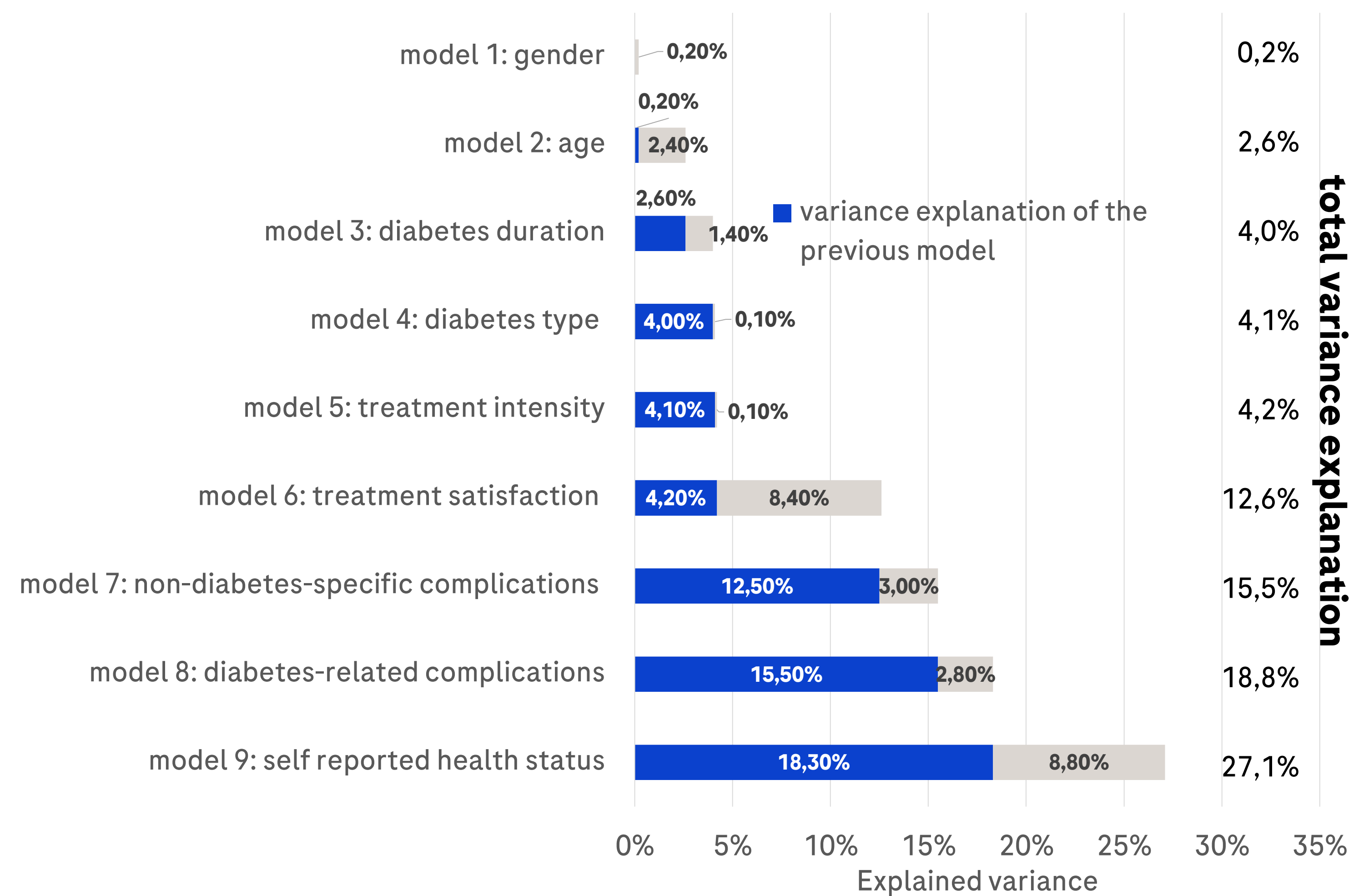


Figure 3. Increase in R² of the predictors of psychological distress. Each model includes the variables of the previous models.

Conclusion

We identified a high proportion of people with elevated diabetes distress scores. A relevant proportion of the variance in the PAID-Score could be explained by the selected predictors. People with higher diabetes distress were younger, reported impaired health and lower treatment satisfaction. The latter could indicate that diabetes treatment amongst the other predictors may be a relevant source of diabetes distress. In the complete model these variables were independent significant predictors, whereas objective medical diagnosis, sex or diabetes therapy remained non-significant. This study demonstrates that there is a substantial unmet need for people with diabetes to reduce diabetes distress. Moreover, the data points towards the importance of treatment satisfaction and maintaining perceived health to address elevated diabetes distress.

Contact information and conflict of interest

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References

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