THE EFFECTS FROM TYPE 2-DIABETES MANAGEMENT PROGRAMS ON MENTAL HEALTH AND DIABETES DISTRESS

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BACKGROUND

The Centre for Diabetes and Heart Diseases (CfDH) in Copenhagen provides person-centered differentiated rehabilitation programs for persons with type 2-diabetes (T2DM) or heart disease. Our philosophy is: by offering unequal care we create more equity. We do this by offering persons with less resources more care than offered to persons with more resources.

The program is personalized, taking its starting point of the persons' needs, motivation, resources and preferences.

Our program is free of charge and consists of education, physical training, cooking classes, and/or individual consultations. The aim of the program is that persons are empowered and get competencies to manage everyday life with their chronic disease.

A specific focus on mental health is important as persons need to address physical, practical, and mental aspects of a life with T2DM. Impaired mental health and diabetes distress among persons with T2DM constitutes a major challenge as it has a negative influence on T2DM self-management, HbA1c and complications.

Knowledge is missing regarding real-life effects of personcentered T2DM management programs offered in a municipal setting.

The aim of this study is to assess whether T2DM management program influence mental health.

METHODS

The study was conducted in the period 2018-2021. A total of 461 consecutive persons referred to T2DM rehabilitation were invited. A total of 308 persons were eligible for inclusion. 153 persons were unable for inclusion – primarily due to language barriers and no-show.

At baseline (308), at end of the program (172) and at six months follow-up (131), the persons completed questionnaires in addition to physiological measurements. The questionnaires included information on lifestyle factors, health competences, mental health in general, diabetes-distress, and goal achievement. The questionnaires used in this study included WHO-5, PAID-5 and other primarily validated questions.

Pre- evaluation	Baseline (n=308) Physiological measurements Questionnaire	
Post- evaluation	End of programme (n=172) Physiological measurements Questionnaire	
Follow-up evaluation	Six months follow-up (n=131) Physiological measurements Questionnaire	

To assess diabetes distress, PAID-5 responses are scored from 0 (not a problem) to 4 (serious problem). A sumscore was calculated, giving a total score of 0-20 points. A score \geq 8 indicates possible diabetes distress.

To assess mental health issues WHO-5 score is calculated in a similar way. A combined score of <50 indicate a person in the risk of depression or psychological stress

Furthermore, sociodemographic information were collected to assess distribution and whether a social gradient was present.

RESULTS

At baseline, mean WHO-5 score was 61.6 points (95%CI: 57.5;66.0). At end of rehabilitation a significant increase of 4.6 points (95%CI: 1.4-7.9, p=0.003) was observed. At six months follow-up the WHO-5 score was leveled and unchanged when compared to baseline.

n=103	Start	ΔStart-end	ΔStart-followup
WHO-5	61.6	4.6*	1.4*
avg (95% CI)	(57.5;66.0)	(1.4;7.9)	(-1.9;4.6)
PAID-5	7.6	-2.5**	-2.2**
avg (95% CI)	(6.9;8.2)	(-3.3;-1.7)	(-3.0;-1.3)

Change in WHO-5 and PAID-5 score among persons who took part in

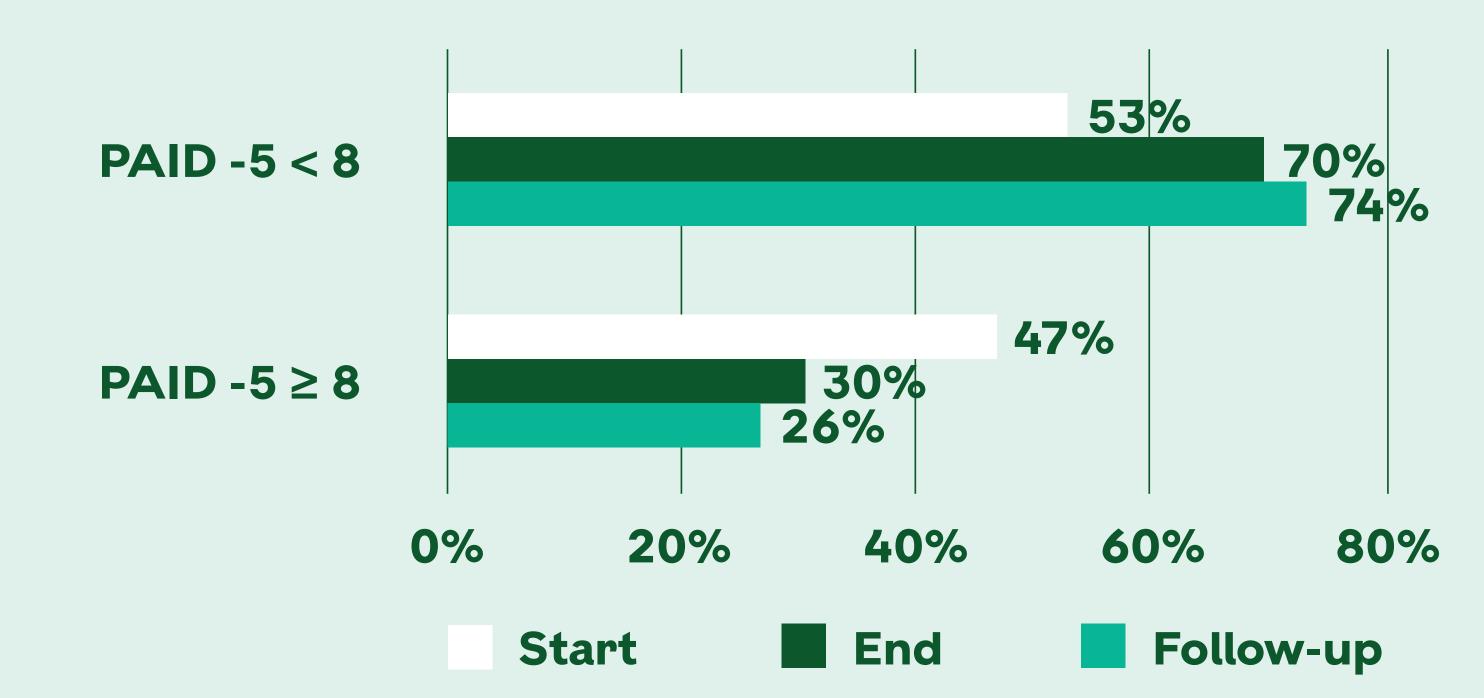
all three evaluations.

* p<0.005

Mean PAID-5 score was 7.6 (95% CI 6.9;8.2) at baseline. At end of program and at six months follow-up a significant decrease was observed.

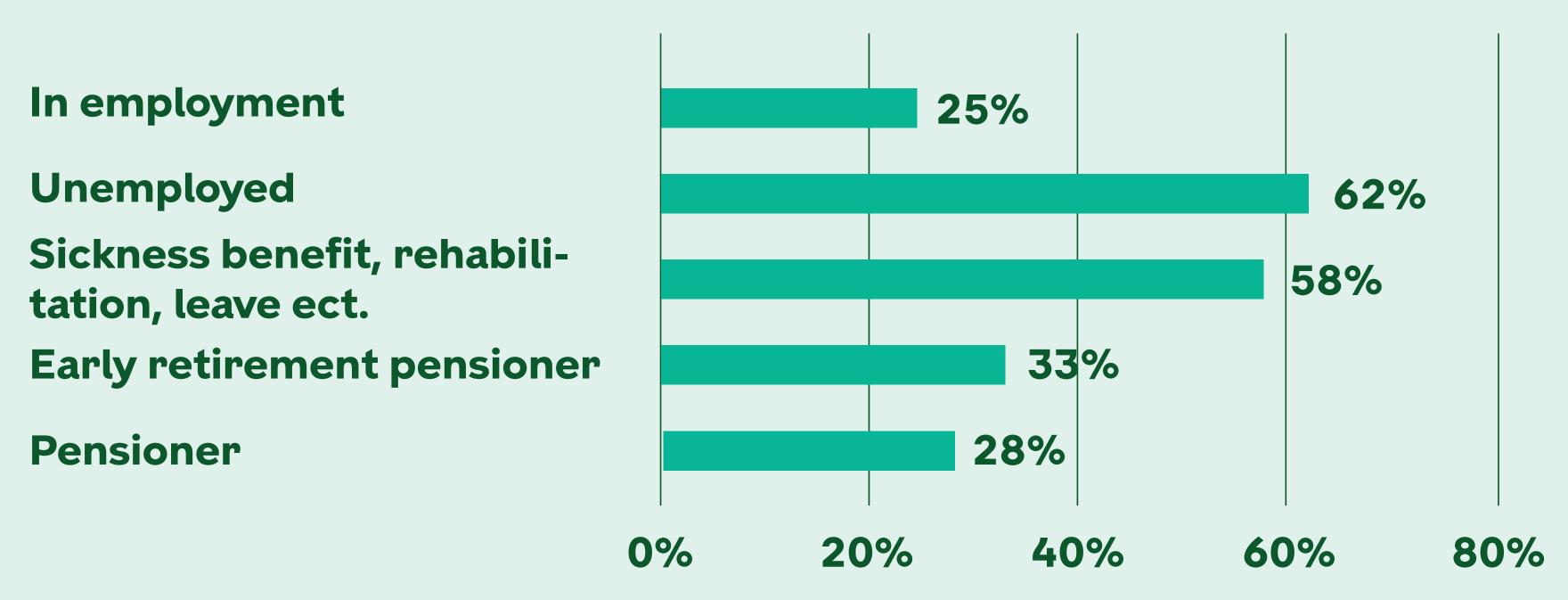
According to PAID-5 assessment of diabetes distress, 47% of included persons had diabetes distress at baseline. This was reduced to 30% and 26% at end of the program and at six months follow-up, respectively.

Diabetes distress



Distribution of persons in relation to diabetes distress (PAID- $5 \ge 8 =$ diabetesstress) at start, end and six months follow-up. (n=103)

Employment status, WHO-5 score <50



Distribution of employment status among persons with WHO-5 score <50 (n=103)

At baseline, the percentage of persons with a low WHO-5 score (<50) is twice as high among unemployed persons and those receiving social benefits compared to working persons, persons eligible for early retirement benefits or pensioners. The differences are statistically significant, which shows a social gradient in WHO-5 scores at baseline. However, no end and six months follow-up results were possible, due to a small sample size.

CONCLUSION

T2DM rehabilitation programs has a positive effect on mental health including general well-being and diabetes distress when assessed by WHO-5 and PAID-5 scores, respectively. Nonetheless there is still room for improvement, especially regarding long term effects. We have now initiated a project in collaboration with Steno Diabetes Center Copenhagen, aiming to improve identification of

individuals and develop interventions targeting persons with moderate to high degrees of diabetes distress.

Rehabilitation efforts varies depending on context, location and demographics. To get more insights of context of the results above, please scan QR-code or visit poster 535-P about the physiological effects.



^{**}Wilcoxon signed ranks test p<0,001