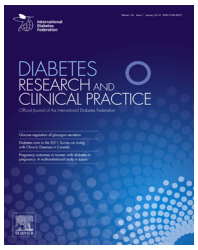
Contents available at ScienceDirect

Diabetes Research and Clinical Practice

journal homepage: www.elsevier.com/locate/diabres

International Diabetes Federation



Change and stability in depressive symptoms in young adults with type 1 diabetes

Leen Oris [a,*], Koen Luyckx [a], Jessica Rassart [a], Eveline Goethals [a], Patricia Bijttebier [a], Liesbet Goubert [b], Philip Moons [a,c], Ilse Weets [d]

[a] KU Leuven , Leuven , Belgium
[b] Ghent University, Gent , Belgium
[c] Institute of Health and Care Sciences, University of Gothenburg, Gothenburg, Sweden
[d] Free University Brussels, Diabetes Research Center, Brussels, Belgium

ARTICLE INFO

Article history:
Received 2 October 2015
Received in revised form
7 October 2015
Accepted 12 October 2015
Available online 23 October 2015

Keywords:
Depressive symptoms
Emerging adulthood
Longitudinal
Type 1 diabetes.

SUMMARY

This study examined inter-individual differences in depressive symptom development in young adults with type 1 diabetes. Individuals with persistent depressive symptoms were at risk for suboptimal development in terms of illness perceptions, illness functioning, and self-esteem. Individuals reporting no/minimal depressive symptoms over time were characterized by the most optimal development.

1. Introduction

Patients with diabetes are twice as likely to have a lifetime depressive disorder as the general population and 20–25% are affected by depressive symptoms [1,2]. Depressive symptoms have been linked to poor treatment adherence [3], diabetes complications, and increased health care costs [4,5]. In this study, young adults with type 1 diabetes were examined concerning the development of depressive symptoms over a five-year period. Two objectives were addressed. First, based on the cut-off of 16 on the Center for Epidemiologic Studies Depression Scale (CESD; [6]), two categories were identified at each time-point: no/minimal (below 16) and mild-to-moderate symptoms (16 and above), with the latter suggestive of psychological disturbance [7]. Next, participants were classified into four groups: no/minimal depression (below 16 at T(imes)1–2), persistent depression (16 or higher at T1–2), increasing depression (below 16 at T1 and 16 or higher at T2), and recovering depression (16 or higher at T1 and below 16 at T2). Second, we assessed how stability and change in depression moderated the development of self-esteem, illness perceptions (perceived consequences of and perceived control over diabetes; [8,9]), and diabetes problem areas. We expect persistent or increasing depressive symptoms to be associated with continued or increasing illness-specific

* Corresponding author at: KU Leuven, Faculty of Psychology and Educational Sciences, Tiensestraat 102, 3000 Leuven, Belgium. Tel.: +32 0 16 37 79 66; fax: +32 0 16 326144.
E-mail address: Leen.Oris@ppw.kuleuven.be (L. Oris).
http://dx.doi.org/10.1016/j.diabres.2015.10.023
0168-8227/

problems and decreasing self-esteem [10], whereas recovering depressive symptoms are expected to be associated with improvements in illness-specific functioning and self-esteem.

2. Method

2.1. Participants and procedure

At T1, 197 patients (116 women) participated (M_{age} = 23.62; SD_{age} = 3.65). Mean age at diagnosis was 15.88 (SD = 6.04). For a detailed description, we refer to Rassart et al. [11]. HbA_{1c}-values were obtained from physicians for 165 patients, who did not differ in age, sex, and illness duration from the remaining participants. Five years later, at T2, a total of 110 individuals participated again and constituted our study sample. Drop-out was higher in men as compared to women [$\chi^2(1) = 4.47$, $p < .05$].

2.2. Questionnaires

Depressive symptoms during the past week were measured using the 20-item CESD [12]. Cronbach's alpha was .92 at T1-2. The Problem Areas in Diabetes Scale [13] was used to assess emotional, treatment-related, food-related, and social support problems. Cronbach's alphas ranged between .58 and .92 at T1–2. Next, the illness perceptions' ''perceived consequences'' and ''personal control'' were measured with the Revised Illness Perception Questionnaire [14]. Cronbach's alphas ranged between .69 and .77 at T1–2. Self-esteem was measured using the Rosenberg Self-Esteem Scale [15]. Cronbach's alpha was .91 at T1 and .94 at T2.

3. Results

At T1, we observed no/minimal depressive symptoms in 77.3% (n = 85) and mild-to-moderate depressive symptoms in 22.7% (n = 25). At T2, these numbers were 71.8% (n = 79) and 28.2% (n = 31), respectively. Four depressive symptoms-groups were created (Table 1 and Panel a of Fig. 1): no/minimal depression (n = 72), recovering depression (n = 7), increasing depression (n = 13), and persistent depression (n = 18). No differences among the groups were found in sex, age, and HbA_{1c} at T1. On illness duration [$F(3,106) = 3.31$, $p < .05$], the recovering depression-group (M = 13.86; SD = 7.47) scored higher than the no/minimal depression-group (M = 7.21; SD = 5.05).

Two multivariate analyses of variance revealed significant differences in outcomes among the groups at T1 [$F(21,287) = 3.93$, $p < .001$] and T2 [$F(21,287) = 5.34$, $p < .001$]. Including illness duration at T1 as covariate resulted in similar findings. Follow-up analyses (Table 1) revealed that, at T1, the no/minimal depression-group scored lowest on diabetes problems and perceived consequences, and highest on self-esteem. The persistent depression-group scored highest on diabetes problems and perceived consequences, and lowest on self-esteem. At T2, again, the no/minimal depression-group scored lowest on diabetes problems and perceived consequences, and highest on control and self-esteem. Conversely, the persistent depression- and increasing depression-groups scored highest on diabetes problems and perceived consequences, and lowest on control and self-esteem.

Repeated measures analyses of variance examined time × group interactions, revealing differential changes over time for the depression-groups. Significant interaction effects were found for social support problems [$F(3,106) = 5.75$, $p < .001$], self-esteem [$F(3,106) = 8.72$, $p < .001$], and marginally so for perceived control [$F(3,106) = 2.24$, $p < .10$]. Social problems decreased in the recovering depression-group and increased in the persistent and increasing depression-groups. Self-esteem showed the opposite pattern. Perceived control decreased in the persistent depression-group and increased in the recovering depression-group (Fig. 1).

4. Discussion

The prevalence rates of elevated depressive symptoms were similar to previous findings [1,16], and persistent elevated depressive symptoms over time were observed in 16% of participants [7,17]. Persistent depressive symptoms over time might signal a diagnosable psychiatric disorder requiring clinical attention [7]. The development of illness-specific problems, perceptions, and self-esteem was moderated by the development of depressive symptoms. Social functioning, perceived control, and self-esteem deteriorated over time in the presence of increasing or persistent depressive symptoms. Conversely, young adults with no/minimal or decreasing depressive symptoms were characterized by more favorable psychosocial development. With respect to perceived social problems, young adults need to feel supported by their immediate environment to manage their illness [18]. However, the increasing depression-group experienced increases in support problems over time, making these individuals vulnerable for suboptimal diabetes management. Further, the differential development of perceived control and self-esteem across these depression-groups may warrant attention given that these variables have been linked to competence in dealing with a chronic illness [19,20]. Hence, this study demonstrates that persistent depressive symptoms over time may signal important developmental problems in psychosocial and cognitive factors, possibly interfering with disease management.

This study has some limitations. First, a self-report questionnaire was used for depressive symptoms rather than structured interviews. However, the CESD is a valid measure for the present population [7]. Second, the rate of depressive symptoms may have been low given voluntary participation [2], although findings were in line with previous studies. Finally, we were not able to collect information on possible depression treatment or the occurrence of major life-events in-between time-points. Future research should assess these variables in an attempt to capture mechanisms through which depressive symptoms may change over time. Despite these limitations, this study emphasizes the need to be attentive for depressive symptoms in patients with diabetes, especially when symptoms persist over time. Given the consequences and health care costs accompanying comorbid depression, especially high-risk patients reporting multiple symptoms not in line with physical assessments could be screened [4,5].