21st Scientific Spring Meeting
Würzburg, Germany
15-17 April 2016
Programme and Abstracts
Dear Members,

Welcome to the 21st PSAD Scientific Spring meeting and welcome to Germany and the historic city of Würzburg. It will be the second time that the PSAD meeting is held in Würzburg. I still have fond memories (!) of that meeting and the social programme at the castle. The city of Würzburg dates from the bronze age. The name Würzburg is presumed to be of Celtic origin but because of associations with the German word Würze (meaning “herb”, “spice”), the city became known under its Latinized name *Herbipolis* in the medieval period.

For this year’s meeting, we continued to make the programme as interactive as possible with time for discussions and exchange of ideas. However, as per tradition, the scientific programme will start with the Anita Carlson lecture. We are very pleased that Prof. Timothy Skinner from the Charles Darwin University, Australia, has accepted our invitation. Timothy has been a longstanding PSAD member with an established track record on the psychological aspects of diabetes care and management. Timothy’s lecture is of particular significance as he worked with Anita Carlson on the last project she completed before she died just over 15 years ago. The title of his presentation is: “Walking backwards into the future and other lessons from the Diabetes Bush”. After the lecture and discussion, there will be dinner at the hotel.

Saturday will start with presentations featuring completed work. After the coffee break, we will go head to head with a debate. This year we will discuss whether or not medical doctors fail to achieve quality diabetes care unless they receive adequate psychological training. Discussion leaders will be Dr. Karin Kanc and Prof. Frank Snoek. After the debate there will be two parallel sessions with work in progress; one session is related to diabetes education and the other on distress and psychosocial issues.

After lunch we will present the PSAD Science Award followed by two parallel sessions with the round table discussions: we aim to achieve highly interactive, informative and valuable discussions! This year, the discussions will focus on “Translating research into policy and practice” with examples from the Australian Centre For Behavioural Research in Diabetes (Prof. Jane Speight) and “Psychological interventions in diabetes education” (Prof. Norbert Hermanns).

For those interested in research on depression and diabetes, Saturday’s sessions will finish with the meeting of the European Depression in Diabetes research consortium (EDID). The social programme will start at 17.30 in the town of Veitshöchheim, just north of Würzburg; dinner is at 19.00 at Veitshöchheim’s old Townhall restaurant “Ratskeller”.

Sunday morning will start with the PSAD business meeting. Although the business meeting was traditionally the last part of the programme, we decided to hold it earlier in the programme to allow all participants of the meeting to contribute to the discussions.

The remainder of Sunday morning is dedicated to presentations of completed work, and opportunities for further discussions and networking. The meeting will close at 12.00.

On behalf of the Executive Committee, and the local organiser, Dr Andreas Schmitt, I wish you a fruitful and rewarding meeting and a pleasant stay in Würzburg.

Prof. Arie Nouwen
Chair of the PSAD
## Scientific Programme

### Friday, 15 April

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>16.00-16.30</td>
<td>Registration (€150) and welcome reception at the hotel</td>
</tr>
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</table>
| 16.30-16.45 | Welcome – Opening remarks  
Arie Nouwen                                                |
| 16.45-17.30 | **Anita Carlson Lecture:**  
“Walking backwards into the future and other lessons from the Diabetes Bush.”  
Prof. T. Skinner, Charles Darwin University, Australia |
| 17.30-18.00 | Discussion                                                                            |
| 18.00-19.00 | Registration cont’d                                                                      |
| 20.00 | Dinner                                                                                 |

### Saturday, 16 April

<table>
<thead>
<tr>
<th>Time</th>
<th>Completed Work – session I</th>
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| 9.00-9.15 | Markers of inflammation, endothelial dysfunction and advanced glycation endproducts are associated with depression – The Maastricht Study.  
M. Schram |
A. Schmitt |
| 9.30-9.45 | Depressive subtypes in people with diabetes and their association with glycaemic control.  
D. Ehrmann |
| 9.45-10.00 | Suicidal ideation and depression among adults with diabetes:  
J. Albertorio - Diaz |
| 10.00-10.15 | Diabetes perceptions, relationship quality and coping among adults with type 2 diabetes and their partners: Influences on diabetes distress and HbA1c.  
E. Berry |
| 10.15-10.30 | Increased diabetes-related distress in people with type-1-diabetes especially during the first years after diagnosis.  
A. Reimer |

### 10.30-11.00  
**Tea / Coffee Break**

### 11.00-12.00  
**Debate**  
"Medical doctors will fail to achieve quality diabetes care unless they receive adequate psychological training."  
Karin Kanc and Frank Snoek

## Work in Progress – parallel session

### Session I - Education

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
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| 12.00-12.15 | Prevention of type 2 diabetes in obese children and adolescents – How to develop an intervention that meets the target group?  
G. Husted |
| 12.15-12.30 | Online peer support for persons with type 1 diabetes.  
N. Kingod |
| 12.30-12.45 | Exploring barriers and facilitators to attendance at diabetes structured education programmes in Ireland: A qualitative study.  
J. McSharry |
| 12.45-13.00 | Exploring factors associated with self-management among adults with type 1 diabetes to facilitate intervention development.  
L. Hynes |
### Scientific Programme

**Saturday, 16 April—continued**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session II – Distress and psychosocial aspects</th>
<th>Chair: Marcel Adriaanse</th>
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</thead>
<tbody>
<tr>
<td>12.00-12.15</td>
<td>Reducing diabetes distress using a novel, ultra-brief smartphone “APP”.</td>
<td>A. Ventura</td>
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<tr>
<td>12.15-12.30</td>
<td>Shared decision making in type 2 diabetes care: What is the research agenda?</td>
<td>T. Wieringa</td>
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<tr>
<td>12.30-12.45</td>
<td>The role of working memory in food intake in people with type 2 diabetes.</td>
<td>V. Whitelock</td>
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</tbody>
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**13.00-14.00** Lunch

**14.00-14.30** Science Award

<table>
<thead>
<tr>
<th>Time</th>
<th>Round Table Discussions – parallel session</th>
<th>Chair: Arie Nouwen</th>
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</thead>
</table>
2. “Translating research into policy and practice.” J. Speight |                          |

**15.30-16.30** EDID Meeting

**Sunday, 17 April**

<table>
<thead>
<tr>
<th>Time</th>
<th>PSAD Business Meeting</th>
<th>Chair: Maartje de Wit</th>
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<tbody>
<tr>
<td>9.00-10.00</td>
<td>Completed Work – session II</td>
<td></td>
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<tr>
<td>10.00-10.15</td>
<td>Educator strategies in facilitating person-centered diabetes education in group settings.</td>
<td>V. Stenov</td>
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<tr>
<td>10.15-10.30</td>
<td>Disturbed eating behaviors in adolescents with type 1 diabetes.</td>
<td>M. Eilander</td>
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<td>10.30-10.45</td>
<td>Hypoaware, a brief and partly web-based psychoeducational intervention for adults with type 1 and insulin-treated type 2 diabetes and problematic hypoglycaemia: A randomised controlled trial.</td>
<td>S. Rondags</td>
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<tr>
<td>10.45-11.00</td>
<td>Resilience as a predictor of glycaemic control in young adults with type 1 diabetes.</td>
<td>J. Huber</td>
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<tr>
<td>11.00-11.15</td>
<td>Impact of continuous glucose monitoring on psychosocial outcomes – A meta-analysis.</td>
<td>D. Zahn</td>
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**11.15-11.45** Tea / Coffee Break

**11.45-12.00** Closing Remarks

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<thead>
<tr>
<th>Time</th>
<th>Closing Remarks</th>
<th>Arie Nouwen</th>
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Social Programme

Dear all,

The Saturday night programme is going to take us out for dinner to the little town of Veitshöchheim, north of Würzburg. We will begin our evening with a walk through the ancient centre of Würzburg and along quay of the river Main to the “Alter Kranen”, the old crane which loaded and unloaded the merchant ships that sailed on the Main in ancient times.

At the local pier we will be awaited by a sightseeing boat, which is going to take us on a trip downstream of the river Main. After passing Würzburg’s most famous vineyard “Stein” and the monasteries “Himmelspforten” and “Oberzell”, we will eventually land just a short walk off the lovely “Veitshöchheim Castle”, where Würzburg’s prince-bishops used to reside during summer times. The castle’s court garden is considered one of the most beautiful Rococo gardens in Europe – and, of course, we are going to visit it.

Dinner will be served for us right besides the castle at Veitshöchheim’s ancient townhall restaurant “Ratskeller”. With Franconian meals and wines, we will finish off the day, before being driven back to our hotel in Würzburg.

We look forward to seeing you in Würzburg!
Completed Work

MARKERS OF INFLAMMATION, ENDOTHELIAL DYSFUNCTION AND ADVANCED GLYCATION ENDPRODUCTS ARE ASSOCIATED WITH DEPRESSION – THE MAASTRICHT STUDY

Authors: M.T. Schram 1,2, F.E.P. van Dooren 1,2,3,4, F.R.J. Verhey 4, S.J.S. Sep 1,2, A. Koster 5,6, C. Schalkwijk 1,2, R.M.A. Henry 1,2, N.C. Schaper 1,2,6, C. J.H. van der Kallen 1,2, P.C. Dagnelie 2,7, C.D.A. Stehouwer 1,2, J. Denollet 3, F. Pouwer 3

Institutes: 1 Department of Internal Medicine, Maastricht University Medical Centre (MUMC+), Maastricht, the Netherlands, 2 Cardiovascular Research Institute Maastricht (CARIM), Maastricht University, Maastricht, the Netherlands, 3 CoRPS – Center of Research on Psychology in Somatic Diseases, Department of Medical and Clinical Psychology, Tilburg University, Tilburg, The Netherlands, 4 MHeNS – Alzheimer Centre Limburg, School for Mental Health and Neuroscience, Maastricht University, Maastricht, The Netherlands, 5 Department of Social Medicine, Maastricht University, Maastricht, the Netherlands, 6 CAPHRI School for Public Health and Primary Care, Maastricht University, Maastricht, the Netherlands, 7 Department of Epidemiology, Maastricht University, Maastricht, the Netherlands.

Aims:
The pathogenesis of depression is not entirely clear. We evaluated three possible mechanisms, and investigated independent associations of inflammation, endothelial dysfunction and advanced glycation end products (AGEs) with depressive symptoms and depressive disorder in a population-based setting.

Participants:
Cross-sectional data was used from The Maastricht Study (N= 862; mean age 59.8 ± 8.5 years; 55% men), a population-based cohort study.

Methods:
Plasma biomarkers of inflammation (hsCRP, SAA, sICAM-1, IL-6, IL-8, TNF-α) and endothelial dysfunction (sVCAM-1, sICAM-1, sE-selectin, vWF) were measured with sandwich ELISA and combined into a standardized sumscore. AGE accumulation in tissue was measured with skin autofluorescence (SAF) by use of the AGE Reader. Plasma levels of protein-bound pentosidine, Ne-(carboxymethyl)lysine (CML) and Ne-(carboxyethyl)lysine (CEL) were measured with state of the art techniques. Depressive symptoms and depressive disorder were assessed by the 9-item Patient Health Questionnaire (PHQ-9) and the Mini-International Neuropsychiatric Interview (MINI).

Results:
Biomarkers of inflammation (hsCRP, TNF-α, SAA, sICAM-1) and endothelial dysfunction (sICAM-1, E-Selectin) were univariately associated with depressive symptoms and depressive disorder. The sumscores of inflammation and endothelial dysfunction were associated with depressive disorder after adjustment for age, sex, type 2 diabetes, kidney function and prior CVD (OR 1.54, p=0.001 and 1.40, p=0.006). The sumscore of inflammation was also independently associated with depressive symptoms (β 0.60 [95%-CI 0.19; 1.02], p = 0.05), while the sumscore of endothelial dysfunction was not (β 0.25 [-0.19; 0.68], p = 0.262). Higher SAF was associated with depressive disorder (OR=1.42, [1.04; 1.95], p=0.028) and depressive symptoms (β 0.42, [0.12; 0.73], p = 0.007) after adjustment for age, sex, type 2 diabetes, smoking, BMI and kidney function. Plasma pentosidine, CML and CEL were not independently associated with depressive disorder and depressive symptoms.

Conclusions:
This study shows that inflammation, endothelial dysfunction and tissue AGE accumulation are independently associated with depression, and may suggest that these mechanisms are involved in the development of depression.
Completed Work

THE ASSOCIATION BETWEEN DEPRESSIVE SYMPTOMS AND HYPERGLYCAEMIA IS MEDIATED BY IMPAIRED DIABETES SELF-MANAGEMENT: A STRUCTURAL EQUATION MODELLING ANALYSIS

Authors: A. Schmitt1,2, A. Reimer1,2, B. Kulzer1,2, D. Ehrmann1, T. Haak1, M. Krichbaum1, J. Huber3, N. Hermanns1,2
1 Research Institute of the Diabetes Academy Mergentheim (FIDAM), Bad Mergentheim, Germany
2 German Center for Diabetes Research (DZD), Munich, Germany
3 Centre for Health Research, University of Brighton, United Kingdom

Aims:
This study is based on the behavioural hypothesis of depression-related hyperglycaemia, stating that comorbid depression in diabetes can lead to hyperglycaemia due to impaired diabetes self-management. Despite its prominence, convincing evidence to support this hypothesis has not been reported. Hence, we conducted this study and analysed if the association between depressive symptoms and hyperglycaemia would be mediated by impaired diabetes self-management using cross-sectional data from patients with type 1 and type 2 diabetes.

Methods and Participants:
A convenience sample comprising 248 patients with type 1 diabetes and 182 patients with type 2 diabetes (54% females; age 47 ± 15 years; BMI 30 ± 10 kg/m²; diabetes duration 15 ± 10 years; 91% using insulin; HbA1c 8.5 ± 1.6%; 44% with complications), collected at a tertiary referral centre for diabetes in Germany, was assessed for depressive symptoms and diabetes self-management using validated self-report scales (Center for Epidemiologic Studies Depression Scale; Diabetes Self-Management Questionnaire); HbA1c was analysed in one central laboratory using standardised methods. Structural equation modelling was used to test if the association between depressive symptoms and hyperglycaemia (HbA1c) was mediated by impaired diabetes self-management; analyses were conducted separately for patients with type 1 and type 2 diabetes.

Results:
The hypothesised model of depressive symptoms, diabetes self-management and hyperglycaemia fit the data well for patients with type 1 as well as those with type 2 diabetes (SRMR ≤ 0.026, CFI ≥ 0.999, TLI ≥ 0.998, RMSEA ≤ 0.012 for both models). In both the type 1 and the type 2 diabetes group, higher depressive symptoms predicted lower diabetes self-management (β = –0.25 and –0.42, respectively; both P < 0.001), and lower diabetes self-management predicted higher HbA1c (β = –0.56 and –0.50, respectively; both P < 0.001). Results indicated a significant indirect association between depressive symptoms and hyperglycaemia mediated by lower diabetes self-management, amounting to β = 0.14 for patients with type 1 and β = 0.21 for patients with type 2 diabetes (both P < 0.001). A significant direct association between depressive symptoms and hyperglycaemia was not observed in either group (both P > 0.05), suggesting full mediation of the association by diabetes self-management.

Conclusions/Discussion:
This study provides convincing evidence to support the behavioural hypothesis of depression-related hyperglycaemia. Our results suggest that the association between depressive symptoms and hyperglycaemia is mediated by impaired diabetes self-management for both major diabetes types.

Supported by the German Center for Diabetes Research (DZD).
DEPRESSIVE SUBTYPES IN PEOPLE WITH DIABETES AND THEIR ASSOCIATIONS WITH GLYCAEMIC CONTROL

Authors: D. Ehrmann, A. Schmitt, A. Reimer, T. Haak, B. Kulzer, N. Hermanns
Institute: Research Institute of the Diabetes Academy Mergentheim (FiDAM)

Aims:
Associations of depression with glycaemic control are not conclusive. While some studies found a positive association, others found none or found that diabetes-related distress is a mediating factor of this association. These inconsistencies might be due to the complex symptomatology of depression. Depressive symptoms can range from sleep or appetite disorders to depressed mood and having crying spells. Thus, people diagnosed with “depression” need not inevitably share the same symptoms. These various symptom-clusters or subtypes could have different associations with glycaemic control. This study investigated which subtypes of depression can be found in people with diabetes and analysed the associations of these subtypes with glycaemic control.

Methods and Participants:
986 people with type 1 and type 2 diabetes completed the Centre for Epidemiological Studies - Depression scale (CES-D) as well as the Problem Areas in Diabetes Scale (PAID). Factor analysis was performed to identify depressive subtypes within the CES-D. Subsequently, linear regression analysis with HbA1c as dependent variable was conducted. Independent variables of interest were the subtype-scores of the CES-D controlled for demographic (age, gender, body mass index, education) and medical (diabetes type, diabetes duration, number of SMBG, late-complications) variables as well as diabetes-related distress.

Results:
Principal component analysis with Varimax-rotation identified four factors: I) depressive-affective symptoms II) somatic symptoms III) anhedonia IV) interpersonal symptoms (56% explained variance). Interestingly, anhedonia achieved the highest mean item score (1.37 ± 0.80), followed by somatic symptoms (0.70 ± 0.52) and depressive-affective symptoms (0.44 ± 0.51). Interpersonal symptoms were rather rate (0.31 ± 0.49). Only the depressive-affective subtype and the somatic subtype were significantly associated with HbA1c. A greater somatic symptomatology was associated with a higher HbA1c (β = .15; p = .001) whereas a greater affective symptomatology was associated with a lower HbA1c (β = -.15; p = .001). Greater diabetes-related distress was also associated with higher HbA1c (β = .13; p = .001). Linear regression with depressive symptoms in general (CES-D total score) as independent variable revealed no significant association (β = -.01; p = .86).

Conclusion:
This study demonstrated that depression is a complex condition and offers an explanation for the inconsistencies in current literature regarding associations with glycaemic control. Whereas depressive symptoms in general were not associated with glycaemic control, the differentiation of subtypes offered a more complete picture. Anhedonia seems to be an important factor within the depressive symptomatology of people with diabetes, but showed no association with glycaemic control. Only the somatic and affective subtypes were associated with glycaemic control but showed diametral associations. In clinical practice and further research, a closer look which symptoms of depression are present may be helpful to better understand depression as a vulnerability factor.

Authors: J. R. Albertorio-Diaz, H. Shalub, M. Reaney, B. Munkombwe, Y. Hei

Institute: 1National Center for Health Statistics, 2International Statistics Program, 3Office of Research and Methodology, 4ERT/Bentley University

BACKGROUND:
Suicidal ideation (SI) and depression among people with diabetes status have been reported to be interlinked in the literature. However, the mainstream work has been focused on the prospect of major depressive episodes (MDE), systematically excluding the contribution of mild to moderate forms of depressive states (mmD). mmD has been documented to confer comparable morbidity and poor health outcomes as MDE. Yet, in population-based studies, the association between suicidal ideation and mmD among people with diabetes has been poorly examined.

Aim:
To examine the relationship between suicidal ideation (SI) and mild to moderate forms of depressive states (mmD) among diabetes status (diagnosed, undiagnosed, pre-diabetes and no diabetes) in a population-based non-institutionalized adult sample.

Methods:
Participants were 6,623 US adults aged > 18 years of age from the National Health Nutrition Examination Survey, 2007-2012. Depression severity and SI were assessed using the PHQ-9. Separate logistic regression models were employed to determine the association between SI outcome with depression severity, and diabetes status. Selected socio-demographic factors were included in the adjusted model.

Results:
Overall, 2.8% of the US adult noninstitutionalized population self-report SI. However, SI was more prominent among adults with diagnosed diabetes (4.5%) than in adults with others diabetes statuses such as undiagnosed diabetes (2.2%), prediabetes (2.3%), or no diabetes (2.9%). SI was distinguished among adults who present moderately-severe (21.6%) and mild to moderate (2.3%) depression severity. Unadjusted and adjusted binomial models confirmed an independent association between diabetes status, depression severity, and suicidal ideation outcome. Respondents with diagnosed diabetes are 55% more likely to self-report SI (adjusted odds ratio 1.55; 95% C.I., 1.02-2.33) relative to respondents with no diabetes controlling for age, sex, education, poverty, and race-ethnicity. When depressive severity was controlled, SI adjusted odds ratio was reduced to the extent of no significant value (0.99; 96% C.I., 0.64-1.54). Education, poverty and race-ethnicity were also associated with suicidal ideation.

Discussion:
Results confirm an association between diabetes and SI among non-institutionalized adults. As expected, moderate to severe depression severity thresholds will incur in increased likelihood of SI. However, this study shows that even adults with mmD and diabetes are more likely to self-report SI than adults with no diabetes. The implication of this study bolsters the need to stress the notion of screening protocols sensitive enough to take into consideration mmD among the whole spectrum of depressive states. In addition, it expands on the concept of early screening and detection to be taken into consideration mmD as a relevant state to prevent SI among adults with diabetes in the United States.
Completed Work

DIABETES PERCEPTIONS, RELATIONSHIP QUALITY AND COPING AMONG ADULTS WITH TYPE 2 DIABETES AND THEIR PARTNERS: INFLUENCES ON DIABETES DISTRESS AND HBA1C

Authors: E. Berry, M. Davies, M. Dempster
Institute: Queen’s University Belfast

Aim:
To provide evidence for the development of an intervention to reduce diabetes distress in persons with Type 2 diabetes and their partners. Three research questions help delineate this: 1) What is the predictive value of illness perceptions, relationship quality, coping strategies and participant demographics of couples living with type 2 diabetes on Diabetes Distress and glycated haemoglobin (HbA1c). 2) Do partner’s illness perceptions moderate the relationship between patient illness perceptions and diabetes distress/ HbA1c? 3) Does incongruity in patient and partners illness perceptions predict diabetes distress/ HbA1c?

Methods and Participants:
The study was a postal questionnaire containing questions about participant demographics, and five psychometric scales; Beck’s Depression Inventory (BDI), Diabetes Distress Scale (DDS), Revised Illness Perception Questionnaire (IPQ-R), Dyadic Adjustment Scale (DAS) and the Brief COPE. Independent variables were demographics, illness perceptions, relationship quality and coping methods and dependent variables were diabetes distress and HbA1c (HbA1c was accessed via patients’ General Practitioner (GP), with their permission). Depression was used as a control variable. Participants were recruited from the primary care sector, through the databases of five General Practices across rural and urban Northern Ireland. To achieve the desired sample size of 120 couples, 950 persons aged 18+ with a diagnosis of type 2 diabetes were posted out an information pack, a questionnaire for themselves and an adapted version of the questionnaire for their partner/spouse (if living with someone), and a freepost return envelope.

Results:
75 couples completed and returned their questionnaires. A further 89 completed the person with type 2 diabetes questionnaire only (these were not included in the current analysis and will be analysed separately in a second study). Hierarchical multiple regression analysis was performed across each dependant variable. Regression models showed that the independent variables explained 76.5% of the variance in total diabetes distress and explained 61% of the variance in HbA1c. Male gender, lower ‘illness coherence’ in patients and partners, higher ‘emotional representations’ in patients, lower use of ‘behavioural distraction’ and higher use of ‘humour’ as coping methods predicted higher levels of diabetes distress. Female gender, insulin use, higher ‘identity’ in patients, and higher ‘emotional representations’ in partners, lower ‘relationship cohesion’, and lower ‘emotional support’ seeking as a coping method contributed to the majority of the variance in HbA1c. Partners’ ‘emotional representations’, ‘perceived behavioural cause’ and ‘identity’ moderated the relationship between corresponding patient perceptions and diabetes distress. Partners’ emotional burden (diabetes distress subscale) was also found to moderate the relationship between patients’ emotional burden and HbA1c. Incongruity in patient and partner illness perceptions significantly predicated higher levels of diabetes distress.

Conclusions:
The findings suggest that an intervention which is focused on illness perceptions, interpersonal issues and coping behaviours of individuals living with type 2 diabetes and their partners might be most effective in reducing diabetes distress and improving HbA1c.
Completed Work

INCREASED DIABETES-RELATED DISTRESS IN PEOPLE WITH TYPE-1-DIABETES ESPECIALLY DURING THE FIRST YEARS AFTER DIAGNOSIS

Authors: A. Reimer, A. Schmitt, D. Ehrmann, B. Kulzer, N. Hermanns
Institute: Research Institute of the Diabetes Academy Mergentheim (FIDAM)

Aims:
A diagnosis of type-1-diabetes imposes the need for extensive behavioural adjustments toward successful diabetes self-management on the affected and is often attended with emotional distress. Although it can be assumed that emotional coping with diabetes improves over the duration of the condition, hitherto existing analyses of the association of diabetes distress and duration in people with type-1-diabetes have yielded ambiguous results.

Methods and Participants:
1381 people with type-1-diabetes (age 41 ± 13 years, 53% female, diabetes duration 18 ± 12 years, HbA1c 8.5 ± 1.8%) were examined regarding affective symptoms in the context of an in-house screening. Diabetes distress was assessed using the Problem Areas in Diabetes (PAID) scale, depressive mood was assessed using the Center for Epidemiologic Studies Depression (CES-D) scale. The association of diabetes duration and distress was analysed using multiple regression, adjusted for age, sex and other relevant covariates.

Results:
The multiple regression model showed a significantly negative association of diabetes duration and distress (β = -0.11, p < 0.001) under adjustment for clinically meaningful variables, such as the HbA1c-value (β = 0.06, p < 0.01), depressive symptoms (β = 0.65, p < 0.001), diabetes complications (β = -0.01, p > 0.05) as well as treatment with CSII (β = 0.02; p > 0.05).

People with a duration of diabetes up to three years showed higher HbA1c-values (8.9% vs. 8.4%, p < 0.01) and more severe symptoms of depression (17.7 vs. 15.9, p = 0.076), besides experiencing higher diabetes distress (34.1 vs. 29.6; p < 0.01).

Conclusions:
Results point to increased diabetes distress in people with type-1-diabetes, especially in the first years after diagnosis of the condition. Thus, intensified medical and psychosocial support specifically aimed at people with short duration of diabetes may be advisable.

This work was supported by the German Center for Diabetes Research (DZD).
PREVENTION OF TYPE 2 DIABETES IN OBESE CHILDREN AND ADOLESCENTS – HOW TO DEVELOP AN INTERVENTION THAT MEETS THE TARGET GROUP?

Authors: G.R. Husted, D. Grabowski
Institute: Health Promotion Research, Patient Education, Steno Diabetes Center, Denmark.

Background:
The incidence of obesity is increasing worldwide. Studies have documented an obesity epidemic among children and adolescents also in Denmark. This represents a health risk which include the risk of serious chronic illnesses such as Type 2 diabetes and subsequently development of psychosocial problems during emerging adulthood. One hand children and adolescents find it difficult to self-manage or change lifestyle behaviour to reduce obesity. On the other hand most parents are also unsure how to manage obesity in everyday life. Some parents choose to undervalue the problem while others indicate no concern hoping that their child grow into a weight that is in proportion to their height. Many obesity treatment initiatives have been implemented during the last decade consisting of different treatment programmes with different pedagogical approaches. Some treatment programmes focus on the entire family using a predetermined detailed treatment plan containing 15-20 changing points encompassing all aspects of everyday family life. Other programs focus more on the parents or the children’s/adolescents’ resources and self-management skills. The obesity treatment programmes in Denmark are offered at specialised obesity outpatient clinics or in the communities or in collaboration. So far none have shown significant effect on weight loss or better quality of life and drop out rates are often high. Many children, adolescents and families find it very hard to integrate the obesity treatment programmes into everyday life.

Purpose:
A) To explore the experience of participating in existing treatment programmes for obese children and adolescents and their families in different settings in Denmark (communities, obesity outpatient clinics)
B) To develop and test an intervention that focus on how to prevent type 2 diabetes targeting risk children 9- to 18-years and their families who may not fit into existing treatment programmes.

Design/methods
A) An explorative qualitative approach is chosen for purpose A. A number of observations of consultations between children/adolescents and their parents and health care professionals (HCP) in outpatient settings and communities will be conducted followed by individual semi-structured interviews with the same participants. In addition a number of children/adolescents and parents who have dropped out or who have not benefitted from the treatment programme will be invited to individual interviews.

B) A design thinking process with inspiration from action research is chosen for purpose B. Design thinking builds on a creative, innovative approach in a systematic process, typical in three to four phases. It starts with research and analysis of the existing treatment programme to identify challenges and unmet needs from all involved participants (children/adolescents, parents and HCP). This phase is followed up by an idea generation phase and concept development involving all participants again where a battery of different methods such as workshops, individual interviews and role play are used. Finally concepts and models for a new intervention are developed in agreement with the target groups and ready for implementing and feasibility test in a real life setting followed by an effect study.
Planned Analysis:
A) The qualitative analysis will be based on the principles of Pawson and Tilley realist evaluation; ‘what works for whom, in what circumstances and in what respect and how’.
B) The qualitative analysis in the design thinking process is mainly based on an inductive iterative thematic analysis process.

Expected outcomes:
We expect the study to provide evidence of existing treatment programmes and add knowledge to understand why or why not current treatment programmes do not support all children/adolescents and their parents. Based on this knowledge we expect to develop an educational treatment programme that can be used as a supplement to current offers in order to meet both person-specific and family-specific needs and prevent Type 2 diabetes in the long term.

Problems/questions are related to purpose A
1. Suggestions on how to ensure a purposeful sample of participants (in- and exclusion criteria), numbers and settings (hospital and communities) to ensure a nuanced evidence based picture of the participants experience of current obesity treatment programmes?
2. What focus points are recommended for the data collection in relation to the younger children (9-14 yrs) – individual interviews or conducted together with their parents – pros and cons?
Work in Progress

ONLINE PEER SUPPORT FOR PERSONS WITH TYPE 1 DIABETES

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Introduction and aim:
Persons with a chronic illness such as type 1 diabetes are increasingly approaching online environments for social support in managing their illness in everyday life. They turn online to look for insights on health related problems, symptoms and treatments and to connect with others with the same illness. In particular platforms that offer peer-to-peer features through online communities have during the last decade become extremely popular among millions of people worldwide with chronic illness. Interactive platforms can be found on social media sites such as Facebook and Twitter as well as patient portals for various chronic illness groups providing online communities for patients, relatives and health care professionals. Such online communities deliver ways for peers to communicate about health and illness and for the sharing of experiences as well as getting support.

Mainly Facebook peer support communities are valued among persons with type 1 diabetes in Denmark with 10 active groups since 2011. This calls for further research on human-technology interrelations in relation to self-management practices in everyday life with type 1 diabetes. Previous studies within medical and social science have looked at online communities as disintegrated from offline everyday life. The aim of this study is to explore how Danish online peer support communities on Facebook for persons with type 1 diabetes relate to everyday life and support the person in living with the illness.

In particular following research questions are explored:
✦ How do online peer support communities support the person in living with the illness in everyday life?
✦ How are processes of knowledge production and social support in online peer-support communities for persons with type 1 diabetes?
✦ How does social relatedness in online and offline contexts affect everyday living with the illness?

Design and method:
This study consists of a combination of online data with in-person data gathered with use of a triangulation of methods such as explorative ethnographic online and offline fieldwork techniques.

Phase 1: Exploring the field:
State of the art – In the process of writing a systematic qualitative review on how online peer support communities support persons with a chronic illness

Phase 2: Investigating processes and practices knowledge production and social support:
• Identifying Danish Facebook communities for persons with type 1 diabetes
• Recruitment through Facebook communities
• 'Practice-near’ face-to-face interviews and socio-material observations (N=12)
• Online observations of two of the most active Facebook communities for persons with type 1 diabetes
• Analysis with focus on socio-material practices, embodiment and transformation of knowledge
Phase 3: Understanding the reshaping of offline-online relatedness in time and space:

- Participant observations at offline peer-to-peer networking sites for persons with type 1 diabetes (N=4)
- Offline focus group discussions (N=2)
- Observation of the two most active Facebook communities
- Analysis with focus on social dynamics, experienced boundaries of online-offline social relatedness and the reshaping of social relations in a time-space dimension

Analytical theoretical framework:

The analysis of data will be approached with practice theory (praxeography) and social phenomenology. The theoretical approaches are tied to an interest of studying the ongoing enactments of human-technology practices and relations in everyday life with type 1 diabetes. Social worlds (online and offline) are understood as interactionist and dynamic and focus will be on the reflexive agents (persons with type 1 diabetes) living and interacting in them. This analytical approach will be used to understand the complexity and variations of embodied, contextual and situated practice of seeking support and producing knowledge in both online and offline arenas.

Data will be organised with the use of the analytical software programme Nvivo.

Expected outcomes:

The expected outcome of this study is knowledge about how online communities are valued by persons with type 1 diabetes and support them in living with the illness in everyday life.

A preliminary analysis indicates that persons with type 1 diabetes use online peer communities on Facebook as a database on ‘lived knowledge’. The peer reciprocity of ‘lived knowledge’ encourages peers to carry out self-care experiments for enhanced navigation in everyday life with the illness. These experiments include adapting technological diabetes specific devises to everyday situations reducing feelings of diabetes-specific distress.

This study might contribute in developing theory on person-centred e-health knowledge with the aim at developing tailored interventions for the target group.

Questions:

Question on ‘suitable theories’

What other theoretical approaches can be applied to grasp human-technology interrelations and social relatedness in everyday life?

Question on ‘research ethics’

What ethical methodological questions should I be aware of when conducting research on Facebook communities for persons with type 1 diabetes?
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EXPLORING BARRIERS AND FACILITATORS TO ATTENDANCE AT DIABETES STRUCTURED EDUCATION PROGRAMMES IN IRELAND: A QUALITATIVE STUDY

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Aims:
Diabetes patient education programmes are group-based structured courses delivered by trained educators to facilitate patients in developing the knowledge and ability to self-manage their diabetes and assume an active role in their diabetes care. In Ireland, three structured patient education programmes are currently available for patients with Type 2 Diabetes Mellitus (T2DM), the Community Oriented Diabetes Education (CODE) programme, the Diabetes Education and Self Management for Ongoing and Newly Diagnosed (DESMOND) programme and the X-PERT programme. Despite evidence that education programmes can improve clinical, lifestyle and psychosocial outcomes in T2DM, it is estimated that only 3.6% of patients with T2DM have attended structured education programmes. A recent report from the Irish Health Service Executive has indicated that attendance in Ireland is at a similarly low level.

The aim of this study is to explore barriers and facilitators to attendance at diabetes structured education programmes by patients with T2DM in Ireland.

Design/Methods:
This study is a qualitative study exploring perceived barriers and facilitators to attendance at diabetes structured education programmes in Ireland. Participants will be patients with T2DM referred to structured education programmes and educators on each of three structured education programmes (CODE, DESMOND and X-PERT) available in Ireland. Approximately 15-20 patients and 5-10 educators will take part in interviews. Recruitment will continue until an adequate level of saturation had been reached, data has been collected to account for all themes and no new significant insights emerge from interviews.

Planned Analysis:
Interviews will follow a semi-structured interview guide and will be audio-taped and transcribed. Transcripts will be coded and analysed using inductive thematic analysis with data management facilitated through NVivo 11. The Capability-Opportunity-Motivation-Behaviour (COM-B) system will also be used to code Interview data. The COM-B system forms part of the Behaviour Change Wheel approach, a systematic guide for the development of behaviour change interventions.

Expected Outcomes:
A paper exploring perceived barriers to attendance at diabetes structured education programmes by patients with T2DM in Ireland.
The findings will also inform the development of an intervention to increase attendance at structured education programmes in Ireland.
Problems/Questions:

1). Research teams have explored barriers to attendance in other countries, for example in the UK. To what extent should we combine efforts internationally for research, and is a country and health-service specific approach also always needed?

2). Participants who don’t attend at structured education when referred, or who fail to attend at all sessions, are of particular interest in this study. How can these participants be reached as they are likely to be difficult to recruit? The study also includes both patient and educator perspectives. How can patient and educator views best be integrated during analysis and write-up?

3). This qualitative study serves two purposes, and explores attendance at structured education attendance from multiple perspectives as well as forming the first stage of an intervention development process. Accordingly, we plan to conduct an inductive thematic analysis and to code interviews using the COM-B system to inform development of an intervention.

Is the use of both inductive and deductive COM-B coding necessary and useful?
EXPLORING FACTORS ASSOCIATED WITH SELF-MANAGEMENT AMONG YOUNG ADULTS WITH TYPE 1 DIABETES TO FACILITATE INTERVENTION DEVELOPMENT

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Aims:
The aim of this study is to gain an in depth understanding of the factors influencing self-management behaviour among young adults with type 1 diabetes. The issue of non-adherence to self-management will be explored in this qualitative study by employing recently developed tools in behavioural science, the COM-B (Capability, Opportunity, Motivation – Behaviour) Model and Behaviour Change Wheel (BCW). The COM-B Model and BCW facilitate the identification of targets for effective interventions to change behaviour. The findings of this study will inform the design of a complex intervention to improve outcomes among young adults with type 1 diabetes.

Design/methods:
Semi-structured interviews were conducted with 15 services providers and 10 parents of young adults with type 1 diabetes, at three locations across the island of Ireland. Young adults with type 1 diabetes (n = 20) took part in three focus groups at the same three locations. Topic guides for the interviews and focus groups were designed by a panel of young adults with type 1 diabetes aged between 18 and 25 years, recruited to the research team. Interview guides reflected the same themes across the participant categories, and focused on the factors which facilitate and act as barriers to self-management of type 1 diabetes. The interview and focus group recordings were transcribed verbatim. NVivo 10 is being used to code and organise the data.

Planned Analysis:
The data were coded by four independent coders using thematic analysis. A selection of transcripts were coded by all coders and the inductive codes produced were collapsed into a coding framework following discussion within the group. The coding framework consisted of five overarching themes, each consisting of between two and six sub-themes. The remaining transcripts were coded using the coding framework. Any issues which arose regarding the most appropriate approach to the data once the coding framework had been agreed upon, was discussed among the group. Changes were made to the coding framework as necessary. However the coding framework was found to perform well. The codes were then categorised according to the components of the COM-B model. Codes were distributed under the COM-B sub-category which it supported. For example, ‘Diabetes self-care’ was coded under nodes including capability and motivation. However all codes within each node were not relevant to each sub-category. Therefore, the data were reviewed within the COM-B categories, irrelevant data were removed and the data which were not removed were recoded as barriers or promoters to self-management among young adults. This process will continue until agreement has been reached among all coders in relation to the categorisation of the data using the COM-B Model as a framework for understanding the factors influencing self-management among young adults.
**Expected outcomes:**

The expected outcome of this study is a comprehensive understanding of the factors which act as facilitators or barriers to self-management among young adults with type 1 diabetes. The use of the COM-B Model to support the analysis of the data in this study will enable the identification of the specific drivers of self-management, facilitating the design of a complex intervention targeting these factors. It is expected that the findings of this study will clarify the relative contribution of factors related to the capability of young adults to engage in self-management, the motivational drivers of self-management and the external factors influencing self-management in this group. By identifying the full range of factors found to be related to self-management behaviour, choices can be made in relation to the intervention approaches which are most likely to be feasible and acceptable to young adults with type 1 diabetes. The use of the COM-B Model to support the analysis of the data in this study will enable the identification of the specific drivers of self-management, facilitating the design of a complex intervention targeting these factors. It is expected that the findings of this study will clarify the relative contribution of factors related to the capability of young adults to engage in self-management, the motivational drivers of self-management and the external factors influencing self-management in this group. By identifying the full range of factors found to be related to self-management behaviour, choices can be made in relation to the intervention approaches which are most likely to be feasible and acceptable to young adults with type 1 diabetes and other stakeholders such as service providers. In addition, the approach which is most likely to result in change associated with improvements in diabetes-related and psychosocial outcomes among young adults may also be identified.

**Problems/questions:**

1. Is it possible or necessary to separate out self-management behaviours in type 1 diabetes or must they be understood and addressed as a package?

2. What is the most useful way to present the approach taken in this study and the results of this study for the groups most likely to be interested in intervention development and young adults with type 1 diabetes?

3. What are the most important outcomes among young adults with type 1 diabetes in your opinion?
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REDUCING DIABETES DISTRESS USING A NOVEL, ULTRA-BRIEF SMARTPHONE ‘APP’

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Aims:
Recent evidence suggests that up to 30% of people with diabetes experience severe diabetes distress, yet few interventions to reduce diabetes distress exist. Face-to-face diabetes selfmanagement and behavioural interventions vary widely in their content, are time-consuming and resource intensive, and their effectiveness in real-world settings remains inconsistent. Therefore, our objective is to develop and evaluate a scalable, easily accessible intervention focused on diabetes distress.

Our aims are to:
1. Produce an evidence-based diabetes distress intervention delivered via videos accessible on a smartphone application (‘app’).
2. Determine the effectiveness of the intervention to reduce diabetes distress and improve self-care.
3. Gain an in-depth understanding of the users’ experience of the intervention, and explore the acceptability, feasibility and implications for practice.

Design/method:

Phase 1: Develop evidence-based content
Our intervention will be delivered via the Deakin Ultra Brief Intervention (DUBI) platform. The DUBI is a smartphone app that enables straightforward delivery of audio-video content via internet-enabled mobile devices. Users simply scroll through a library of videos on the app and select the topic that they want to watch.

In 2015, the DUBI platform was piloted with three non-diabetes specific programs (depression, body dissatisfaction and social anxiety). Users found the interventions easy to use, convenient and effective in supporting them to manage their specific problem(s). Thus, we believe that our diabetes distress DUBI will also be acceptable for people with diabetes.

Each video will provide validation of feelings and evidence-based ‘tips’ for managing specific diabetes concerns. The concerns included are those we know to be among the foremost problem areas for Australian adults with diabetes (e.g. worry about diabetes complications, concerns about food/eating). These concerns have been identified through surveys and interviews with people with diabetes.

Members of the research team with clinical psychology expertise are leading the content development aspect of this project. Based on existing literature, the techniques will be informed by Cognitive Behaviour Therapy (CBT) and Acceptance and Commitment Therapy (ACT), applying both problem-focused and emotion-focused coping skills.

Phase 2: Pilot evaluation of the intervention
The written content will be evaluated by seeking input and feedback in interviews with a small number of people with diabetes (expected N=5). Interviews will focus on understanding whether the message is clear, relevant, and perceived as useful. We will also enquire about who would be best placed to deliver the messages in the videos (e.g. healthcare professional, person with diabetes), and whether the messages should be targeted at all people with diabetes or tailored by diabetes type/treatment.
Actors will deliver the revised content in video format and the app will be pilot tested using interviews (expected N=10) to determine usability and feasibility. Participants will be encouraged to comment on the message content, the visual appeal and usability of the app. Recruitment efforts for will involve advertsing in diabetes print and electronic media (e.g. magazines, Facebook).

**Phase 3: RCT evaluation of the intervention**

We will conduct an RCT evaluation of the diabetes distress DUBI in Australian adults with diabetes (expected N =150). Our primary aim is to determine the effectiveness of the DUBI at reducing distress and improving self-care behaviours. We also aim to gain an in-depth understanding of users’ experiences of the intervention and to explore the acceptability and real-world application of it via semi-structured interviews. Recruitment will involve advertisements in healthcare settings and diabetes print and electronic media. We aim to conduct separate RCTs by diabetes type, however this is dependent on funding.

**Planned Analysis:**

**Phase 1: Develop evidence-based content**

1) A literature review focusing on existing diabetes distress interventions;

2) Analyses of the Diabetes MILES–2 cross-sectional data (unpublished), to determine the most frequently endorsed areas of diabetes distress from the PAID, the DDS and T1-DDS. This phase has been completed.

**Phase 2: Pilot intervention**

Thematic analysis will be used to explore themes that emerge from participant interviews.

**Phase 3: RCT evaluation**

Analysis of Covariance (ANCOVA) will be used for the outcomes of interest: diabetes distress and self-care. Baseline values of the outcome variables, along with age, diabetes duration and primary treatment, will be entered as covariates. Repeated-measures analysis of variance (ANOVAs) will also be conducted on all outcome variables for each trial arm separately, to assess change over time. Data will be analysed on an intention-to-treat basis, according to CONSORT guidelines.

**Expected outcomes:**

Our research will produce a feasible, easily accessible and effective diabetes distress intervention via an online platform. This intervention will be made available to all people in Australia with diabetes.

**Problems/questions:**

1. What do you think of the ‘ultra-brief intervention’ and its capacity for resolving diabetes distress?

2. What are your impressions of developing an intervention for both types of diabetes, and how can we make it resonate with both types?

3. Is the trial design the most appropriate or would you suggest something else?
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SHARED DECISION MAKING IN TYPE 2 DIABETES CARE: WHAT IS THE RESEARCH AGENDA?

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Aims:
In their most recent guidelines (2015), ADA and EASD for the first time advocate shared decision making (SDM) in type 2 diabetes care. Even though several medications have the potential to reduce HbA1c, there is no difference in impact on preventing diabetes-related complications. However, these options differ in route and frequency of administration, risk of hypoglycaemia and weight gain, costs and need for glucose self-monitoring. These differences impact the daily lives of patients. When more than one reasonable medical option is available, SDM is increasingly advocated as the preferred model to engage patients in the process of deciding about diagnosis, treatment or follow-up. However, SDM seems to be applied to a limited extent in daily diabetes care. Most research on SDM has been done in oncology. This led to the theory that four phases of SDM can be distinguished: 1) the professional informs the patient that a decision is to be made and that the patient’s opinion is important; 2) the professional explains the options and the pros and cons of each relevant option; 3) the professional and patient discuss the patient’s preferences; the professional supports the patient in deliberation; 4) the professional and patient discuss patient’s decisional role preference, make or defer the decision, and discuss possible follow-up. It is unclear if and how these phases are operationalized or implemented, in type 2 diabetes care. It seems that more direction is as to how, in what circumstances, and using which tools and strategies clinicians should join with patients in SDM.

The study proposed here aims to give an overview of the current state of SDM in type 2 diabetes care along the line of those four phases and examine more in depth if, when and how SDM is utilized. We aim to develop more specific research agenda in this relatively new field of research in diabetes care.

Design/methods:
1. A systematic review of current literature about SDM in diabetes will be done. We will include observational as well as experimental studies and assess the phases of SDM in the studies found and compare findings with the more extensive literature in other (chronic) diseases.

2. Perspectives and knowledge of physicians on SDM will be investigated to assess applicability and feasibility of SDM in type 2 diabetes throughout the course of the disease.

The survey and/or interviews will include questions on:
- The meaning of SDM
- When in the treatment process is SDM meaningful
- The role preference throughout the treatment process
- Tools for SDM
- Differences between patient profiles and SDM (eg age, ethnicity, SES)
- Perceived barriers and facilitators

Besides open and multiple choice questions, we will use the Control Preference Scale (CPS) to measure the role preference of physicians. The CPS assesses involvement in decision-making by eliciting participatory role preferences for specific treatment decisions and comparing preferred versus experienced roles.
Planned analysis:
A knowledge synthesis of the state of the art in SDM in type 2 diabetes care will be put together. As we have not yet decided on the design of the consultation of the physician’s perspective, the planned analysis are up for discussion as well.

Expected outcomes:
A research agenda for future studies is to be expected.

Problems/questions to be addressed in the group discussions:
- Which designs and analyses for the study among physicians should we consider?
  - Survey, interviews, vignettes?
  - Other options?
- In what way(s) should / could patients be involved in this study?
- Are there options for collaboration with other research groups in PSAD?
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THE ROLE OF WORKING MEMORY IN FOOD INTAKE IN PEOPLE WITH TYPE 2 DIABETES

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Aims:
Dietary self-care is a key element of self-management in type 2 diabetes. It is also one of the most difficult aspect of diabetes self-management. However, diabetes is also associated with a range of cognitive impairments (see McCrimmon, Ryan, & Frier, 2012 for a review) and deficits in executive functioning in particular (including working memory and inhibitory control) could be contributing to difficulties in controlling food intake (Knopman et al., 2001). Previous research has demonstrated associations between impaired cognitive functioning in diabetes and dietary self-care (Asimakopoulou & Hampson, 2002; Coker & Shumaker, 2003). However, the research so far has failed to control for the many other factors known to influence food choices, such as ethnicity, gender and age among others. The UK-Biobank provides a unique opportunity to investigate the relationship between working memory and food choices in people with diabetes, as the large sample size allows us to control for other potentially confounding factors without losing power. Previous work has also focused on questionnaire-based dietary self-care measures, therefore we will expand on this by looking at food intake data estimated from self-reported food intake.

Method:
The UK-Biobank is a large dataset consisting of data collected from 503,325 adults aged 40-69 years recruited via NHS registers across England, Scotland and Wales. Participants were invited to attend a single 2-3 hour testing session at one of 22 testing centres across the UK, where they completed a range of assessments including cognitive function tests, 24-hour dietary recall measures and a food frequency questionnaire, relevant for this research.

Analysis plan:
Linear multiple regressions will be used to examine the association between working memory and dietary intake in people with and without diabetes. The many other demographic and health factors that may relate to dietary intake will also be controlled for in the analyses.

Expected outcomes:
We predict that working memory performance will be significantly associated with food intake in people with and without diabetes. However, we expect a stronger relationship in those with diabetes.

Problems/questions:
How can we reliably separate type 2 diabetes from type 1? This database does not include a variable that distinguishes the two. We have information on medication and length of diabetes diagnosis.
EARLY ASSESSMENT OF DIABETES KNOWLEDGE AND PSYCHOSOCIAL FACTORS IN NEWLY DIAGNOSED DIABETES PATIENTS AND THEIR PARENTS: CHANGING DIABETES CARE

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Aims:
Improving the outcome of type 1 diabetes by timely assessment of learning abilities and psychosocial status through a redesign of a structured and staged care program for newly diagnosed children with type 1 diabetes and their families.

Design / methods:
When diagnosed with diabetes paediatric patients and their family are directed to a specialized diabetes team for treatment. For this treatment to be successful paediatric patients and their parents need to learn how to self manage their diabetes. This is a very time consuming period; in a period of 3 months at least 600 educational items are discussed, learned, and practiced in every day diabetes care. The eventual success of diabetes treatment is to reach a life time low A1c (corresponding with a low risk for developing life threatening diabetes complications). This complicated task involves the measurement of blood glucose levels as frequent as 7 -10 times a day and to use these data together with nutritional information (carb counting), estimated energy use (i.e. sports, sick days, homework, and taking exams) for exact insulin dosing. Not “getting it right”(non-adherence) cannot only lead to complications in the long run, but it also has an effect on short term or acute effects of hypo- or hyperglycemia. Which strongly influence behavior and quality of life and can lead to severe mental and cognitive effects. Data and experience show that early adaptation and adoption of optimal diabetes self-management behavior, within the first weeks and months is best.

A staged care protocol (SCP) for education of newly diagnosed patients is used in our clinic, in which all the educational items specified for doctors, diabetes nurses, dieticians and psychologists are listed and described. During a period of 12 weeks these items are discussed. Psychological or social problems are discussed as part of this process, but only when ‘problems’ are encountered a referral is made to our psychologist.

In order to improve this “Diabeter staged care protocol” we hypothesized that we needed A) to evaluate and score the received and learned aspects of the diabetes education (“if you can not measure it, you can not change it”), and B) a psychosocial screening of all newly diagnosed patients and their family. This latter improvement will help us identify families with immediate needs in an early stage of treatment. This will help prevent psychosocial problems from occurring later in life. We expect to be better equipped for making the appropriate diabetes treatment decisions and synchronize that with the needs and wishes of patients and families. At the end of this SCP, the progress in education, the psychosocial status will be discussed with patient/parents and the medical team. In this meeting the treatment goals for the next year will be set for each individual patient.

Planned Analyses:
1. Psychosocial evaluation of patient and their families during the SCP: Socio-economic status, child safety, Live Events, strengths and difficulties questionnaire, WHO-5 depression questionnaire, Problem Areas In Diabetes questionnaire, and the Mind Youth Quality of life questionnaire
2. Diabetes education: Diabetes knowledge test 1 & 2, for testing 6 and 12 weeks after the diagnosis of diabetes (for children and parents – It covers the following Diabeter-specific learning goals: General diabetes knowledge, pathophysiology, self care issues, HbA1c and complications, nutrition, carbohydrate counting, and numeracy).
Research specific analyses:
1. The results of the knowledge tests, MY-Q, WHO-5 and PAID will be compared with a matched control group of newly diagnosed patients of other diabetes clinics in the Netherlands.
2. A longitudinal cohort study will be started: Diabetes outcome measures (A1c-trajectory, QoL) as well as adherence to treatment, diabetes knowledge, self-efficacy and the outcome of psychosocial issues will be evaluated at 3 and 6 months, 1, 2,5 and 5 years after diagnosis.

Expected outcomes:
Improvement of adherence to treatment, diabetes outcome measures, educational level, QoL, and less psychosocial issues.

Questions/problems:
1. How to compensate for center difference in diabetic treatment while comparing educational and psychosocial results with other clinics in the control group?
2. Diabetes self-management requires a magnitude of education items and is delivered in a medical setting rather than in an educational setting. Do you have suggestions or experience to enhance medical education? E.g. situation or experience training?
3. Do you have any suggestions for a diabetes specific self-efficacy questionnaire?
EDUCATOR STRATEGIES IN FACILITATING PERSON-CENTRED DIABETES EDUCATION IN GROUP SETTINGS

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**Aim:**

Studies show that person-centred methods in diabetes education are effective because they encourage behaviour change, create a sense of empowerment, and maximise quality of life in persons with type 2 diabetes. Person-centredness encompasses a biopsychosocial approach when exploring the perspectives of persons living with type 2 diabetes. Most person-centred methods have been developed to improve individual consultations. However, group-based diabetes education in Denmark is a widespread method of support because it is cost effective compared to individual education and has the advantages of bringing patients together to share experiences with each other. Person-centred methods in group settings are reliant on educators' skills in facilitating a group. Yet, only a few studies have specifically sought to show how educators facilitate person-centredness in group settings. The aim of this study was to investigate educators’ strategies that support or hinder person-centredness in existing group-based diabetes education targeting persons with type 2 diabetes.

**Methods and Participants:**

Multi-sited ethnographic fieldwork of group-based diabetes education in a municipal and a hospital setting in Denmark was conducted. The two programmes included 21 participants and 10 different educators and were observed over five weeks. Additionally, 10 in-depth semi-structured interviews were conducted with patients and educators. Data were analysed using systematic text condensation.

**Results:**

Educators’ strategies hindering person-centredness:
- The content of the programme was predefined and dominated by disease-specific presentations
- Focus on telling the participants what to do
- Although the communication was dialogue based, the educator asked only close-ended questions with only one correct answer
- Ignoring participants with ‘inadequate health behaviours’ or ‘inadequate answers’
- A moralising way of teaching, which resulted in feelings of guilt and shame in the patients

Educators’ strategies supporting person-centredness:
- Facilitating instead of teaching by letting the participants set the agenda using broad, open-ended questioning

**Conclusion/ Discussion:**

The context of diabetes education undermined person-centredness. The observed programs had tight time schedules including a standardised curriculum. Additionally, a person-centreded approach can be difficult to integrate in a context dominated by increasing pressure to become more efficient in seeing more patients in less time and evaluating measurable health outcomes. Nevertheless, training educators in facilitating group processes is needed for a more person-centred approach in diabetes education. Educator strategies supporting person-centredness in group settings include positive social relationships within the group by strengthening constructive dialogue, mutual respect, and developing trust. One way to create positive interactions is to use language without disrespecting the participants’ autonomy. Equally, a crucial strategy is to use broad open-ended questioning as a primary communication tool, to actively involve meaningful reflections on important issues in daily-life with type 2 diabetes. Hence, sharing these reflections within the group and reflecting on what the other participants have said maximises the potential for improving empowerment.
DISTURBED EATING BEHAVIORS IN ADOLESCENTS WITH TYPE 1 DIABETES

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Aims:
Adolescents with type 1 diabetes are at an increased risk of disturbed eating behaviors (DEB). The focus on food, control and autonomy issues inherent to diabetes and the risk of insulin-related weight gain might be contributing factors. Currently, diabetes teams appear not well-equipped to classify, detect and treat DEB. They are hesitant to discuss DEB with their patients as they do not want to bring the association between insulin and weight to the mind of the adolescents. The current study aims are to a) explore prevalence of DEB and associated ‘yellow flags’, and b) establish concordance between adolescents and their parents, and adolescents and their clinicians with respect to DEB.

Participants:
Adolescents (11-16yo) with type 1 diabetes and their parents participating in the ongoing DINO study completed questionnaires.

Methods:
A stepwise approach was used to assess DEB: only adolescents whose answers raised psychological yellow flags for DEB (endorsing problems on the MY-Q body and weight subscale or reporting weight loss activities in the past year) completed the Diabetes Eating Problems Scale-Revised (DEPS-R) and questions from the AHEAD study. Kruskal-Wallis tests, post hoc Mann-Whitney U test and chi-squared tests were utilized to examine potential clinical yellow flags. Parents and clinicians shared their observations regarding possible DEB. Cohen’s kappa was used to assess concordance with the adolescent.

Results:
Of the 103 adolescents who participated (51.5% girls), answers of 47 (46.5%) raised psychological yellow flags, indicating body and weight concerns. 8% scored above cut off for DEB. Clinical yellow flags were elevated HbA1c (P=0.004), older age (P=0.034), dieting activities in the past year (P=0.001), reduced quality of life (P=0.007), less diabetes self-confidence (P=0.015), worsened diabetes-management (P<0.001) and body dissatisfaction (P<0.001). BMIz scores and gender were no yellow flags. Concordance between parents-adolescents was slight (kappa = 0.126 and 0.141), and clinicians-adolescents was fair (kappa = 0.332).

Discussion:
Answers from half of the adolescents raised psychological yellow flags, indicating concerns about their body weight and physical appearance. In most cases this was not problematic: less than 1 in 10 adolescents reported DEB. Being female or being over- or underweight were no clinical yellow flags for DEB in this study. DEB in adolescents is often not recognized as such by their clinicians and parents. In order to prevent the onset or deterioration of DEB, a stepwise approach to screen for yellow flags for DEB such as used in our study is recommended. Pediatric guidelines instruct diabetes teams to assess the quality of life (QoL) of patients annually. This mandatory assessment provides the opportunity to assess DEB as well. In the following conversation with the adolescents about their QoL possible body and weight concerns can be discussed in more detail.
HYPOAWARE, A BRIEF AND PARTLY WEB-BASED PSYCHOEDUCATIONAL INTERVENTION FOR ADULTS WITH TYPE 1 AND INSULIN-TREATED TYPE 2 DIABETES AND PROBLEMATIC HYPOGLYCAEMIA: A RANDOMISED CONTROLLED TRIAL

Authors: S.M.P.A. Rondags, M. de Wit, J.W. Twisk, M.W. van Tulder, F.J. Snoek
Institute: VU University Medical Center

Aims:
To determine whether the brief and partly web-based psychoeducational intervention HypoAware is effective in reducing problematic hypoglycaemia in adults with type 1 and insulin-treated type 2 diabetes.

Methods and Participants:
We completed a cluster-randomized controlled trial evaluating HypoAware against care as usual in 137 participants from 8 Dutch clinics. Measurements were at baseline, 2, 4 and 6 months follow-up. Depending on the outcome variable, binomial, poisson and negative binomial regression-based generalized estimating equations were used to estimate rate ratios (RR) and odds ratios (OR) with 95% confidence intervals (CI). Intention-to-treat analyses were corrected for baseline outcomes, diabetes duration, treatment, glycated hemoglobin (HbA1c) and episodes of severe hypoglycaemia in the preceding 2 years.

Results:
The RR of episodes of severe hypoglycaemia (defined as requiring help from others) without medical interference for the intervention group equalled 0.65 (95% CI: 0.37, 1.15) and for episodes with medical interference 0.63 (95% CI: 0.19, 2.15). For impaired hypoglycaemia awareness (as defined by Gold et al.) we found an OR of 0.38 (95% CI: 0.15, 0.95) and for worries about hypoglycaemia a RR of 0.80 (95% CI: 0.64, 1.01).

Conclusions:
After participating in the psychoeducational intervention HypoAware, participants experienced 35-37% less episodes of severe hypoglycaemia than participants in our care as usual condition. Furthermore, HypoAware significantly improves hypoglycaemia awareness and borderline significantly decreases worries about hypoglycaemia. If the economic evaluation we performed alongside this RCT shows cost-effectiveness, we will implement HypoAware in Dutch diabetes care by providing a Train-the-Trainer program which includes access to the web-based environment.
Completed Work

RESILIENCE AS A PREDICTOR OF GLYCAEMIC CONTROL IN YOUNG ADULTS WITH TYPE 1 DIABETES

Authors: J. Huber, M. Callender, C. Fox, A. Kilvert, J. Sixsmith, M. Fang, G. Hood
Institute: Centre for Health Research, University of Brighton

Aim:
Young people with type 1 diabetes frequently find it difficult to adjust to and deal effectively with their condition as evidenced by poor glycemic control. This problem has been identified in many countries, but is pronounced in England in the 16 – 25 age group. While various reasons have been suggested, there is no consensus in understanding this problem. Resilience, understood as adaptive and effective handling of adversity, has been suggested as a protective factor by psychologists and neuroendocrinologists. This pilot explored the question to what extent and how members of this age group with either good or poor glucose control differ with respect to resilience and correlated factors including social support, attachment and emotional health.

Method and Participants:
Using a cross-sectional mixed methods approach we recruited 41 young adults (target n=40) who demonstrated either good or poor HbA1c levels (defined as HbA1c screen values of < 58 or > 75 mmol/mol respectively) from 2 secondary care centers in England. The sample included 21 women; mean age was 19.7 years. Standardized questionnaires, demographic and health and illness related questions were used. A subset of participants (n=21) took part in semi-structured interviews and filled in event diaries (n=11). Ethical approval was granted; participants were recompensed.

Results and Discussion:
Stronger resilience amongst those who had lower HbA1c values was observed (P < .0005). Better social support was associated with a lower HbA1c (emotional support p = .007; practical support p = .02). Wellbeing and attachment style were not associated with HbA1c (p > 0.1). Qualitative findings illustrate how diabetes is negotiated in everyday life, how it shapes identity and promotes a sense of agency where young people actively take control of their own situations. Self-management of diabetes involves an understanding of transitions and pathways through the condition and its medical implications, alongside the notion of embodied self-care. In conclusion, resilience should be explored in a larger longitudinal study, in conjunction with social support.
**IMPACT OF CONTINUOUS GLUCOSE MONITORING ON PSYCHOSOCIAL OUTCOMES**  
**A META-ANALYSIS**

Authors: D. Zahn\(^1\), K. Griem\(^1\), C. Ziegler\(^2\), T. Kubiak\(^1\)

Institute:  
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**Aims:**

There is evidence that continuous glucose monitoring (CGM) positively affects glycaemic control and frequency of hypoglycaemic episodes in type 1 diabetes (T1DM). Studies on CGM and psychosocial outcomes reveal controversial results, and a first meta-analysis (Langendam et al., 2012) found no effects on quality of life. Other psychosocial outcomes such as diabetes-specific fears or diabetes distress were not included in the meta-analysis. Thus, the current study aimed at (1) determining the average effect of CGM use on different psychosocial outcomes in T1DM and (2) identifying possible moderating variables such as age, outcome measures, or study quality.

**Method and Participants:**

We conducted a comprehensive literature search in Pubmed, Web of Science, and PsycInfo. Studies were eligible if they reported on psychosocial outcomes assessed by standardised questionnaires after a CGM intervention in T1DM patients and had been published in peer-reviewed scientific English language journals until December 31\(^{st}\) 2014. Effects were integrated using the random effects model with robust variance estimation. Meta-regressions were conducted to evaluate the effects of possible moderating variables. Publication bias was determined by Egger’s regression test, the trim-and-fill method, and visual inspection of the funnel plot.

**Results and discussion:**

The literature search yielded 1,219 records in total. Eligibility criteria were met by 21 publications with 28 subsamples (Overall \(N = 2.365\); mean age = 25, range: 7.5 – 47.2 years). Our preliminary analysis revealed a small positive average effect size (Hedges’ \(g = 0.10\), 95% CI [0.04; 0.17], \(p = 0.002\)) with a moderate amount of heterogeneity (\(I^2 = 45.1\%\)). Preliminary results of the moderator analyses will be presented and their possible implications for improving the benefit of CGM use in T1DM patients will be discussed.
### Participant List PSAD Science Spring Meeting 2016

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