PF-01

HbA1c is not a biomarker for diapression in the era of DPP-4 inhibitors

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Patients who have both depression and diabetes mellitus (i.e. diapression) have the characteristics of poor glycemic control, high psychological stress and poor adherence to anti-diabetic medicine. Since 2009, DPP-4 inhibitors have become available for prescription in Japan. We did a cross-sectional study on 151 diabetic patients with regard to diapression at the Department of Psychosomatic Medicine, Fukuoka Tokushukai Medical Center in July 2013. Among the 151 diabetic patients, 22 non-type 2 diabetic patients were excluded, and the remaining 129 type 2 diabetic patients who met the inclusion criteria were asked to fill out 2 questionnaire surveys, the Beck Depression Inventory (BDI) and Fisher’s Diabetes Distress Score (DDS). We conveniently categorized BDI≥16 as depression group and BDI< 16 as non-depression group, we then compared the clinical features of the two groups. We retrospectively examined the HbA1c data of the 129 patients for 2 years from the day of survey of each patient. Despite the fact that the prevalence of diapression in 2013 was almost the same as previous study, we did not find a statistical difference in HbA1c between the depression and non-depression group. However, when we retrospectively examined the HbA1c data for 2 years since 2013 we found HbA1c from the depression group was higher than that from the non-depression group. We speculate that after DPP-4 inhibitors were made available for prescription in Japan, the HbA1c readings in the depression-group has improved. Thus, it might be difficult to detect diapression by looking at HbA1c alone. In order to look for patients with diapression, we need to use questionnaire survey tools such as BDI and DDS.
Finding patients who do not have a sense of urgency to improve Hyperglycemia

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Objectives
Achieving an optimal blood glucose levels is essential for diabetes treatment. Although most patients make efforts to control blood glucose levels, there are some who do not take actions against hyperglycemia, which could eventually lead to the development of diabetic complications. Finding such patients as early as possible and encouraging them to modify their behaviours might be important in diabetes practice. In this study, we described the prevalence of patients who do not have a sense of urgency to improve their blood glucose levels and investigated their characteristics.

Methods
A total of 1,262 diabetic patients who regularly visited Saiseikai Central Hospital and completed the Diabetes Treatment Satisfaction Questionnaire were included. In the questionnaire, the following question was asked; how often have you felt that your blood sugars have been unacceptably high recently? Patients rated the perception of hyperglycemia from “0 (none)” to “6 (most of the time).” We defined patients whose answers were “0” despite their HbA1c of 7.0%≤ as patients who did not have a sense of urgency to improve their blood glucose levels. Clinical characteristics related to such patients were investigated using a logistic regression model which included age, sex, body mass index, use of insulin injection and the number of oral medications for diabetes.

Results
Of the 1,262 patients (mean age, 66; men, 75%; type 1 diabetes, 10%), 184 (15%) gave “0” as the answer in the question. The proportions of the patients who answered as such were 26% and 9% in those with HbA1c of ≤6.9% and 7.0%≤, respectively. All the patients who did not have a sense of urgency to improve their blood glucose levels were those with type 2 diabetes. Patients with older age were more likely to be such patients. The odds ratios were 2.76 and 4.06 in those aged 60-69 years and 70≤ years as compare to those aged ≤59 years. Patients with insulin therapy were less likely to be such patients. The odds ratio was 0.51 in relation to those without insulin therapy. On the other hand, sex, body mass index, or the number of oral medications for diabetes were not significantly related.

Conclusion
In the patients who did not achieve an optimal glycemic control (HbA1c ≥7%), 9% did not have a sense of urgency to improve their blood glucose levels. In order to detect such patients, patients with type 2 diabetes, older age and not using insulin injections were carefully examined in diabetes practice.
Effect of memory training on cognitive function in diabetes patients

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Background:
Diabetes greatly increases the risk of stroke The incidence and disability rate of stroke is increasing, with a reported 75% of stroke survivors having some cognitive dysfunction.

Objective:
To observe the effect of memory training on cognitive function in diabetes patients.

Methods: This was Quasi-Experimental Design sign. A total of 60 diabetes survivors enrolled in this study. They were randomly assigned to the experimental group (n = 30) and control group (n = 30). Participants in the experimental group under took 14 sections of memory training including stories, cards of daily items, association and so on. Each section lasted for 45-60 minutes. The control group received standard care only. Both groups were evaluated with the cognitive function (Mini-Mental State Examination, MMSE) before and after the intervention.

Results:
After the intervention of diabetes patients through memory training, cognitive function of the experimental group (t = -10.290, p < 0.001) had significantly improved, compared with the control group and the cognitive function (t = -3.936, p < 0.001) have significant. Cognitive function were significantly improved in the experimental group. There were significant differences between the 2 groups in MMSE.

Conclusion: Memory training provided for the diabetes survivors is supported as effective strategies in promoting their cognitive function. Health care personnel should raise the awareness of assessing cognitive function for diabetes patients to enhance their quality of life for patients.
Shift in parenting style in parents of children with type 1 diabetes

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In rearing school-aged children with type 1 diabetes, one of major goals of parenting is to help their children maintain a normal level of blood sugar. However, with the growth of children and change in the course of diabetes, parents constantly experience new conflicts and challenges and need to adjust their original parenting style whenever necessary. However, there are limited studies focusing on understanding the experience of compelling parents to change their parenting style.

This study used qualitative in-depth interviews, and adopted purposive sampling to interview a total of 10 mothers of preschool children with type 1 diabetes. Age range of the parents was 33-49, and the average of disease period of their children was 4.1 years. The children aged 7-12 were a total of 4 males and 6 females. This study used content analysis for data processing and analysis. The results showed that when parents perceive the following 6 types of needs of their child, they adjust their parenting style afterwards: children need age-appropriate normal life; children need to be able to take care of themselves; children need to be treated fairly; children need happiness; children need their parents to be their friends; and lastly children need strict discipline.

It is suggested that the results can be employed to assist healthcare professionals and parents in understanding the contexts and factors faced by parents of school-aged children with type 1 diabetes during child-rearing, as well as be used as reference for future interventions in order to improve the quality of life of children with type 1 diabetes.

Keywords: Type 1 Diabetes, School-age, Shift in Parenting
PF-05

The effect of healthcare word-of-mouth and behavioral status on improving patient self-management: 1-on-1 interviews with volunteers regarding their own experiences

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Background:
Patient engagement and self-efficacy are complicated issues in chronic disease management. This qualitative research investigates key factors to improve the efficacy of patient self-management and find suitable word-of-mouth (WOM) engagement scenario based on the personality, psychological status, and behavioral maturity of the patient.

Method:
Semi-structured one-on-one interviews were conducted with 10 volunteers who had been diagnosed with Diabetes Mellitus (DM). Each patient was interviewed for 50–60 min. The interviews included eight communication threads, and the interviewees were previously notified of the main topic in advance to ensure a relaxed interview. The interview would be terminated in case that any discomfort occurred during the process.

Result:
The research results indicate that there is some relevant connection between the patient’s characteristics and whether they like it or not by the positive or negative WOM. The medical WOM will affect the patient’s self-monitoring, self-management, disease cognitive level, and their behavior and expectation. It is easier to be accepted by patients and execute the plan when the volunteers spread out their self-experience through WOM than through professional health educator. The disease age and patient self-management maturity level of the theoretical model (TTM) are irrelevant to the clinical results.

Conclusion:
It is possible to have the different effects and results when the patient’s characteristics and medical WOM in different ways and social media. This dedication is reflected through patient’s personal interesting topics, WOM inference model, and personalized on-line to off-line (O2O) interactive engagement. Not only does the patients’ mental status affect their behavioral maturity when they are consulting with the diabetes volunteers, but the volunteers’ training, the difficulty of the public health education, and the scale of the institution will affect the depth and coverage in the future research.
Effects of community-based self-weighing campaign over holiday seasons: Effects on weight loss, rates of diabetes and prediabetes, and medical costs

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Objectives: The prevalence of diabetes is increasing with the westernized lifestyle and aging in Japan. Diabetes prevention is an urgent issue in Japan. Weight loss of overweight and obese people is a key to preventing diabetes. However, the body weight tends to increase in holiday seasons (Christmas through New Year). Long-term weight management programs are needed over such holiday seasons. The standardized mortality ratio (SMR) for diabetes is high in Kato City, Hyogo Prefecture, Japan. The aim of the present study was to evaluate the effect of a community-based self-weighing campaign on weight changes, rates of diabetes and prediabetes, and medical costs.

Methods: This study was a public health campaign using self-weighing twice a day held in Kato City from 2008 to 2015. Inclusion criteria included an age of 20-74 and BMI≥23 kg/m². The goal of this campaign was to lose 3 kg of body weight over 3 months from November to February, every year. During this period, 47 shops in Kato City supported the campaign in various ways, for example, some fitness gyms reduced the joining fee, several restaurants offered special low-calorie menus, and a number of electronics stores sold weight scales at a bargain price. The city homepage delivered the effective and safe weight reduction program using a weight chart. Cable TV also delivered programs including diabetes prevention with a doctor, healthy eating with a dietician, and increased activity with an exercise trainer. Propensity score matching was performed to reduce the effects of confounding factors. Data were collected from annual health checkups and medical costs.

Results: Of 9,996 community dwelling people, 429 subjects (male: 38.9%, mean age: 60±10 years, mean BMI: 25.9±2.3 kg/m²) participated in the program and reported weight changes. A total of 429 subjects in the intervention group were compared with a propensity score matched-control group of 429 subjects. After 1-year intervention, body weight and serum triglyceride levels in the intervention group were significantly decreased compared with the control group (-1.75 kg vs. -0.76 kg, respectively; P<0.001). In females, HDL-cholesterol and HbA1c levels were improved compared with the control group. After 8-year intervention, rates of diabetes and prediabetes in Kato City were gradually decreased. Medical costs per person in Kato City was lower than in surrounding areas.

Conclusions: The findings suggest that this program had beneficial effects on weight changes, serum lipids, rates of diabetes and prediabetes, and medical costs.
A follow-up study of treatment beliefs to insulin of patient with failure to oral hypoglycemic agents

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Aim:
To learn about the difference in treatment beliefs of type 2 diabetes individuals before and after initiation of insulin treatment.

Methods:
The follow-up survey was conducted on 101 outpatients in a medical center, who were recruited in a previous study for the Illness Perceptions, Treatment Beliefs to Insulin, and Intention to Insulin Therapy of Patients with Failure to Oral Drugs in 2013. About two years after the former study, 70 cases can be recalled in the outpatient department of the same hospital and agreed to participate this follow-up study by using a same questionnaire survey for measuring Insulin Treatment Appraisal Scale (ITAS) that had been collected in 2013. We compared the changes of treatment beliefs to insulin in patients who initiated insulin during this period vs. those who hesitated to start insulinization.

Results:
Of the recalled 70 subjects, 27 subjects successively initiated insulin treatment (acceptance group), while 43 subjects had not initiate insulin treatment (resistance group). We found that when compared with the resistance group, the acceptance group showed significantly lower negative beliefs. In the resistance group, there was no significant changes of negative beliefs. The positive beliefs were significantly larger than the negative beliefs in acceptance group after they initiated insulin treatment. Cross-group comparison of the difference in positive and negative beliefs found that with the positive and negative beliefs offset mutually, the rest of positive beliefs in the acceptance group were significantly larger than those in the resistance group.

Conclusion:
We found that for type 2 diabetes patients who failed on oral hypoglycemic agents, the acceptance group with insulin initiation had lower negative beliefs to insulin treatment, and higher positive beliefs. Higher positive beliefs of insulin treatment will help patients to initiate the insulin treatment.
The correlation between health behavior and self-efficacy of obese diabetic patients

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Purpose:
Due to the ever increasing global obesity population, the prevalence of obesity related diabetes is also gradually increasing. Obese diabetes patients are faced with higher risks of cardiovascular and other chronic comorbidities. Therefore, other than blood glucose management, weight related health management is also an indispensable treatment for these patients. Although health self-management is an important topic for diabetes patients, the lack of weight control is a difficulty that is faced by many obese patients. This research is to investigate the weight management behavior, self-efficacy, and social support for obese diabetes patients who have failed in managing their weights.

Methods:
The primary data collection method utilized in this study was of questionnaire surveys. A total of 152 patients, who have started by have fail weight-loss trials, were conveniently sampled. The survey tools include "weight management knowledge scale", "weight management attitude scale", "weight management behavior scale", "weight behavior scale", "objective exercise management self-efficacy scale", "objective diet management self-efficacy scale", "self-esteem scale", and "social support scale". The descriptive and inferential statistical analysis of the data was performed with SPSS 20.0.

Results:
The results in this study indicated that 62.5% of the obese diabetes patients have actually gained weight after undergoing weight management. These patients also reported low social support scores in their surveys. The number of weight-loss failures and weight management knowledge is positively and significantly correlated with each other (r=.647, p<.004). Furthermore, the number of weight-loss failures and self-esteem scores are correlated negatively, with statistical significance (r=-.327, p<.003).

Discussion:
The results from this study suggested that other than health education for weight management knowledges, the self-esteem and social support for diabetes patients undergoing weight-loss is also very important. The physiological support for weight-loss and the timely instruction on weight management strategies can be used for aiding obese diabetes patients in achieving sustained weight-loss for the goal of health self-management.
Effects of nutritional care to diabetic elderly in the long-term care settings

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Diabetes mellitus is highly prevalent and increased in person aged 65 and older. Higher body mass index (BMI) value is at increased risk of hypertension, dyslipidemia and hypertension, also has greater relative risk of mortality than normal-weight diabetes elderly. Despite it is reasonable to set relaxed glycemic goals for some diabetes elderly, acute complications may occur in poorly controlled diabetes. This study evaluated the effect of different BMI value and fasting plasma glucose (FBG) on nutritional status and glucose-lowering medication use in diabetes elderly. Diabetes elderly who had stayed in a long-term care settings for over 6-months and ≥ 65 years of age were enrolled (n=71). Exclusion criteria included with poor kidney function and edema. The mean age is 81.6 ± 7.8 years old. They were recorded weight and annually health-checked data. The results showed that after at least 6-months nutritional care, diabetes elderly had higher albumin and total protein concentrations in blood, moreover, FBG and triglyceride (TG) concentrations were significantly improved. FBG, cholesterol and triglyceride concentrations were all elevated when the BMI ≥27 Kg/m2. Those with higher FBG concentration also had higher TG and cholesterol. In the comparison of different glucose-lowering medication use, treated with insulin had higher BMI value, FBG and triglyceride concentrations. Furthermore, after a period of at least 6-months nutritional care, originally FBG <90 gm/dL subjects, the average FBG concentration significantly increased from 79.1±7.1 to 92.0±14.5 gm/dL. On the other hand, FBG concentration between 90-150 gm/dL and >150 gm/dL subjects, FBG concentration significantly decreased and located within normal range. In conclusion, although BMI values correlated with FBG concentration and further increasing the risk of dyslipidemia, but after professional nutrition care in long-term care settings, it could significantly enhance the nutritional status in diabetes elderly and effectively control FBG concentration, also helped to reduce the risk of hypoglycemia and hyperglycemia.
The effectiveness of the Steno Balance Cards on complementary health management of poorly controlled diabetes patients

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Purpose: In this study, poorly controlled type 2 diabetes (T2DM) patients were investigated. The patients were divided into two groups based on the modality of psychosocial education, as follows: traditional Peer Education group (PE group) and the “Psychological Balance Dialogue” group (PBD group). To enhance the effectiveness of mental health self-management.

Methods: T2DM patients with HbA1c >8% were recruited during September to October, 2015. Ninety-two patients were randomly assigned to the PBD group (n=46) and the PE group (n=46). The PBD group received instruction about diabetes knowledge using the “I feel” themed Steno dialogue picture cards to elicit group dialogue. The Steno dialogue picture cards were developed by the Danish Steno Diabetes Center. An illustrated Taiwan version was employed in the present study with five sub-themes. In the PE group generally receive instruction using an interactive peer education approach.

Results: In the PBD group, A1c decreased by 1.9% from 8.8 ± 1.7 to 6.9± 1.2%, whereas it was decreased by 0.7% in the PE group from 8.7 ± 1.2 to 8.0 ± 1.33%, with all p<0.05. The issues raised in the PBD group were glycemic control factors, mainly with respect to the themes of challenging relationship and bodily infirmities. The Challenging Relations topics raised included that self-monitoring of blood glucose cannot be easily performed at regular times and is difficult to accomplish with demands of family life, and so on. The aforementioned action plan may help to reduce friction with family members. The Bodily Infirmities topics included in the conversation sessions were physical discomfort (malaise, frequent urination, bad temper) complications and psychological concerns which lead to poor sleep quality. The Action Plan was to meet the target to control blood sugar, reduce complications, and improve family relationships.

Discussion and conclusions: Three months after performing the psychosocial balance of dialogue sessions, the PBD group and the PE group completed a health-related quality of life questionnaire (SF-12). In the PBD group, the difference before and after showed that the psychological balance physiological score increased by 27.6, the mental component score increased by 28.6; in the PE group, the physiological score increased by 10.9, while the mental component score increased by 11.1. There was a statistically significant difference between the two groups (P <0.001). The study concluded that psychological balance dialogue using Steno Balance Cards is beneficial for T2DM patients in glycemic control and quality of life.

Keywords: balance card, dialogue, quality of life, diabetes
Diabetes related distress among patients with type 2 diabetes in Taiwan

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Purpose: To understand the quality of life and distress of patients with type 2 diabetes in Taiwan

Methods: The study was part of a nationwide survey conducted by Taiwanese Association of Diabetes Educators for examining the quality of diabetes care among Diabetes Health Promotion Institutes from year 2011 to year 2012. A subgroup of 981 adult diabetic patients were selected by randomized sampling from the nationwide survey sample and invited to complete questionnaires including the Diabetes Related Distress Questionnaire (DRDQ). DRDQ is composed of 15 items with 4-point Likert scale (1=completely disagree, 4=completely agree) and higher score indicate more distress. This study excluded patients with type 1 diabetes, leaving 947 patients with type 2 diabetes, of whom 486 (51.3%) was male. We analyzed the data of DRDQ, medical history from chart reviews and biomedical data (HbA1C) measured in the nationwide survey.

Results: The mean age of participants was 61.5(±11.9)(mean ±SD) years, with an average duration of 9.9 years of diabetes. The mean A1C was 7.6% (±1.5), with 27.9% being treated with insulin, 71.1% being treated with oral hypoglycemic medication, and 1.0% being controlled by diet only. The mean sum score of DRDQ was 30.5 (±8.91) with 70% of patients felt their diabetes was well regulated. The top four higher scoring items of DRDQ were “…afraid of my disease getting worse”, “…feel stressed because of my disease”, “…afraid of burdening my family/child”, and “…..diet control causes a lots of troubles to my life”. DRDQ scores were significantly higher among insulin treated patients than oral medication treated or diet treated patients (32.9 vs. 29.7, p<.001). Patients with lower A1C also had lower DRDQ score (r=.206, p<.001). Age negatively correlated with DRDQ score (r=−.176, p<.001). Female patients had significantly higher score in 8 items of DRDQ than male, but lower score in one item about reduced sexual life.

Conclusion:

Patients with type 2 diabetes in Taiwan faced some degree of diabetes related distress. Most of patients concerned about their disease getting worse. Patients with insulin treatment, with worse glycemic control, or younger age had more distress than their counterparts. The results will be useful for health care providers to understand and improve quality of life in patients with diabetes.
Utilizing Transtheoretical model for transforming a uncooperative diabetes nephropathy patient into a cooperative patient undergoing Hemodialysis

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Objectives: The most difficult aspect in diabetes education is behavioral corrections. Often the patients will not accept changes to their diet. However, inappropriate diet can lead to high blood glucose levels and that can result in other comorbidities. During the care period, the behavioral changes that resulted from the patients’ prognosis were compared with the 5 transformative behaviors outlined in the “Transtheoretical Model”. The case was transformed from pre and contemplation phase, where they were undecided about diet changes, to the action phase, where they have started a healthy diet. It is with hope that the investigation can give us insights on the effects of behavior based education for nutrition therapy.

Methods: A 61 year-old male patient in a medical center in southern Taiwan was studies. The patient was emitted to the hospital due to peritonitis and septic shock that have resulted from ulcer perforation. The patient had histories of diabetes, hypertension, and a brain aneurysm surgery that was performed 20 years ago. The patient assessment included height, weight, body mass index, blood and urine biomarker levels, current medication, SGA, and other physiological examination and treatment. Furthermore, by using 24 hr regression questioning, The patient was given appropriate nutrition education and proper diet that is in accordance to his conditions as well as behavior phase. The patient was follow-up for the determination of the effect of the interventions.

Results: After underwent hospitalization interview, assessment, and educations, the patient, followed-up for 2 years after discharge, had improved his diet nutrition. His behavior changed from pre-contemplation (pre-hospitalization), to contemplation (during the first interview), and to become action and maintenance phase (after discharge). The nutrition diagnosis and education for the patient throughout the care process are: lack of diet and nutrition related knowledge in the beginning; familiarized with the six major food groups after persisting education; and the patient was finally about to distinguish and select a proper diet. However, patient’s nephropathy also required a low protein diet; the miss selection caused his condition to worsen and required hemodialysis therapy. Therefore, the patient was educated further on protein adjustment and identifying food with sodium, sulfur, potassium, iron, and purine. Finally, the patient has started the habit of daily exercises.

Conclusions: The transtheoretical model emphasized the complexity of behavioral changes. This case study demonstrated a patient that was able to change his 20 year habits is a prime example for nutritionist. Therefore, the actual care experiences and results from this study are shared for future references.
The co-occurrence of depressive symptoms and cognitive impairment and its relationship with diabetes self-care behaviors

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Background: Depressive symptoms or cognitive impairment is prevalent in older adults with diabetes. To date the epidemiology of the coexisting diabetes, depressive symptoms, and cognitive impairment among older persons has yet to be adequately characterized. Little is known about how depressive symptoms in combination with cognitive impairment associated with diabetes self-management.

Aim: The main aim of the present study was to investigate the co-occurrence of depressive symptoms and cognitive impairment in community dwelling older adults with diabetes and its relationship with specific diabetes self-care behaviors.

Methods: We analyzed data from two national sample of older adults (65 years or older) with self-reported physician-diagnosed diabetes (N=10,444), who participated in the 2005 or 2009 National Health Interview Survey in Taiwan. The Mini-Mental State Examination (MMSE) was used to assess cognitive function. The Center for Epidemiologic Studies Depression Scale (CESD) was used to assess depressive symptoms. The study assessed self-care behaviors including adherence medication, exercise, healthy diet, and self-monitoring of blood glucose. We excluded 77 persons who had diagnosed dementia or depression and 86 persons who had incomplete data for MMSE or CESD. This resulted in 871 eligible participants for analysis. We conducted logistic regression on the effects of cognitive impairment and depressive symptoms on respondents’ self-care behaviors after controlling for demographics, comorbidities, diabetics-related attributes, and health care utilization.

Results: We found that among participants with diabetes, 13.4% had depressive symptoms only, 16.4% had cognitive impairment only, and 8.8% had both depressive symptoms and cognitive impairment. After adjusted for other factors, participants with depressive symptoms alone were less likely to adhere to exercise (Adjusted Odds Ratio [AOR]=0.63; 95% CI = [0.39-0.99]). Participants combined with cognitive impairment and depressive symptoms were less likely to adhere to exercise (AOR=0.39; 95% CI = [0.21-0.71]), to healthy diet (AOR=0.30; 95% CI = [0.15-0.61]), and to self-monitoring of blood glucose (AOR=0.46; 95% CI = [0.21-0.99]).

Conclusion: Our results highlight the combined presence of depressive symptoms and cognitive impairment was prevalent in older adults with diabetes. Furthermore, this combination was associated with worse self-care behaviors, especially exercising, healthy diet, and self-monitoring of blood glucose for older adults with diabetes. These findings highlight the importance of improving depressed mood and cognitive function in older to performing self-care behaviors for older adults with diabetes.
The need for pre-conception care of women with type 1 diabetes in Guangdong, China

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Background: Pre-conception care (PCC) can reduce the risk of adverse pregnancy outcomes in women with type 1 diabetes (T1D). But little is known about the requirements of these patients in China. We explore the need for PCC of women with T1D to assist the establishment of optimized management in China.

Methods: In-depth interview, a method widely used in social science to investigate people’s attitude and/or behaviors, was applied. The intended interviewees were women with T1D, aged ≥ 18 years, living in Guangdong, China. Purposive sampling was adopted, to ensure that the selected subjects covered different areas of Guangdong, and were of diverse age, disease duration, marital and/or child-bearing history, etc. The recruitment ended when no new themes emerged. Transcripts of the interviews were coded into themes by 3 investigators via thematic framework method and NVIVO10 qualitative software.

Results: 23 patients (mean age 26.0 ± 6.1 years) were included. Eight themes were identified: 1) Current situation of PCC. Little information of T1D and pregnancy was available in almost all areas in Guangdong (22/23) and patients had many concerns for pregnancy. 2) The timing of pre-conception education (PCE). Most patients (17/23) thought age of majority (18 years) was the best. 3) The forms of PCE. Various forms were accepted, but some (5/23) preferred online education. 4) Educator of PCE. Most (15/23) hoped of a multiple disciplinary team, but the current practice was disconnected. 5) The content of PCE. Patients hoped that the contents could focused on planned pregnancy, the guidelines during pregnancy and glycemic control. 6) Physician-patient relationship. Generally, they were satisfied with the professional support. But some patients (8/23) complained certain doctors lacked of expertise for T1D management, especially in community facilities or rural areas. 7) Social support. Family members had little knowledge about T1D, nor its impact on pregnancy. Some patients (2/23) dare not to tell parents-in-law of their disease. 8) Dilemma caused by T1D itself. Patients were under immense pressure due to social ignorance. Some unmarried patients were even afraid of marriage and/or pregnancy.

Conclusions: Women with T1D had various need for PCC, but the coverage of PCC was poor and there was a lack of PCC providers of specialized skills in Guangdong. The role of professional and social support should be enhanced to relieve the stress of women with T1D concerning pregnancy. These findings would be helpful to guide the establishment of a patient-centered PCC system in Guangdong, China.
Peer support is an effective strategy to initiate and sustain healthy behaviors and improve diabetes management. Peer support may also enhance psychological and emotional well being. With the huge need for basic diabetes education, however, thinking about peer support may overlook how it may benefit psychosocial status and how this may contribute to behavior change and improved health. Peers for Progress (PfP), developed to promote peer support worldwide, has been facilitating the adaptation of peer support programs for people with diabetes in China since 2009. Collaborative workshops with the Chinese Diabetes Society and Zhongda Hospital in Nanjing have trained over 500 physicians and nurses who have established more than 30 programs. Drawing from this experience and specific programs of the Beijing Diabetes Prevention and Treatment Association, Zhongda Hospital, and the Second People’s Hospital of Guilin, three themes have emerged that highlight the psychosocial impact of peer support. First, peer support helps participants reduce negative emotions such as fear, distress, and feeling hopeless about their conditions. Some participants particularly shared that because of the program they were no longer afraid of having diabetes. Second, by connecting with others “like them”, participants often find a sense of belonging. They feel they are not alone anymore. In a group setting, some even referred to their groups as “families”. Third, people gain happiness from finding others with whom they can share the journey of managing diabetes. Notably, participants reported that the happiness and feeling of acceptance were important motivators for them to engage in healthy behaviors and continue participation in the programs. Quantitative data reported by the programs support these qualitative findings. For example, despite being in a low-resource setting, the program in Guilin maintained an average of 90% participant attendance over a 2 year period. The programs in Beijing and Nanjing found improvements on measures of depressed mood as well as metabolic status. What program participants revealed not only illustrates the psychosocial benefits of peer support but also has important implications for peer support programs. Although peer support programs frequently is to emphasize building diabetes knowledge and self management skills, it also important to address rapport building among participants and other features that lead to psychological benefits. More generally, these observations from peer support underscore that relationships with others and quality of life are important features of diabetes management and key health-behaviors.
PF-16

The effect of mental disorders on Glycemic control of patients with type 2 diabetes

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Objective: The relationship between mental illness and glycemic control in diabetic patients is largely unknown. We aimed to compare the characteristics and glycemic control in diabetic patients with and without mental illness, and to clarify the factors to achieve good glycemic control (HbA1c < 7.0%) 1 year after the first visit.

Methods:
We retrospectively reviewed the patients with type 2 diabetes who visited outpatient department of internal medicine for the first time between December 2011 and April 2013. We investigated the patient background, history of diabetes and mental illness, and laboratory data at the time of the first visit, and the glycemic control after 1 year. We compared patients with mental illness and patients without mental illness, and also compared patients who achieved good glycemic control with patients who could not achieve by chi square test and t test. We analyzed the factors associated with the achievement of good glycemic control by logistic regression model.

Result:
Among 186 eligible cases, 58% were male. Mean age was 62.5 years old, mean HbA1c was 8.4%, and mean duration of diabetes was 5.6 years. Of the 69 cases with mental illness, 27 had schizophrenia, 21 had mood disorder, and 8 had dementia. Patients with mental illness had significantly younger age (58 vs 65), higher BMI (28 vs 25) and shorter duration of diabetes (3.8 vs 6.6 years) than those without mental illness. There was no significant difference in mean HbA1c. The patients who could not achieve HbA1c < 7% after 1 year had significantly higher insulin usage rate before first visit (24 vs 7%) and longer duration of diabetes (9.4 vs 3.6 years). The patients with mental illness tended to have better glycemic control 1 year after the first visit. Logistic regression analysis showed longer duration of diabetes was significantly associated with lower rate of good glycemic control 1 year after the first visit (odds ratio 0.92 per annum, 95% confidence interval 0.88, 0.96, p < 0.01).

Conclusion:
Our study showed the existence of significant differences in clinical characteristics of diabetic patients with and without mental illness, and also indicated patients with mental illness could achieve good glycemic control by appropriate treatment.
Characteristics of type 2 diabetes patients with low aerobic exercise capacity

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Introduction: Indicators of aerobic fitness such as oxygen uptake (VO2) at anaerobic threshold (AT) are often used for functional evaluation of various populations. In patients with type 2 diabetes mellitus (T2DM), VO2 at AT (ATVO2) is decreased in comparison with that of a healthy population. Decrease in aerobic fitness reduces the effect of exercise therapy. Clinically, there are patients with T2DM whose aerobic capacity is preserved and those whose aerobic capacity is not preserved. However, no studies have assessed the factor of aerobic fitness.

Purpose: The purpose of this study was to examine the characteristic differences between patients with T2DM whose ATVO2 was normal and those whose ATVO2 was low.

Method: Forty-six patients with T2DM (mean age: 43.9±6.2 years, mean HbA1c: 10.3±2.4%) underwent expiratory gas analysis while performing incremental exercise test on a cycle ergometer 3 h after eating. The ramp protocol (20 W/min) was used. VO2, carbon dioxide output (VCO2), and maximum lipid oxidation were measured during the exercise test. The amount of lipid oxidation (g/min) during exercise was calculated using the Bruzstein formula. AT was evaluated as ventilation threshold using the V-slope method. ATVO2 was compared with the standard value of the Japanese Circulation Association. The subjects were divided into two groups based on normal or low ATVO2. Normal and low AT groups were defined as ATVO2 higher than 90% and lower than 90% of the standard value, respectively. We compared the body mass index (BMI), HbA1c, fasting plasma glucose, skeletal muscle and fat amount, visceral fat sectional area, maximum lipid oxidation amount, and respiratory quotient at rest between normal and low AT groups using t-test or Mann–Whitney U test. A software package (IBM SPSS Statistics Version 22) was used with a significance level at <5% for statistical analysis.

Result: The normal and low AT groups had 15 and 31 patients, respectively. The following characteristics were observed in patients in the normal AT group as compared with those in the low AT group with statistically significant difference: lower BMI (p < 0.01), lower skeletal muscle amount (p = 0.02), higher fat amount (p < 0.01), lower visceral fat sectional area (p = 0.04), and higher maximum amount of lipid oxidation (p < 0.01).

Conclusion: In patients with T2DM, high BMI, high fat amount, and low lipid oxidation at exercise decreased aerobic fitness. It is suggested that aerobic fitness in patients with T2DM is determined by lipid metabolism.
The association between self-reported sleep quality and arterial stiffness

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Sleep has a major role in maintaining health, and is involved in the regulation of metabolism, vascular and autonomic nervous functions. Short and long sleep duration, and poor sleep quality are associated with an increased risk of cardiovascular disease (CVD). In addition, epidemiologic studies show that poor sleep quality is associated with cardiovascular risk factors, such as diabetes, obesity, and metabolic syndrome. Furthermore, poor sleep quality without change in total sleep time lead to insulin resistance and increased sympathoadrenal activity.

Arterial stiffness, a decrease in the compliance of the central arterial system, is recognized a surrogate marker for cardiovascular disease. Apart from ageing, many pathophysiological conditions are associated with increased arterial stiffness, such as hypertension, diabetes, obesity, hyperlipidemia, smoking, and metabolic syndrome. In addition, previous studies suggest that insulin resistance is associated with arterial stiffness. Although sleep quality and arterial stiffness are both associated with insulin resistance, their interactions have not been clarified. Therefore, the aim of this study is to investigate the association between sleep quality and arterial stiffness.

Cross-sectional data were collected from a decoded database of the National Cheng Kung University. Subjects with history of hypertension, diabetes, coronary heart disease, old stroke, peripheral atherosclerosis with an ankle-brachial index less than 0.95, amputation of either lower limb, alcohol consumption of greater than 30 g/wk, and those taking medications influencing blood pressure, plasma glucose, and lipid profile were excluded. Sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI). Arterial stiffness was measured by brachial-ankle pulse wave velocity (baPWV).

Of the total 400 participants enrolled, 200 were poor sleepers (PSQI>5) and 200 were good sleepers (PSQI≤5). Poor sleepers had significantly higher baPWV, systolic blood pressure (SBP), diastolic blood pressure (DBP), and prevalence of hypertension than those of good sleepers. The multivariate logistic regression analysis showed that age, baPWV, and snoring were independent determinants of being poor sleepers after adjusting for gender, body mass index (BMI), SBP, fasting plasma glucose, creatinine, lipid profile, alcohol drinking, tea and coffee consumption, smoking habit, and habitual exercise.

Poor sleepers had a significantly higher baPWV value than those of good sleepers. Furthermore, age and baPWV were associated with being poor sleepers independently of cardiometabolic risk factors. In clinical practice, subjects who complain sleep disturbance should be evaluated for the presence of cardiometabolic risk factors, including baPWV.
The applicability research of portion-controlled tableware developed by Taiwanese Association of Diabetes Educators in common Chinese food

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Background and aims: In 2013, Taiwanese Association of Diabetes Educators (TADE) developed a set of portion-controlled tableware for diabetes who need diet control to achieve their goals. In this research, we investigated the applicability of this tableware for common Chinese food.

Method: We chose common Chinese food in different categories including staples, meat and vegetables from the menu which provided for hospitalized patients in Cheng-Hsin Hospital and served them with the TADE portion-controlled tableware according to its instructions. We investigated the quantitative rules of dish arrangements by elaborating the quantitative functions and visual impression.

Results: The scales labeled on the bowl are accurate for staples, such as rice, gruel and noodles. Food cut into small cubes or grounded meat was easy to fill the oval-shaped sections and facilitating for portion estimation. We modified the quantitative instructions of TADE plate when we encountered mix-meat-vegetable dishes and ingredients with loose composition which often seen in Chinese food services, such us fired egg with meat, steamed egg and dried fish floss, and re-defined a portion filling one small section of the TADE plate as 0.5 instead of 1 exchange of soybeans, meat and eggs. When meat served with larger portion such as chicken leg or pork chops, we suggest to place them in another container and defined as 2 exchange of meat.

Conclusion: By demonstrating more ways to arrange dishes and providing quantitative rules will enhance the practicality of applying TADE tableware. Furthermore, this TADE tableware is appropriate not only for diabetic portion teaching but also for personal use at home.
Predictors of polypharmacy among diabetes in Japan

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Objectives: According to published works, polypharmacy can be simply defined as the use of multiple medications by a patient. It is clearly highlighted that the use of greater number of prescriptions has been independently associated with increased health care cost and risk for adverse drug events. Polypharmacy has been shown to be associated with many risk factors, such as renal function and age. However, whether diabetes is a risk factor of polypharmacy is not well established. The present study aimed to determine the predictors of polypharmacy among diabetic patients in Japan.

Subjects and methods: We recruited 6,706 in-patients (with diabetes n=2766, without diabetes n=3940) between January 2014 and January 2016. We defined polypharmacy as the concurrent use of six or more prescriptions. To assess the odds ratio (OR) of polypharmacy, we constructed a logistic regression analysis, having adjusting for age, gender, BMI, eGFR, number of prescriptions and with or without diabetes.

Results: At baseline, age, BMI, eGFR and number of prescriptions were significantly different between patients with and without diabetes (age; 69.6 vs. 55.8 years, BMI; 24.1 vs. 22.4 kg/㎡, eGFR; 57.3 vs. 67.5 mL/min/1.73 ㎡, number of prescriptions; 7.4 vs. 4.9, respectively). In multivariate logistic regression analysis, diabetes (OR: 2.8, 95% CI: 2.5-3.1), age (65-<75y: 1.6, 95% CI: 1.4-1.8, 75y≦: 3.0, 95% CI: 2.7-3.5) and CKD (G3: 2.0, 95% CI: 1.6-2.5, G4: 3.3, 95% CI: 2.3-4.7, G5: 8.1, 95% CI: 5.4-12.2) were associated with the presence of polypharmacy.

Conclusion: This study shows that diabetes, as well as the elderly and CKD G4-5, was associated with the presence of polypharmacy. In diabetic patients, prescribing and managing multiple regimens need regular reviews and evaluations to ensure that medications are appropriately and effectively continued. Patients and providers need to regularly discuss the goals of therapy, and address concerns about adherence, unnecessary healthcare cost, avoidance of adverse health outcomes, and other matters of significance in achieving an individualized and realistic therapeutic plan.
Using models of group therapy in diabetes patients with enhancing the effectiveness of self-health care

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Objective: patients with psychosomatic disorders and diabetes, often because of lack of diabetes knowledge and strong oral, lazy, lack of regular exercise and diet control concepts, nor received conventional drug therapy, so the concept of group therapy in patients with diabetes amounted to 5 to help promote self-health care of patients with diabetes efficacy and self-control, adjustment capabilities.

Method: 1. Notwithstanding the time 60 minutes per week, a total of 3 groups to teach diabetes knowledge. 2. the integration of professional communication and assessment: the note nutritionist, and diabetic diets and dietary education and designed by occupational therapists easy sport, in 2 times a week, 1 hour per day group therapy time. 3. implementation of the plan of care: encouraging the daily 20-minute morning exercises, and movement of every 10 minute walk after meals, and by assessing the degree of implementation of the active evaluation.

Results: (A) enhancing medical compliance and trust: through the curriculum, from passive to active acceptance of oral medications and insulin regular treatment of the concept. (B) to promote positive learning and motivation for change, health habits: understanding the concept of diet and exercise to control blood sugar and learn healthy lifestyle. (C) restore confidence: through the power of group therapy affect learning and change motivation, and the capacity of maintaining healthy behaviors.

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Application: using the power of group therapy to strengthen efficiency of self-health care, mining groups implement treatment activities, strengthen compliance and sustainability, this programme guide nursing staff to provide quality care, for health promotion purposes.
Associations between insomnia and Glycemic control in Hong Kong Chinese patients with type 2 diabetes

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Increasing evidence suggest insomnia may play a role in increasing insulin resistance and worsening glycemic control in patients with type 2 diabetes. Around 10% of Hong Kong Chinese adults suffered from insomnia while the rate of insomnia in diabetic population is under-explored. We aimed to explore the rate of insomnia in Hong Kong Chinese patients with type 2 diabetes and its associations with glycemic control.

This was a cross-sectional study including a consecutive cohort of patients with type 2 diabetes recruited from the Hong Kong Diabetes Registry between July 2010 and June 2015. Shift workers and patients with obstructive sleep apnea (OSA) were excluded. Indices of glycemic control including fasting plasma glucose (FPG) and glycated hemoglobin (HbA1c) were measured and sleep parameters were assessed by validated questionnaires including Insomnia Severity Index (ISI). Insomnia was defined as ISI score > 14 whereas HbA1c ≤ 7.0% was considered as reaching glycemic goal.

A total of 4786 patients with type 2 diabetes were enrolled during the study period. After excluded shift workers and patients with OSA (11.8%), 4221 eligible patients were included in this analysis. Mean age was 54.0±8.6 (standard deviation, SD) years and 57.9% were men. Median disease duration of diabetes was 7.0(3.0-11.0) (inter-quartile range, IQR) years. Mean score of ISI was 6.5±5.6. Among the cohort, 9.7% had insomnia. Compared to non-insomniac subjects, type 2 diabetic patients with insomnia had higher FPG (7.9±3.1 mmol/l versus 7.5±2.4 mmol/l, P=0.022) and higher HbA1c (7.7±1.7% versus 7.5±1.4%, P=0.005), as well as longer disease duration of diabetes [8.0 years (IQR: 3.0-14.8) versus 7.0 years (IQR: 3.0-13.0), P=0.026]. After adjustment for age, gender, BMI and disease duration of diabetes, insomniac state was positively associated with FPG and HbA1c (P=0.030 and P=0.012 respectively). Higher percentage of type 2 diabetic patients with insomnia did not reach glycemic goal compared to their non-insomniac counterparts (59.4% versus 52.9%, P=0.02).

Insomnia is prevalent in Hong Kong Chinese patients with type 2 diabetes. Type 2 diabetic patients with insomnia were associated with poorer glycemic control compared to type 2 diabetes without insomnia.
The validation of the community pharmacists’ motivation to lifestyle support for diabetics: the effect of “3 star pharmacists training program”

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Background: Type 2 diabetes mellitus (T2DM) is rapidly becoming one of the major health issues of the 21st century. Approximately 7.2 million people have diabetes in Japan. Though most of Japanese T2DM patients who is cared by primary care settings, the shortage of medical resources has become a serious problem. Pharmacists are well placed to develop an expanded role in diabetes care. The community pharmacy offer an excellent opportunity for patients to access education and support. So we started COMPASS project which is a randomized controlled trial (RCT) for T2DM patients in community pharmacies in Japan.

“3 star pharmacist training program”

It was made originally for intervention study: COMPASS project. This study was to evaluate of the community pharmacists’ support for T2DM to HbA1c. Community pharmacists in this study were trained in motivational interviewing and coaching skills within 3 minutes in this program. After finishing COMPASS study, we named the program ‘3 Star Pharmacist program’ and made it available to community pharmacists in some city of Japan, Tokyo, Osaka and Fukuoka. This program was structured 3 steps (3 days, 8 hours) and it practiced for 3 month 3 times.

Objective: To evaluate the effect of “3 Star Pharmacist training program” which trained for community pharmacists every 3 months a day.

Methods: To evaluate the effect of “3 Star Pharmacist training program” which trained for community pharmacists every 3 months a day, web survey was carried out in December 2015 for 87 trained and certified pharmacists who attended the program in 2014. Baseline data was collected by the same questionnaire before training on paper. This describes the result of the questionnaire which include knowledge, confidence and job satisfaction of the before and after baseline data over 1 year.

Results: Total 65 community pharmacist reply the web questionnaire for a month (response rate 75%). The score of Diabetes education knowledge (out of 20) was significantly difference 14.6(2.1) to 17.1(1.5) and the score of Diabetes education confidence (out of 6) was also significantly improve 3.5(0.8) to 4.1(0.8) and maintain for 1 year.

Conclusions: We have launched a new training program for community pharmacists named “3 Star Pharmacist Training Program” based on RCT. This program is expected to contribute to the improvement of patients’ QOL in real world settings.
The relationship between quality of life and health beliefs in diabetes patients

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Background:
The purpose of this study was to explore the relationship of quality of life and health belief among diabetic patients.

Methods:
The cross-sectional study was conducted on diabetic patients referred to health service center in Taichung city, Taiwan. The data was collected by a questionnaire including Diabetes 39 (D-39) Instrument Evaluation and health-care belief questionnaire and demographic variables. The Diabetes 39 (D-39) Instrument Evaluation, containing five dimensions: energy and mobility (15 items), diabetes control (12), anxiety and worry (4) social overload (5) and sexual behavior (3), was used. Health Belief Questionnaire (18 items), contains dimensions of perceived benefits, barriers, severity, and disease susceptibility.

Results:
The range of their ages was 26-75 with mean 55.2(SD=10.66) years. Fifty-Three participants were enrolled. About 13.2% are aged 51 or more, 38.5% are between 36-50 years, and 50.9% are between 18-35 years. About 43.3% of them were married. The education level of about 58.5% of participants had a university degree. Fifty-three participants were enrolled. About 13.2% are aged 51 or more, 38.5% are between 36-50 years, and 50.9% are between 18-35 years. About 43.3% of them were married. The education level of about 58.5% of participants had a university degree. The dimension of disease awareness in Health Belief has the highest agree, especially in the item of "worry about their diabetes complications, include heart disease, nephropathy and retinopathy ". The dimension of anxiety and worry in Quality of Life demonstrate the highest agree, especially in the item of worry about quality of life after diagnosis of diabetes. There was a correlation between barriers in activity and "vitality and motility", "diabetes control", and "anxiety and worry". Duration of diabetes was correlated with "perceived benefits" dimension of Health Belief. Treatment modality was correlated with the "anxiety and worry" dimension in Quality of Life, in particular, the insulin pump users has the highest score.

Conclusion:
Overall, Health Belief was correlated with Diabetes quality of life, duration and treatment modality may affect health belief and quality of life.