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Translation, adaptation and validation of the diabetes distress scale for Indonesian diabetic outpatients with various types of complications

Arifin, B.; Perwitasari, D.; Atthobari, J.; Cao, Q.; Krabbe, P. F.; Postma, M. J.

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EQ-5D during 2016. A visual analog scale (VAS) score and health index score were computed, and the difference was measured for P4P and non-P4P participants (selected by propensity score matching). This study uses linear regression models to determine the change in the EO-5D score, controlling for age, gender, A1C, LDL, body mass index (BMI), duration, comorbidity, and severity. RESULTS: There is an insignificant increase in the EQ-5D index score in the P4P group (0.002 [SE 0.03], P=0.93), compared with the non-P4P group after controlling for patient factors. The between-group difference in the EQ-5D VAS score is not significant after controlling for patient factors (-1.63 [SE 2.42], P=0.50). CONCLUSIONS: There is no difference in health status and health-related quality of life among patients participating in the newly featured P4P program versus non-participants.

PDB30

ESTIMATING THE ECONOMIC BURDEN OF HYPOGLYCEMIA IN PATIENTS WITH TYPE 1 AND TYPE 2 DIABETES MELLITUS IN AUSTRIA

Neubauer S1, Koenig C1, Krahluec E2, Pieber TR3, Schmidt LJ1

¹Joanneum Research, Graz, Austria, ²Joanneum Research, Wien, Austria, ³Medical University of Graz, Graz, Austria

OBJECTIVES: To assess health care costs and productivity losses associated with hypoglycemia in type 1 and type 2 diabetic patients per person and for Austria. METHODS: The target population comprised type 1 diabetics and type 2 diabetics treated with sulfonylurea or insulin-based therapy. A literature review was conducted to identify studies reporting on epidemiology, health care resource use and work productivity losses of hypoglycemia. This was supplemented by market data and expert opinion. RESULTS: Direct health care costs and productivity costs arising from hypoglycemia in Austria in 2015 amounted to approximately 50 million per year: around $\ensuremath{\varepsilon}$ 34 in direct healthcare costs (medication costs and community care costs as well as costs incurred in the hospital sector) and $\ensuremath{\varepsilon}$ 15.6 million in costs of lost productivity induced by hypoglycemia among persons of working age. Annual health care resource costs of hypoglycemia for a type 1 diabetic are over three times that of a type 2 diabetic (ϵ 186 per T1DM patient versus ϵ 58 per T2DM patient); the difference is even greater for productivity losses (ϵ 213 per T1DM patient versus € 11 per T2DM patient). However, due to the far higher prevalence of type 2 diabetes, nearly three-quarters of total annual direct costs of hypoglycemia can be apportioned to type 2 diabetes (approximately ϵ 9 million for T1DM versus ϵ 25 million for T2DM). Due to differences in the age distribution of diabetic patients (around 3 times as many persons are of working age in the type 1 diabetes population as in the type 2 diabetes population), total indirect costs per year are twice as high for type 1 diabetes as for type 2 diabetes (ϵ 10.7 million vs. ϵ 4.9 million). **CONCLUSIONS:** Hypoglycemic events constitute a significant economic burden, which may be reduced by improved diabetes management.

HIGHER WEIGHT, HIGHER BURDEN: OUTCOMES OF ADULTS IN JAPAN WITH TYPE 2 DIABETES

Vietri J¹, Fukuda T², <u>Stankus AP</u>¹

¹Kantar Health, Horsham, PA, USA, ²National Institute of Public Health, Wako, Japan

OBJECTIVES: Obesity is a major risk factor for type 2 diabetes (T2D), and can place a significant burden upon the individual and society. This study was conducted to describe the relationship between increasing levels of obesity and outcomes among T2D patients in Japan. METHODS: Data from the 2014 Japan & 2015 United States (US) National Health and Wellness Survey (NHWS) were used. The NHWS is an Internet-based self-reported survey administered of individuals 18 and older (Japan N=30,000; US N=97,700). Respondents who self-reported diagnosis of T2D, height, and weight were categorized based on body mass index (BMI): ≤25, 25.1-26.9, 27-29.9, and \geq 30. These groups were compared on SF-36v2 scores, including both international measures (mental and physical component summary scores (MCS &PCS, respectively), SF-6D health utility) as well as country-specific 8-factor health profile scores. Comparisons of EQ-5D index scores were not yet complete at the time of submission. Regressions adjusted for age and sex. RESULTS: Of the 1034 respondents in Japan who reported diagnosis of T2D, height, and weight, most had BMI \leq 25 (n=623; 58.4%), with fewer respondents having higher BMI (14.7%, 13.8%, 10.1% with BMI 25.1-26.9, 27-29.9, 30 or greater, respectively). Several measures varied according to BMI category, with decrements in some scores, such as PCS, lower even in the 25.1-26.9 BMI category relative to BMI \leq 25 (p<0.01). In contrast, only 13.8% of US respondents with T2D had BMI \leq 25, and decrements relative to this group tended to be seen at BMI of ≥30. **CONCLUSIONS:** A small minority of T2D patients in Japan exceed BMI of 30, which is the commonly used international cutoff for obesity. Impacts to health among T2D patients manifest at lower levels of BMI in Japan than in the US, suggesting interventions there should target individuals whose BMI is lower than the targets of weight interventions elsewhere

PREFERENCES FOR TREATMENT ATTRIBUTES OF DULAGLUTIDE AND LIRAGLUTIDE AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS AND THEIR WILLINGNESS TO SELF-INJECT DIABETES MEDICATION: A COMPARISON BETWEEN JAPAN AND THE UNITED KINGDOM

Gelhorn HL1, Bacci ED2, Poon JL1, Boye KS3, Suzuki SJ4, Babineaux S3 ¹Evidera, Bethesda, MD, USA, ²Evidera, Seattle, WA, USA, ³Eli Lilly and Company, Indianapolis, IN, USA, ⁴Eli Lilly Japan KK, Kobe, Japan

OBJECTIVES: To compare preferences for treatment features of dulaglutide and liraglutide among patients with type 2 diabetes mellitus (T2DM) in Japan and the United Kingdom (UK), and their willingness to self-inject diabetes medication. **METHODS:** Two discrete choice experiments (DCE) were conducted in Japan and the UK among patients with T2DM who had not previously self-administered injectable medications. The DCEs were conducted through in-person interviews and examined six

attributes: dosing frequency, blood sugar (HbA1c) change, weight change, type of delivery system, frequency of nausea, and frequency of hypoglycemia. Part-worth utilities were estimated using logit regression models and used to calculate relative importance (RI) values for each attribute. Prior to completion of the DCE, participants were queried about willingness to self-inject medication for T2DM. Following the DCE, participants were asked their willingness to take medication represented by dulaglutide and liraglutide medication profiles. RESULTS: Final analytic samples consisted of 182 participants in Japan and 243 from the UK. In both studies, dosing frequency, type of delivery system, and frequency of nausea were the top 3 most important attributes, in rank order, with minor variation in the relative importance of each attribute across countries. Pre-study willingness to take injectable medication was significantly lower in Japan (1.7%) compared to the UK (37.9%) (p<0.0001). Post-DCE willingness to take medication represented by dulaglutide and liraglutide medication profiles also differed, with fewer Japanese participants 'somewhat willing' or 'very willing' (dulaglutide: 42.9%; liraglutide: 4.4%) compared to their UK counterparts (dulaglutide: 77.0%; liraglutide: 30.5%). CONCLUSIONS: Rank-order of RI for treatment characteristics of dulaglutide and liraglutide were similar across countries with dosing frequency ranked highest, followed by type of delivery system. Patients from both countries were more willing to self-inject at the end of the study; UK patients were more willing than Japanese patients at both time points.

PDB33

ASSESSMENT OF KNOWLEDGE AND PRACTICE REGARDING FOOT CARE OF DIABETES MELLITUS PATIENT IN TERTIARY CARE HOSPITALS, QUETTA,

ul Haq N, Durrani P, Nasim A, Razaque G, Ahmed N, Muhammad S, Raiz S University of Balochistan, Quetta, Pakistan

OBJECTIVES: This study aimed to assess the knowledge and practice of foot care in Diabetes mellitus (DM) patients among two different Government hospitals and general community of Quetta city, Pakistan. **METHODS:** A cross-sectional study was conducted in two government hospitals and general population of diabetic patients and about 400 questionnaires were distributed among patients. Data gathered from April to September 2015. Pretested questionnaire was used to assess the knowledge and practice of diabetic patients regarding foot care. The knowledge and practice score were classified as adequate if score >50% and poor if score was <50%. Descriptive and inferential statistics have been done by using SPSS version 20. **RESULTS:** Out of 400 questionnaires, 364 were returned (response rate 91%). Majority (n=112, 30.8%) of respondents were between 46-55 years. Male gender was dominating (n=204, 56.0%) with 323 (88.7%) were married. Majority of respondents were from urban locality 269 (73.9%). Majority of respondents 80 (22.0%) were educated but majority (n=168,46.2%) were having no job. Large number of respondents 58.8% had adequate knowledge and 62.4% had poor practice of DM foot care. Demographic characteristics Locality, Level of education, Occupation and income (p < 0.001) had statistically significance association with knowledge and practice score. CONCLUSIONS: The result of study shows adequate knowledge and poor practice among Diabetic patients regarding foot care, betterment of knowledge is necessary to enhance overall practice and to reduce diabetes foot complications.

EFFECTIVENESS OF SELF-MONITORING OF BLOOD GLUCOSE (SMBG) IN REDUCING HBA1C OF DIABETES MELLITUS TYPE-2 PATIENTS IN JAKARTA, INDONESIA: PRELIMINARY FINDINGS

<u>Istanti ND</u>, Thabrany H, Sari K, Yulianty V, Hasnur H

Indonesia UNIVERSITY OF INDONESIA, INDONESIA, Indonesia

OBJECTIVES: Indonesia could lose as much as US\$93 billions due to diabetes between 2006-2015. The prevalence of DM patients was 6.9 million people in 2010 and it is predicted to reach 11.9 million people in 2030. Preventive actions are needed related to control blood sugar and HbA1c Level. It is hypothesized that patients who monitor their blood sugar have higher probability of compliance with diets and treatments. Therefore, providing DM patients with blood glucose monitor is assumed to be able to contribute for better outcome of treatment. We conducted a quasi experiment study by providing Self-Monitoring of Blood Glucose (SMBG) for DM patients in Jakarta. The study aims to ascertain good control of diabetic which is measured by the level of reduction HbA1c. **METHODS:** This is a prospective quasi experiment with 24-week observation after initial insulin therapy and glucometer distribution. The study population is 120 patients with the power of 80% beta and significant level of 5% alpha. The inclusion criteria is the patient is continuously insured of supply of insulin, and having HbA1c of 9% or above, and agree to participate in study for at least for 24 week-observation. RESULTS: Total sample of patients finishing 24-week observation until March 2016 was 42 patients. The remaining patients are still continuous follow up that will be end by June 2016. The preliminary result of 42 patients shows that 92.9% of patients had decreased significantly in HbA1c level, while 4.8% had increased HbA1c, and 2.4% had no change in HbA1c level. CONCLUSIONS: Self-Monitoring Blood Glucose (SMBG) program has significant impact to reduce HbA1c level and it is recommended to be provided by the National Health Insurance.

TRANSLATION, ADAPTATION AND VALIDATION OF THE DIABETES DISTRESS SCALE FOR INDONESIAN DIABETIC OUTPATIENTS WITH VARIOUS TYPES OF COMPLICATIONS

<u>Arifin B</u>1, Perwitasari D2, Atthobari J3, Cao Q4, Krabbe PF5, Postma MJ4 ¹University of Groningen the Netherlands, Groningen, The Netherlands, ²University of Ahmad Dahlan Yogyakarta, Yogyakarta, Indonesia, ³Medical Faculty, Universitas Gadjah Mada, Yogyakarta, Indonesia, ⁴University of Groningen, Groningen, The Netherlands, ⁵University of Groningen, University Medical Center Groningen, Groningen, The Netherlands

OBJECTIVES: To translate, adapt and validate the Diabetes Distress Scale (DDS) instrument for Indonesian type 2 diabetes mellitus (T2DM) outpatients with various types of complications. **METHODS:** Participants were recruited from four hospitals and two primary healthcare facilities. The procedure of the study included forward and backward translations, an adaptation testing with a small subset of participants, and a validation test. Factor analysis with maximum likelihood estimation and promax rotation was used to investigate the instrument structure. Internal consistency among the items was estimated using Cronbach's alpha for each of the four domains of the DDS. The instrument form resulting from this study was labeled DDS17 Bahasa Indonesia. RESULTS: 324 participants (246 from hospitals and 78 from primary healthcare facilities) were involved in this study. Understanding of the exact meaning of questions by study participants was improved by adding T2DM daily activity examples (e.g. diet, exercise and adherence to therapy) to several questions after the translations and adaptation procedure. The factor analysis showed correlation among the four factors ranging from 0.40 to 0.67. The order in the factor analysis was first interpersonal distress, followed by emotional burden, physician distress, and regimen distress. The internal consistency for the four domains ranged from 0.78 to 0.83. CONCLUSIONS: The DDS17 Bahasa Indonesia provides a valid and reliable scale for assessing distress of Indonesian T2DM outpatients. The use of this instrument in future research and clinical trials is recommended for the Indonesian context.

PDB37

AN OBSERVATIONAL STUDY ON HELATH RELATED QUALITY OF LIFE IN DIABETES MELLITUS PATIENTS

 $\underline{\text{ThunlaPr}}^{\,1}$, Gundepogu UJ 2 , Thumma P 2 , Bairi R 1

¹St.peter's institute of pharmaceuticals sciences, Hanamkonda, India, ²St.peter's institute of pharmaceuticals sciences, hanamkonda, India

OBJECTIVES: The main objective of the present study focuses on evaluation of physical, psychological and social aspects of health related quality of life in Diabetic Mellitus patients in representative sample population. METHODS: The study consisted of a representative population sample of 325 out-patients with diabetes mellitus. The prospective study was carried out for a period of one year at tertiary care hospital, Warangal. Data was obtained using different sources and patients were interviewed to identify health related quality of life (HRQOL) using 3 modified questionnaires "SF-36 WHO wellbeing questionnaire, Quality of life enjoyment and satisfaction questionnaire, Diabetes specific quality of life scale questionnaire". These modified questionnaire includes domains like emotional wellbeing, functional wellbeing, physical wellbeing, social/family wellbeing, diabetic specific goals and satisfaction on blood glucose values, burdens and restrictions from diabetes and its treatment. **RESULTS:** In the present study, the HRQOL is categorised as high, moderate and low. Overall patients are 325, among them 260 were adults and 65 were geriatrics further 152 were male, 173 were female. In reference with WHO wellbeing scale, 15% adults, 3% geriatrics shared high HRQOL, 62% Adults, 40% geriatrics shared moderate HRQOL and 23% adults, 57% geriatrics shared low HRQOL. Based on enjoyment and satisfaction scale 88% adults, 63% geriatrics shared high HRQOL. In reference with Diabetic Specific scale 97% adults and 95% geriatric shared moderate HRQOL. CONCLUSIONS: Domains of HRQOL of diabetic patients was found to be affected moderately so it requires careful management of Diabetes Mellitus. Self-perceived health status was the main predictive factor influencing the overall HROOL.

PDB38

PSYCHOMETRIC PROPERTIES OF THE CHINESE VERSION OF PROBLEM AREAS IN DIABETES SCALE (SG-PAID-C) AMONG HIGH-RISK POLYPHARMACY PATIENTS WITH UNCONTROLLED TYPE 2 DIABETES IN SINGAPORE

Siaw M¹, Tai B², Lee J¹

¹National University of Singapore, Singapore, Singapore, ²Caritas Institute of Higher Education and Caritas Bianchi College of Careers, Hong Kong, Hong Kong

and Caritas Bianchi College of Careers, Hong Kong, Hong Kong

OBJECTIVES: Undetected diabetes distress is a cause of concern. However, the lack of validated questionnaire is a barrier to screening of diabetes distress. The aim of this study was to examine the validity and reliability of the Chinese version of Problem Areas in Diabetes Scale (SG-PAID-c) and its association with socio-demographic and clinical parameters in patients with type 2 diabetes. METHODS: This cross-sectional study was conducted in four outpatient healthcare institutions in Singapore. Chinese-speaking patients with uncontrolled type 2 diabetes, polypharmacy, and multiple co-morbidities were administered SG-PAID-c and European Quality of Life-5 Dimensions (EQ-5D) questionnaires as quality of life measures. The factorial construct, convergent validity, and internal consistency of SG-PAID-c were evaluated. RESULTS: The exploratory factor analysis resulted in a three-factor structure of SG-PAID-c with subscales on emotional- and management-related problem (11 items), ability to cope with diabetes problem (3 items) and support-related problem (2 items). The findings also showed good model fit in the confirmatory factor analysis and provided support for the construct and convergent validity of SG-PAID-c. Overall, the internal consistency of SG-PAID-c was good (Cronbach's alpha = 0.900). Gender and duration of diabetes were positively associated with 16-item SG-PAID-c while age and type of antidiabetic agents were inversely associated with 16-item SG-PAID-c (p < 0.05). CONCLUSIONS: The 16-item SG-PAID-c is a valid and reliable instrument for use among patients with diabetes in Singapore. Future studies on its clinical utility should be conducted.

PDB39

INCREASING TREND OF HEALTH RELATED QUALITY OF LIFE AWARENESS FOR DIABETIC CARE AMONG INDIAN SCIENTISTS

Chawla R¹, <u>Katiyar P</u>¹, Hughes R², Purohit D¹

¹Accuscript Consultancy, Ludhiana, India, ²AccuScript Consultancy, Reading, UK

OBJECTIVES: The health related quality of life (HRQoL) focused research in developing countries is scanty and far between, where 80% of healthcare cost is borne

by the patient. Indian patients have different social, socioeconomic and personal outlook, therefore the HRQoL results from the western studies cannot be directly extrapolated to Asian populations. This study was conducted to make an assessment of the trends in HROoL research in patients with diabetes in India and Asia vis-à-vis the western population. METHODS: We performed literature searches in Pubmed, Clinicaltrials.gov and country-specific registries for 1985-2016 to identify studies investigating HRQoL in patients with diabetes and compared these with those for the US and the UK. RESULTS: Only 46 publications were identified from India, followed by Malaysia (31) and Singapore (25), which, respectively, make only 3.8, 2.5 and 2.0% of that published from USA. The contribution from Bangladesh, Pakistan, Indonesia, Philippines, Sri Lanka and Thailand was negligible. The increasing sensitivity of Indian scientists towards QoL was evident from the increasing number of publications over the years. The number of papers published for Indian populations increased from 2 in 1991-95 and 1996-2000, 4 in 2001-2005 and 7 in 2006-2010 to 31 in 2011-2016. Similar trends were also observed in other Asian countries. Most of the studies, including those from USA and UK employed generic HRQoL tools, viz. EQ-5D, SF-36, SF-12 and SF-6D. The diabetes specific assessment tools like ADDQoL were used very sparsely. A QoL tool (Quality of Life Instrument for Indian Diabetes patients, QOLID) specific for Indian patients with diabetes has also been developed recently but needs further validation. **CONCLUSIONS:** The need for research into the humanistic burden of diabetes is being increasingly recognized worldwide, including in Asian countries such as India, and may be expected to improve patient care.

DIABETES/ENDOCRINE DISORDERS - Health Care Use & Policy Studies

PDB40

MARKETING SITUATION AND MEDICAL REFORM POLICY ANALYSIS OF ORAL HYPOGLYCEMIC DRUGS IN CHINA

 $Long~E^1,~Zhou~N^2,~Yang~N^2,~\underline{Hu~M}^2,~Zhou~L^2$

¹Sichuan Provincial People's Hospital, Chengdu, China, ²Sichuan University, Chengdu, China **OBJECTIVES:** To analyze the current marketed hypoglycemic drugs in China, and explore the effect of new medical reform policies on hypoglycemic drugs. METHODS:collect the registration information of oral hypoglycemic drugs from the official website of CFDA, statistical analyze the variety and the insurance situation of the drugs. RESULTS: There were 9 categories of oral hypoglycemic agents in Chinese market, including 27 chemical drugs (including 99 different dosages) which provided 772 domestic manufacturers and 30 abroad manufacturers, and 26 traditional Chinese medicines (TCMs) which provided by 79 domestic manufacturers. Totally 22 hypoglycemic drugs were involved in the national medical insurance list, including 13 chemical ones and 9 TCMs. Among them, only 7 hypoglycemic included in the 2012 national essential medicines list (5 chemical ones and 2 TCMs), including Glyburide, glipizide, glimepiride, metformin, acarbose, Xiaokewan, Shenqijiangtang particles. CONCLUSIONS: Oral hypoglycemic chemical agents can basically ensure domestic need of diabetes therapy. In the field of anti-diabetic therapy, traditional Chinese medicines occupied a certain market. The implementation of national essential medicines system and medical insurance policy meet the basic need of diabetic patients to some extents, but more coverage and reimbursement were need for the increasing population and burden of diabetic patients.

PDB4

STUDY OF PRESCRIBING PATTERN OF ANTI-DIABETIC DRUGS IN NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS

Merry \mathbb{R}^1 , <u>Vijayanarayana \mathbb{K}^1 </u>, Girish \mathbb{T}^1 , Nair \mathbb{S}^1 , Karthik Rao \mathbb{N}^2

¹Dept. of Pharmacy Practice, Manipal College of Pharmaceutical Sciences, Manipal University, Manipal, Karnataka State, India, ²Dept. of Medicine, Kasturaba Medical College, Manipal University, Manipal, India

OBJECTIVES: To study the prescribing pattern of anti-diabetic drugs in newly diagnosed type 2 diabetes mellitus (T2DM) patients. METHODS: Retrospective observational study, carried out in a south Indian tertiary care teaching hospital. Institutional ethics committee approval was obtained prior to the study. As per the study criteria, data of newly diagnosed T2DM patients admitted during the year 2013 and 2014 was collected from medical records department (MRD) registry using ICD code E 11.9. Drug utilization was measured as DDD/1000 diabetic patients/ day. RESULTS: During the study period total 662 patients were newly diagnosed with T2DM. The mean age of the study population was 52.5 ± 12.5 years (mean±SD) and 64.5% of patients were male. 164 patients had over weight and 67 patients were obese. Generalized weakness (n=89), fatigue (n=70) and polyuria (n=41) were the most common symptom present at the time of diagnosis. Among the study population 39.4% patients received single anti-diabetic drug, 29.3% patients received dual anti-diabetic drug and 17.8% patients received multiple anti-diabetic drug treatment. 39.9% patients received only oral anti-diabetic drugs, 18.6% patients received only insulin therapy, while 28.1% patients received combination of oral anti-dia-betic drugs and insulin therapy. Consumption of insulin was 4.1 DDD/1000 diabetic patients/day in 2013, which was increased to 6.3 DDD/1000 diabetic patients/day in 2014. Among the oral anti-diabetic drugs biguanides (58.2%) was the most common prescribed, followed by sulfonylureas (29.3%) and alpha-glucosidase inhibitors (5.4%). Combination of biguanides and insulin was prescribed to 11.9% patients. Among the oral anti-diabetic drugs, consumption of metformin was highest both in 2013 and 2014 (2.7 DDD/1000 diabetic patients/day), whereas consumption of sulfonylureas was decreased from 1.8 DDD/1000 diabetic patients/day in 2013 to 1.6 DDD/1000 diabetic patients/day in 2014. CONCLUSIONS: This study reveals that insulin and metformin was the most prescribed anti-diabetic drug in our hospital.

PDB42

HEALTH CARE DIRECT COST BURDEN OF DIABETES IN MEDICARE BENEFICIARIES WITH OBESITY