Manuscript no: 48461
Date : 3rd May 2019

Dear Prof Timothy R Koch

World Journal of Diabetes

Dear Professor Timothy,

RESUBMISSION OF MANUSCRIPT TO ***World Journal of Diabetes*** (Manuscript no: 48461)

I would like resubmit our revised manuscript entitled "Diabetes empowerment scores among type 2 diabetes mellitus patients and its correlated factors: A Cross-Sectional Study in a primary care setting in Malaysia" by Thew Hui Zhu et al. to World Journal of Diabetes for publication. We have addressed the reviewers' comments and made the changes accordingly.

The changes are marked in Blue in the manuscript. All authors have read and approved the manuscript.

We hope the revised manuscript will now be acceptable for publication and we would like to thank you for your continued interest in our research.

Thank you for your kind attention.

Yours sincerely

……

Assoc. Prof. Dr. Ching Siew Mooi (Corresponding Author)
Department of Family Medicine,
Faculty of Medicine & Health Sciences
Universiti Putra Malaysia
43400 UPM Serdang
SELANGOR MALAYSIA.

Tel (Office) +603-8947 2656
Tel (Mobile) +6019-3806652
E-mail sm_ching@upm.edu.my

Reviewer #1: Specific comments and recommendations: - Abstract: In the Abstract section, the authors should state the total number of the patients studied. - References to Tables 3 to 6 are missing in the text and need to be included.

Answer:

Table 3 shows the correlation between sociodemographic factors with total diabetes empowerment scores and subscale among type 2 DM patients. Those receive tertiary education level had a significant higher score in all the three domains of diabetes empowerment score compared with those having below tertiary education ($p<0.001$).

Table 4 shows the correlation between clinical profiles with total diabetes empowerment scores and subscale among type 2 DM patients. Those received diabetes education exposure had a significant higher score in diabetes empowerment compared with those having below tertiary education ($p=0.05$). Those without ischaemic heart disease a significant higher score in diabetes empowerment compared with those suffered from ischaemic heart disease ($p=0.01$).

Spearman Correlation coefficient showed a statistically significant relationship between HbA1c level ($r=-0.132$, p value 0.018) with the total empowerment score as showed in Table 5. Mann Whitney U test showed that those with diabetes education exposure ($p=0.004$), received above secondary school level ($p <0.001$), and those without ischemic heart disease ($p=0.004$) were statistically significant correlated with total diabetes empowerment score as showed in Table 3 and Table 4.
There is no significant correlation between total diabetes empowerment score with other variables like age, diabetes duration, systolic and diastolic blood pressure, gender, ethnicity, marital status, smoking status, hypertension status, dyslipidemia status, asthma status, compliance to treatment, LDL level, HDL level and TG level.

According to multiple linear regressions, factors that had significant correlation with higher empowerment scores among type 2 diabetes patients were those who had above secondary education level ($p<0.001$), those who had diabetes education exposure ($p=0.003$), those who had no ischemic heart disease ($P=0.017$) and those who had lower HbA1c ($p<0.001$) as showed in Table 6.

Reviewer #2: 1. The manuscript needs minor language editing 2. The first paragraph of the " discussion" section needs modifications. 3. "Mean±SD" can be removed from table 1 & table 2.

Discussion

In our study, the median score of the total diabetes empowerment was 110. We conclude that the empowerment of this study population is high based on the range for high empowerment score range in DES was 104 to 140.The total mean score of

Tol et al was 88.13±30.3, which indicated middle score according to DES score range, It is lower compared to our study.

Table 1 Sociodemographic profiles of the study participants in primary health care clinic in Putrajaya (n=322)

Variables	Frequency n (%)	Median (IQR)
Age (years)		55 (18)
Gender		
Male	189 (58.7)	
Female	133 (41.3)	
Ethnicity		
Malay	297 (92.2)	
Chinese	6 (1.9)	
Indian	14 (4.3)	
Others	5 (1.6)	
Education Level		
No formal education	12 (3.7)	
Primary school	24 (7.5)	
Secondary school	132 (41.0)	
Diploma/University	154 (47.8)	
Marital status		
Single	25 (7.8)	
Married	297 (92.2)	
Smoking status		
Yes	46 (14.3)	
Never	214 (66.5)	
Ex-Smoker	62 (19.2)	

Table 2 Clinical profiles of the type 2 DM patients with total diabetes empowerment scores

Variables	Frequency n (%)	Median (IQR)
Diabetes duration (years)		4.00 (7.0)
Compliance to diabetes treatment		
Yes	310 (96.3)	
No	12 (3.7)	
Diabetes education exposure		
Yes	264 (82.0)	
No	58 (18.0)	
BMI (kg/m2)		28.70 (7.12)
Underweight (<18.5)	3 (1.0)	
Normal (18.5-22.9)	29 (9.0)	
Overweight (23-27.4)	88 (27.3)	
Obese (>27.5)	202 (62.7)	
Hypertension status		
Yes	207 (64.3)	
No	115 (35.7)	
Dyslipidaemia status		
Yes	246 (76.4)	
No	76 (23.6)	
Ischemic Heart Disease status		
Yes	42 (13.0)	
No	280 (87.0)	
Asthma status		

Yes	30 (9.3)
No	292 (90.7)

Reviewer #3:

Major comments Thew Hui Zhu et al. performed a cross-sectional study to determine Diabetes empowerment scores the prevalence of diabetic peripheral neuropathy (DPN) in patients with type 2 diabetes mellitus in their facility. Comments 1. Authors concluded that the study reported a high empowerment scores among type 2 diabetes patients. But the results reported by the study didn't support their conclusion, because the study didn't include control subjects e.g. non-diabetic individuals.

Comments 2. Page3; Diabetes Empowerment Scale (DES-28) was developed by the University of Michigan Diabetes Research and Training Center, the questionnaires consists of 28 items with 3 subscales, each item rate with 5 Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). Please add the information of reference.

Answer: Thank you for the comment. Our study is a cross-sectional study to determine Diabetes empowerment scores among the type 2 DM and its corelation, not diabetes peripheral neuropathy.

According to the original author of this scale, the score of diabetes empowerment was classified into three categories as low (28-65 scores), middle (66-103) and high (104-140). In view the median score of our study was 110, thus it falls into high category. (12)

Reference

Anderson RM, Funnell MM, Fitzgerald JT, Marrero DG. The Diabetes Empowerment Scale: a measure of psychosocial self-efficacy. Diabetes Care. 2000 Jun;23(6):739–43.

Comments 3. Please add explanation for Cronbach's alpha coefficient used in page3.

Answer : Cronbach's alpha coefficient is a measure of internal consistency and can be interpreted as the mean of all possible split-half coefficients.(12) By convention, if Cronbach's alpha is more or equal than 0.7 to 0.8 there is acceptable agreement. (13)

This DES-28 is a reliable with good internal consistency tool (Cronbach's alpha = 0.96).

The Cronbach's alpha of each subscale was 0.93 for "managing the psychosocial aspects of diabetes"; 0.81 for " assessing dissatisfaction and readiness to change" and 0.91 for " setting and achieving diabetes goals". Each coefficient α for the overall DES and 3 subscales was good. (14)

For DES Malay version, the questionnaire was originally in English Language by the author from University of Michigan Diabetes Research and Training Center, and then forward and backward translations into Malay and English languages were done by a total number of two certified translators. The questionnaire is a self-administered questionnaire, which was pretested through a pilot study prior to the actual data collection. The Cronbach's alpha coefficient for the Malay version total DES was 0.92.

4. Table 1; Klinik Putrajaya. Is the term collect? Clinic Putrajaya? "Etnicity" should revised into "Ethnicity".

Answer: This is a cross-sectional study of patients registered with the primary health care clinic located in Putrajaya, a Federal Territory and the administrative capitol of Malaysia. We have revised the typo for "Ethnicity".

Table 1 Sociodemographic profiles of the study participants in primary health care clinic in Putrajaya (n=322)

Variables	Frequency n (%)	Median (IQR)
Age (years)		55 (18)
Gender		
Male	189 (58.7)	
Female	133 (41.3)	
Ethnicity		
Malay	297 (92.2)	
Chinese	6 (1.9)	
Indian	14 (4.3)	
Others	5 (1.6)	

Education Level	
No formal education	12 (3.7)
Primary school	24 (7.5)
Secondary school	132 (41.0)
Diploma/University	154 (47.8)
Marital status	
Single	25 (7.8)
Married	297 (92.2)
Smoking status	
Yes	46 (14.3)
Never	214 (66.5)
Ex-Smoker	62 (19.2)

5. Table 3; I found no data in the columns regarding underweight, normal, overweight, and obese.

Answer: The columns regarding underweight, normal, overweight, and obese was in Table 4. Table 3 is the correlation between sociodemographic factors with total diabetes empowerment scores and subscales among type 2 DM patients. While Table 4 is the correlation between clinical profiles with total diabetes empowerment scores and subscales among type 2 DM patients

Table 4 The correlation between clinical profiles with total diabetes empowerment scores and subscales among type 2 DM patients

	Total Diabetes Empowerment Score			Managing the psychosocial aspect of diabetes			Assessing dissatisfaction and readiness to change			Setting and achieving diabetes goal		
Variables	**Coefficient correlation**	**Median rank**	**p value**	**Coefficient correlation**	**Median rank**	**p value**	**Coefficient correlation**	**Median rank**	**p value**	**Coefficient correlation**	**Median rank**	**p value**
Diabetes Duration^ (years)	-0.016		0.774	-0.1		0.857	0.011		0.847	-0.055		0.324

Diabetes education exposure*		**0.004**		**0.01**		**0.001**		**0.05**
Yes	168.43		167.59		169.72		168.18	
No	129.97		133.8		126.38		131.1	
Compliance to treatment*		0.326		0.538		0.284		0.241
Yes	162.5		162.11		162.59		162.68	
No	135.63		145.67		133.38		131.04	
BMI' (kg/m2)		0.568		0.96		0.605		0.938
Underweight								
Normal								
Overweight								
Obese								
Hypertension Status*		0.11		0.478		0.707		0.052
Yes	155.53		158.82		160.06		154.11	
No	172.6		166.32		165.1		174.81	
Dyslipidemia Status*		0.789		0.371		0.679		0.341
Yes	162.27		164.02		162.69		158.8	
No	159.01		153.35		157.66		170.24	
Ischemic Heart Disease Status*		**0.004**		**0.011**		0.104		**0.001**
Yes	122.83		128.32		139.83		118.65	
No	167.3		166.48		164.75		167.93	
Asthma Status*		0.69		0.265		0.829		0.4

Yes	167.95	179.08	158.02	174.92
No	160.84	159.69	161.86	160.12

^ indicates Spearman's test was used, *indicates Mann Whitney test was used, ¹indicates Kruskal Wallis was used

6. Table 6; Please add the explanation for beta, t, and ,sig.

Answer:

Unstandardized coefficients are 'raw' coefficients produced by regression analysis when the analysis is performed on original, unstandardized variables.

The **beta** is the gradient of the regression line and the strength of the relationship between a predictor and the outcome variable. In general, values of the regression coefficient beta represent the change in the outcome resulting from a unit change in the predictor and that if a predictor is having a significant impact on our ability to predict the outcome then this beta should be different from 0 (and big relative to its standard error).

The t is **t-statistic** tests, which is the null hypothesis that the value of beta is 0: therefore, if it is significant we gain confidence in the hypothesis that the beta value is significantly different from 0 and that the predictor variable contributes significantly to our ability to estimate values of the outcome.

As a general rule, if this observed **significance (sig) which is p value** is less than .05, then scientists assume that beta is significantly different from 0; put another way, the predictor makes a significant contribution to predicting the outcome.

Table 6 Predictor of total empowerment scores among type 2 DM patients using multiple linear regressions

Variables	Unstandardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	Beta			Lower Bound	Upper Bound
Those without Ischemic heart disease	5.621	2.409	**0.017**	1.03	10.212
Those with secondary education level and above	16.023	6.263	**<0.001**	10.99	21.057
HbA1c level	-1.403	-3.668	**<0.001**	-2.155	-0.65
Those received DM Education exposure	6.301	3.026	**0.003**	2.204	10.399

Smoker status	-1.157	-0.685	0.494	-4.481	2.168
Hypertension Status	1.866	1.098	0.273	-1.444	5.092

a Dependent Variable: TotalDES;

Beta is coefficient is the gradient of the regression line and the strength of the relationship between a predictor and the outcome variable.

t is t-statistic tests

Sig is p value

Reviewer #4: 1. The article reflects the importance of assessment of DM treatment in relation with the patient's satisfaction and compliance 2. The manuscript is well organized and the presented data are highly informative 3. It is better to consider sampling from multiple centers to insure that the presented data represented the targeted community; moreover, due to many linguistic and grammatical mistakes detected allover the manuscript, it needs extensive linguistic revision by expert in English language.

Answer: We have sent the manuscript for proofreading under someone who is a native speaker. All the authors read through and agree on the changes.