

Social support, self-efficacy and their correlation among patients with Type 2 Diabetes Mellitus: A primary care perspective

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ABSTRACT

Introduction: Social support and self-efficacy are factors that influence patients' health behaviour. However, the relationship between these two factors among patients with Type 2 Diabetes Mellitus (T2DM) has not been adequately explored. This study aims to report social support and self-efficacy of Malaysian T2DM patients, and their correlations. **Methods:** This cross-sectional questionnaire study involved 329 patients with T2DM who received their follow up at a public primary care clinic. Patients were selected via systematic random sampling. Patients self-completed locally adapted versions of the Medical Outcomes Study (MOS) Social Support Survey and Diabetic Management Self Efficacy Scale (DMSES). The scores of both tools were analysed to determine the association and correlation between social support and self-efficacy.

Results: The mean score for overall social support was 72.7±21.40 score range (0-100). "Affectionate support" was rated the highest averaged mean score at 78.31±23.71 (score range: 0-100). The mean DMSES score was 147.6±35.5 (score range :0-200), of which "medications" subscale was rated the highest with averaged mean scores 9.07±1.67 (score range: 0-10). Overall social support and self-efficacy were found to be weakly correlated ($r=0.197$, $p<0.001$). However, all subscales of social support were moderately correlated with "medications" subscale of self-efficacy.

Conclusion: Social support is significantly associated with patients' self-efficacy in handling their own medications.

KEY WORDS:

social support, self-efficacy, diabetes, primary care

INTRODUCTION

Self-efficacy can be defined as "an individual's confidence to take action".¹ It is an important component of various health behaviour theories, affecting patient's various health-seeking behaviour.^{1,2} For patients with Type 2 diabetes mellitus (T2DM), their self-efficacy for care of T2DM includes confidence in managing their medications, exercise and dietary control. Better self-efficacy has been shown to be beneficial in patient's self-care activities.³

Social support positively affects the health and well-being of individuals.⁴ One of the definitions of social support by Hirsch is "support accessible to an individual through social ties to other individuals, groups and other community". There are various proposed definitions for the term 'social support', which can be broadly classified into three aspects, which are the sociological, psychological, and communication's perspective. The sociological aspect of social support focuses on the degree of interpersonal relationship a person has, whereas the psychological aspects highlight the perception of support available for the individual. Social support from the aspect of communications refers to the interaction between the provider and receiver of the support.⁵

Self-efficacy has been shown to contribute to better diabetic knowledge, behaviour modification and glycaemic control.⁶⁻⁹ Better social support was associated with better glycaemic and blood pressure control, improved body fat composition, and better self-care behaviour.¹⁰⁻¹² A recent meta-analysis and systemic review paper looking into the relationship between diabetic social support and self-care has shown positive significant associations between these two factors, particularly in type 2 diabetes. Self-care in this context included a well-balanced diet, taking medication, physical activity, self-monitoring of blood glucose [SMBG], managing acute complications, and healthy coping strategies.¹³ The relationship between diabetic self-efficacy and self-care is complex and is associated with other factors including many demographic factors. However, there are limited reports about the relationship between social support and patients' self-efficacy.

In Malaysia, the prevalence of T2DM has been steadily increasing from 8.3% in 1996 to 14.9% in 2006.¹⁴ Optimal management of T2DM is still hampered by difficulties in changing patients' health behaviour and lifestyle. It has been reported that only 22% patients with T2DM has good control HbA1c control of <7%.¹⁵ Due to these high statistics, much effort have been done into controlling T2DM in Malaysia, and among the initiatives involve investing in the education and counselling of patients regarding T2DM.¹⁶

Hence, determining the relationship between social support and self-efficacy may provide valuable information for health behaviour interventions through education and

This article was accepted: 19 May 2018

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counselling. This paper aims to determine the association between self-efficacy and social support among Malaysian patients with T2DM from a primary care perspective.

MATERIALS AND METHODS

This was a cross-sectional study involving 329 patients with T2DM at an urban public primary care clinic in Malaysia. Data was collected from September 2012 until January of 2013. This was part of a larger study entitled "The level of social support, self-efficacy, its associated factors and their correlation in Type 2 DM in a primary care clinic".¹⁷ Adult patients who were diagnosed with T2DM for at least one year, on pharmacological treatment (oral hypoglycaemic agents and/or insulin), aged 18 years or above, and were under regular follow up at the clinic were recruited for this study. We excluded those with psychiatric illness, cognitive impairment, and those unable to understand Malay or English.

Social Support was measured using both the original English and Malay version of the Medical Outcomes Study (MOS) Social Support Survey.^{18,19} The questionnaire consists of 20 items. The MOS Social Support Survey measures four subscales of social support, namely "emotional / informational support", "tangible support", "positive social interaction" and "affectionate support". The subscales contain of 3-8 questions each. One of the items in the MOS Social Support Survey also enquires regarding the number of persons whom the respondent considers as a source of support. The total score is a range of 19-95, and is later converted to a score of 0-100. There is no normative data for the MOS Social Support Survey in Malaysia as yet. Both the English and the Malay versions had good reliability ($\alpha=0.91$ and $\alpha=0.96$ respectively).

Self-efficacy was measured by both the Malay and English version of the Diabetic Management Self Efficacy Scale (DMSES).^{3,20} The DMSES scale has been used in other local studies and validated in the Malay language.³ This questionnaire has 20 questions assessing the level of confidence of the participants regarding their diabetic self-management in areas of "eating plan", "blood glucose", "physical exercise" and "medications". The subscales all consist of 3-5 questions each. Responses are rated using a Likert scale of 0-10 scale, with 0 indicating "no confidence" and 10 being "very confident". The total score is a range of 0-200. The Cronbach α for this questionnaire is 0.91 and 0.81 for the English and Malay versions respectively.

Systematic sampling was done where every second patient who came for follow up appointment were approached. Those who fulfilled the inclusion and exclusion criteria were invited to join the study and were given the patient information sheet with consent and two sets of questionnaires.

Ethics approval was obtained from both the Medical Research Ethics Committee of National University Malaysia (UKM) (FF-2013-369) and the Ministry of Health, Malaysia (NMRR-13-772-17002).

Statistical analysis was done using Statistical Package for Social Science (SPSS) Version 22.0. The baseline characteristics of study participants as well as their scores for the MOS Social Support Survey and DMSES were reported using descriptive statistics. Correlation between MOS Social Support Survey scores and DMSES scores, MOS Social Support Survey scores were determined using Spearman's rho correlation test. The level of significance was set at $p<0.05$.

RESULTS

A number of 356 participants who fulfilled the inclusion and exclusion criteria answered the questionnaires. There were 27 respondents who were excluded from analysis due to incomplete data. Hence, the number of respondents included into the analyses was 329 patients (completion rate 92%).

The mean age of the patients involved in this study was 54.61 ± 11.2 years with a slight female preponderance. More than half were Malay (63.5%), which was representative of the demographic profile of the clinic attendees. More than half of the participants had secondary education level (58.1%), and more than one third were employed (34.0%). This is tabulated in Table I.

Table II displays the scores for the MOS Social Support Survey and its subscales out of a possible score of 100. The mean MOS Social Support Survey score of the participants was 72.7 ± 21.4 . The highest averaged mean score for the subscale is "affectionate support" (78.31 ± 23.71). "Emotional/informational support" had the lowest averaged mean scores (72.37 ± 21.22).

The mean DMSES score of the participants was 147.6 ± 35.5 . The DMSES questionnaires measured self-efficacy in several subscales. The results were tabulated in mean scores and averaged mean scores (total scores divide by number of questions). (Table III)

Social support was found to be weakly correlated with self-efficacy ($r=0.197$, $p<0.001$). All the subscales of social support correlated significantly with the subscales of the 'medication' subscale of self-efficacy. Essentially, the higher the social support scores, the higher the patients' perceived self-efficacy. (Table IV)

DISCUSSION

This study found demographically there was slightly more female than male in the T2DM population which is consistent with findings on studies with the same population.^{19,21} The mean age, education level and ethnicity distribution was also similar.^{3,19,21}

The mean score for social support in this study was 72.7 ± 21.4 out of a possible score of 100. Other studies that used the MOS Social Support scale for T2DM in Malaysia showed that in terms of individual subscales, this study reports higher scores for the "emotional/informational" subscale and "positive social interaction".^{19,22,23} The current population is relatively younger, with a mean age of <55 years. Previous studies show that informational support and personal network reduce after the age of 55 years.²⁴ The MOS Social Support survey was

Table I: Socio-demographic Characteristics

Variables (N=329)	n(%)
Age (years) Mean (±SD)	54.61(11.2)
Gender	
Male	147 (44.7)
Female	182 (55.3)
Ethnicity	
Malay	209 (63.5)
Chinese	42 (12.8)
Indian	75 (22.8)
Others	3 (0.9)
Education Level	
None	26 (7.9)
Primary	62 (18.8)
Secondary	191 (58.1)
Tertiary	50 (15.2)
Occupation	
Unemployed	96 (21.2)
Employed	112 (34)
Self-employed	21 (6.4)
Retired	100 (30.4)

Table II: MOS SS Score with Subscales

Subscales	Mean Score out of 100 (SD)
Emotional/Informational Support	72.37 (21.22)
Tangible Support	73.77(25.65)
Affectionate Support	78.31 (23.71)
Positive Social Interaction	76.06 (24.63)
Total Score	72.7 (21.40)

Table III: DMSES Score with Subscales

Subscales (Possible Score)	Mean score (±SD)	Averaged mean scores out of 10 (SD)*
Eating plan (0-50)	32.70(12.11)	6.54(2.42)
Blood glucose (0-30)	21.71(7.54)	7.23(2.51)
Physical exercise (0-30)	21.61(8.12)	7.20(2.70)
Medication (0-30)	27.23(5.01)	9.07(1.67)
Overall		7.60 (3.40)
Total Score (0-200)	147.6 (35.5)	

Table IV: Correlations^a of Social Support and Self-Efficacy (and their subscales)

Social support / Self Efficacy Subscales	Eating plan	Blood glucose	Physical exercise	Medication	Total
Emotional /Informational	0.190**	0.046	0.063	0.226**	0.174*
Tangible Support	0.089	0.105	0.020	0.238**	0.131*
Affectionate Support	0.161**	0.088	0.06	0.253**	0.141*
Positive Social Interaction	0.208**	0.085	0.058	0.278**	0.196*
Total	0.163**	0.111*	0.071	0.205**	0.197**

a-Spearman's Correlation, * p < 0.05, ** p < 0.01

also used to study social support in other chronic diseases such as patients with end stage renal disease and heart failure.²⁶⁻²⁷ These studies yielded mean scores of 77.2±22.90 and 76.0±24.7 respectively, which shows slightly higher results as we hypothesise patients with end organ damage will have more social support. In contrast, the original study for the MOS Social Support survey done by Sherborne et al, showed slightly lower mean of 70.2±24.2. This is not surprising, as the participants were younger, better educated and of higher income as compared to this current study, giving characteristics of a more independent nature.¹⁸

This study found comparable results for self-efficacy with another larger study in Malaysian patients with T2DM which scored their mean DMSES score as 7.57.³ Both studies showed better self-efficacy for the subscales of medication and blood glucose. In the Australian population, the level of self-efficacy is scored higher.²⁷ The reason behind this may be due to the socio-demographic characteristic for this study show

that nearly half of the participants are unemployed and retired, inclining to a position of lower self-efficacy as opposed to “manager/administration/professional/associated professional” in the Australian study population. Their higher scores can also be attributed to method of recruitments via advertisements indicating that the respondents are likely to be more motivated with possibly higher self-efficacy.

There are not many published studies that explores the correlation between social support and self-efficacy in T2DM patients. A Japanese study by Nozaki et al yielded comparable results (r=0.404, p<0.01) with a stronger correlation.²⁸ Gleeson-Krieg et al., did not find any significant correlations in their study done in the US.²⁹ However both studies used different tools used in this study.

The significant correlations of all the social support subscales with the “medication” subscale of self-efficacy shows that

social support plays a role in improving patients' confidence with their diabetic medications. Malaysians' level of medication literacy on T2DM self-care is still low especially in certain demographics such as the elderly, where only a small number of patients read all the descriptions on the medication label.³⁰ Various aspects of social support may be required to help patients know their medications better. This study suggests presence of positive social interaction may be useful in increasing self-efficacy for medications such as peer support to help patients gain more confidence in managing their diabetes medications. In this study, tangible support is said to increase medication self-efficacy, this is supported by a study done amongst elderly Hispanics in the United States which found that tangible support increased general diabetic self-efficacy.³¹ Amongst the tangible support mentioned were transportation and accompanying to doctor's appointment, which are simple aspects of care than can be provided. Other aspects such as "emotional/informational support" in terms of medication is easily available from health care educators and in this study proves vital in helping patients achieve self-efficacy. Furthermore, according to Gao et al, informational support by physicians is suggested to be the main source of informational support for T2DM patients.³² One international qualitative study looked into peers with T2DM as also a form of emotional support and was conveyed non verbally such as taking walks or verbally; such as reassurance.³³ Affectionate support such spending time with T2DM patients is something that the family members, especially partners and spouses may want to help in terms of support for their loved ones, this may prove the missing factor for diabetic management.

We found that self-efficacy for "eating plan" significantly correlated with "emotional/informational support", "affectionate support" and "positive social interactions". This is supported by previous studies that explored the role of family support as well as dietician counselling on the confidence of patients to control their eating plan.^{34,35} It is not surprising that a local study reported a 12 week intervention on personalised medical nutrition therapy managed to significantly HbA1c levels within a span of 12 weeks.³⁶ Eating plans may be adversely affected by non-supportive behaviours and even sabotaging behaviours such as tempting with inappropriate food. In Malaysia, where eating is viewed as a social activity, it is understandable that social support would greatly affect the ability of patients to control their diet.

We also found that none of the social support subscales significantly correlated with the "exercise" subscale of self-efficacy. This suggests that factors other than social support would contribute to the self-efficacy of patients in terms of exercise. This was in contrast to an earlier mentioned study done in the United States where peer group counselling for 12 weeks helped women with an exercise routine, subsequently improving their blood pressure and body fat.¹¹ In the same study, barriers to leading an active lifestyle the researcher's mentioned includes life events, transportation, finances and safety.

The relationship between social support and self-efficacy may be indirectly linked and complexed as mentioned by a paper exploring factors related to T2DM.³² The cross-sectional study

was carried out among 222 patients in Shanghai, China suggests that provider-patient communication, higher self-efficacy and social support lead to better diabetic self-care which consequently leads to better diabetic control. One explanation that could explain the intricate relationship between social support and self-efficacy is that social support may be affected by other factors such as health literacy, availability of friends and family, access to healthcare which affects the patients' self-efficacy.^{31,37,38}

CONCLUSION

This study contributes to the current knowledge regarding the relationship between social support and self-efficacy in T2DM patients in a Malaysian primary care centre. We found higher social support significantly correlated with better self-efficacy. The implication of this study suggests that improving social support would contribute to better self-efficacy. Hence, physicians can invest in this inexpensive factor when treating T2DM patients in their clinic. Social support given in terms of informational/emotional, affectionate, and positive social interaction will improve patients self-efficacy on medications and eating habits.

Limitations to this study includes that it cannot prove causality due to its cross-sectional study design and bivariate analysis may be affected by presence of other confounding factors. Multivariate analysis will be better to control for certain factors such as age, race and socioeconomic status. Besides that, respondents tend to under-rate items to conform to what they perceive as socially acceptable responses or how they feel the researcher wants them to answer.³⁹ Lastly, other factors that could affect self-efficacy such as knowledge, family and peer influences were not within the scope of this study.⁴⁰ This study finding suggests future research should explore the impact of interventions that specifically target to investigate the causal relationship between social support and self-efficacy, which potentially influence diabetic outcomes.

ACKNOWLEDGEMENT

We would like to thank the Director General of Health Malaysia for his permission to publish this article.

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