International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2019): 7.583

The Influence of Socio-Demographical Variables on Type 2 Diabetes Self-Management among Black Africans in Liverpool

Dr Elizabeth Okeya[1], Mark Brundrett[2]

[1]Senior Lecturer, Edge Hill University, Faculty of Health, Social Care and Medicine,St Helens Road, Lancashire, Ormskirk, United Kingdom

[2]Emeritus Professor, Liverpool John Moores University, Faculty of Education, Community and Leisure. Liverpool, United Kingdom

Abstract: ***The aim of the study is to analyse the influence of socio-demographical variables on type 2 diabetes self-management among black Africans in Liverpool, England. The study adopted the descriptive survey research design of the ex-post facto type. A self-developed questionnaire with four sub-sections was used to collect data. Data was analysed using simple percentages and frequency counts for demographic information about the respondents, while research questions were tested using chi-square analysis. Thirty Black Africans ages forty to seventy-nine living in Liverpool participated in the study. The results show that out of the six socio-demographical variables considered only four (Age, Marital status, factors contributing, Year of diagnosis, and level of education) significantly had potential to influence the self-management of patients with type 2 diabetes. The average age of participants was sixty. Five participants were in their forties, eight participants were in their fifties, ten participants were in their sixties, seven participants were in their seventies. Six of the participants were married, four were widowed, five were divorced, three were separated, and two never married. Diagnosis of diabetes ranged from three months to thirty years and above. The level of education of the participants range between (46.7%) Diploma certificates holders in various disciplines, (26.7%) GCSE certificate holders and (26.6%) hold at least a first-degree certificate. All of the participants have had a diabetes self-management health talk in one way or the other at least once since being diagnosed. It is therefore concluded that health education as a means of assisting individuals, acting separately or collectively, to make informed decisions about matters affecting their personal health and those of others must be ensured.***

Keywords: Socio-demographical variables, Black Africans, Type 2 diabetes, Self-management, Self-care

1. Introduction

Self-care has been emphasised as a key focus on interest in the recent white paper, Our Health, Our Care, Our Say (Department of Health, 2006). The Diabetes NSF Standard 3 highlights self-management as the cornerstone of diabetes care and points out the importance of structured patient education to facilitate this and empower the people with diabetes (Healthcare Commission, 2007; Diabetes UK, 2000). It is important to note that diabetes self-management can be a constant learning process due to the ever-changing physical condition, including emotions, illness, and ageing. It is also important to recognise that the treatment of diabetes leading to improved control is a 24-hour-a-day activity and often includes changes in lifestyle, most of which people with diabetes must provide for themselves on a daily basis (Beaser& Hill, 2005; Sproston and Mindell 2006). This highlights the fact that people with T2DM should strive to become expert self-managers, and the process in which they can reach the status of expertise will depend on a number of variables, including the internal and external environment. If diabetes is to be managed successfully it requires that people with T2DM are able to reconcile their resources, values and preferences with a therapeutic regimen of a healthy diet, exercise, no smoking, low alcohol intake, glucose monitoring and, for some people with T2DM, the effective use of their medication, which could be in form of tablets and/ or insulin injections (Funnell et al. 2007).

Self-management of diabetes is thus closely connected to the self-care concept, which can be related to the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being (Orem, 1991). The self-care concept adopted in this study was inspired by Orem theory of self-care within which the approach is one where self-care is seen as a fundamental need in humans which should be based on the values of autonomy and independence. In Orem's conception, self-care is a learned and purposeful activity of the individual that requires a certain level of maturity enabling the individual to perform effective, purposeful, controlled and consistent actions (Orem, 1995).

Several socio-demographical factors may have the potential to influence self-management, in particular the educational background of the individual. Leeman (2006) suggested that there is limited research that accounts for education levels in diabetes self-management studies. Although Tang et al. (2008) showed that where educational levels were highest, less social support was reported and consequently self-management may be adversely affected. Supporting People with Long-term Conditions set out the government's plans to help people with long-term conditions live healthy lives and introduced the NHS and Social Care Model (Department of Health, 2005). The 2005 model outlines how people with long-term conditions will be identified and receive care according to their needs and how the Expert Patients Programme will be expanded throughout England to promote self-management. Lorig et al. (2013); Kivelowitz and Berenson (1981) refer to autonomous self-management support as the manner in which health care providers adopt a person-centred approach, where the needs and feelings of the individual with diabetes are considered of primary

importance, management options are divulged and resources optimised. This is achieved in such a way that complications are prevented, clinical indicators improved and quality of life enhanced (Norris, et al. 2002).

For people with chronic disease, self-management is widely recognised as a necessary part of treatment (Lorig and Holman 2003; Havas and Mayfield 2004). For this reason, it is believed that when people with T2DM are able to get involved with their self-management actively, autonomy will arise. The more they are involved, the more they will learn from their physical responses to various situations or events, which will then foster their unique knowledge about their own way of living with diabetes. Becoming an expert self-manager may result in people with diabetes being able to live with diabetes in harmony, turning self-care behaviours into habits (Nyenwe et al. 2011; Holt, Kumar and Watkins, 2010).

Diabetes self-care is, however, demanding and multifaceted. To optimize diabetes outcomes, the individual needs to possess knowledge (Diabetes UK 2010; Glasgow et al., 1999; 2001), cognitive skills focusing on self-assessment, problem solving, informed decision making, psychomotor skills to perform specific tasks (Orem 1995) and belief in one's own capabilities to perform a certain set of tasks leading to well-being (Bandura, 1997). Indeed, self-management is the cornerstone to achieve glycaemic control, self-management strategies include weight loss, eating a healthy diet, engaging in regular physical activity, and blood glucose self-monitoring. Nevertheless, managing diabetes on a day-to-day basis is not always easy, as individuals must balance self-management behaviours with their preferences or desires for food or activity (McEwen et al. 2007; McEwen & Slack, 2005; Vincent et al., 2006; Whittemore et al. 2005). There is thus a wealth of evidence that reinforces the notion that self-management is worthy of investigation. Nevertheless, if we are to understand the credence accorded to self-management in modern health care it is useful to consider how it is positioned in the current health care model that is operant in the UK since self-management is a term that has been used widely to describe patient behaviours, patient education, and health promotion programmes (Lorig and Holman 2003). For this study, self-management was considered to be the behaviours, beliefs and patient education enacted as a part of the diabetic regimen. Specific behaviours included glucose testing/monitoring, nutritional/dietary changes, physical activity/exercise, foot care, medication taking, and symptom recognition and management, health care provider interactions, and support systems. Beliefs involve perceptions of self-efficacy in, benefits of, and barriers to carrying out the required diabetes self-management treatment behaviours. Access to care includes the supplying of medications, and testing supplies such as lancets, syringes, monitors, and test strips, and the costs of health care treatments to the government.

The black Africans (BAs) living with diabetes in Liverpool recognise self-management, also called self-care, as the performance of preventive or therapeutic health care activities, often in collaboration with health care professionals (Schoenberg and Drungle 2001; Skelly 1992). This self-management is conceptualised as activities undertaken by individuals to promote health, prevent disease, limit illness, and restore health (Schoenberg and Drungle 2001). There is no standard behavioural prescription that can be given to the diabetic patient because self-care is a fluid rather than static state (Shrivastava et al., (2013).

However, the main treatment behaviours recommended for controlling diabetes include dietary changes, taking medications, exercising, foot care, monitoring blood sugar, and interaction with health care providers (Weiss et al., 2003; Weiss, 2005; Lorig et al., 2000). Secondary treatment activities identified by Schoenberg and Drungle (2001) for diabetes self-management involve recognising and responding to symptoms, seeking information, managing diagnosed conditions through home appliances, using over-the-counter medicines, or implementing changes in activities. This means that the patient is often required to make complex treatment decisions and vary self-management behaviour from situation to situation (Shrivastava et al., 2013). This self-management by individuals with diabetes is reported to be modest, yet appropriate self-management is the cornerstone of glycaemic control (Schoenberg and Drungle 2001). Though the "cornerstone" may be viewed differently, it is essential for effective diabetes self-management because diabetes is a serious, largely self-managed, and a personal responsibility (Funnell and Anderson 2003) that requires individuals with diabetes to exert this personal responsibility over the day-to-day maintenance of their disease if they are 'to achieve a stable state of health' (Skelly 1992).

The management of the disease thus 'relies largely on behaviour modifications' on the part of the patient (Hales 2011), and compliance with a therapeutic regimen in order to prevent or delay the onset of complications (Skelly 1992). The BAs tend to know that T2DM requires a self-management regimen that the individual engages in for the remainder of one's lifetime, both in the presence and absence of current symptoms (Schoenberg and Drungle 2001).

Self-regulation in health 'implies an ability to do the things needed to prevent unhealthy consequences or to restore oneself to health when damage has occurred' (Purdie & McCrindle, 2002, p.379). Thus, Green and Shellenberger (1991) claim that health goals are concerned with promoting health and gaining homeostasis. For the person with diabetes, it is believed that homeostasis is an ever-changing state and the challenges for self-regulation are substantial. Situating self-regulation within a diabetes self-management framework and gleaning further insight into the phenomenon is crucial to the person living with diabetes, who by necessity has to achieve self-regulation purely to maintain health and well-being on a daily basis. For this reason, the present study was concerned with finding answers to how a person achieves this in a naturalistic context.

Whilst the desire to lead a healthy life is paramount, many people adopt and continue to undertake unhealthy behaviours, compromising health. The most recent evidence exploring ethnicity and illness perceptions has been provided by Bean et al., (2007). Their study of 259 adults

(59% male, 41% females), considered differences in illness perceptions of three ethnic groups residing in New Zealand: Pacific Islanders, Europeans and South Asians. Significant differences were found in the way these three groups considered the dimensions of consequences, timeline, identity and emotions, although there was no difference between control measures, concern or understanding related to diabetes (Siripitayakunkit et al. 2008).

Compliance with an overall treatment regimen, as well as intervention and prevention are important in diabetes self-management because T2DM, with 'its complications, represents the leading cause of blindness, kidney failure, heart disease, strokes and amputation' (Ferzacca 2000; Weiss et al. 2003). Yet, complications of diabetes can be prevented or delayed by controlling risk factors such as hyperglycaemia, and hypertension (Zgibor and Songer, 2001). Self-efficacy is an important and central concept in self-management (Bodenheimer et al. 2002; Bandura 1997). Self-efficacy is the confidence to carry out behaviour necessary to reach a desired goal andis enhanced when patients succeed in solving patient-identified problems (Bodenheimer et al. 2002).

2. Hypotheses

1) There is no significant relationship between sex and factors contributing to self-management of T2DM among black Africans in Liverpool.
2) There is no relationship between age and factors contributing to self-management of T2DM among black Africans in Liverpool
3) There is no relationship between marital status and factors contributing to self-management of T2DM among black Africans in Liverpool.
4) There is no relationship between African country of origin and factors contributing to self-management of T2DM among black Africans in Liverpool
5) There is no relationship between respondents' year of diagnosis and factors contributing to self-management of T2DM among black Africans in Liverpool
6) There is no relationship between respondents' level of education and factors contributing to self-management of T2DM among black Africans in Liverpool

3. Methodology

3.1 Research Design, sampling Technique, study population and sample size

This study was designed as a mixed methods inquiry which thus employed both quantitative and qualitative approaches to explore the ways in which Black Africans with type 2 diabetes understand and manage their disease, and their perceptions of diabetes self-management as received from diabetes health educators, important team members in diabetes self-care, and diabetes management programmes.

Non-probabilistic, snowball sampling served as the primary and most effective strategy for choosing participants for this study. This involved the use of word of mouth contacts and interviews. Thirty Black Africans ages forty to seventy-nine living in Liverpool participated in the data collection at different times. The average age of participants was sixty and diagnosis of diabetes ranged from three months to thirty years and above. Five participants were in their forties, eight participants were in their fifties, ten participants were in their sixties, seven participants were in their seventies. Six of the participants were married, four of the participants were widowed, five were divorced, three were separated, and two never married. Self-identified religious affiliation revealed that twenty-one (70%) were Christian, six (20%) were Muslim and three (10%) were not religious. Twenty-three ($\simeq$ 80%) of the participants reported being overweight at the time of diagnosis. All of the participants had been provided with a diabetes self-management health talk at least once since being diagnosed. Because some people of African origin living in the United Kingdom migrated from different African countries, all participants self-identified their country of origin. For this study all participants were referred to as Black Africans.

3.2 Instrumentation

A demographic profile was completed as part of the questionnaire to capture data on sex, age, marital status, country of origin, length of diabetes diagnosis, height, weight, body mass index (BMI), and religion. A quantitatively informed **Type 2 Diabetes Self-Management Survey/ Questionnaire** including 32 items, which was researcher designed, was used for data collection. The survey was administered between October and December of 2012. From the results of the reliability test, the Cronbach's alpha of all the five constructs measuring experience of diabetes self-management and the explanatory variables were well above the recommended minimum of 0.70. Hence, the set of variables were consistent in what it was intended to measure. This implied that, the internal consistencies of variables, measured by interval scale items, in a summated scale were adequate in measuring the various constructs (see the table 1 below).

Table 1: Summary of Test Result- Reliability Analysis

Constructs	Number of Questionnaire Items	Cronbach's Alpha (mean)
Support System for self-management	6	0.813
Knowledge of diabetes education	4	0.815
Diabetes self-management and treatment behaviour	9	0.869
Culture and believes of diabetes self-management	8	0.798
Experience of diabetes self-management	6	0.824

Source: Researcher's Field Survey Result (2014)

4. Data analysis

The analysis of the data from the survey/questionnaire was performed using the SPSS 21 (Statistical Program for the Social Sciences version 21). Simple descriptive statistics such as means, medians, and percentages were performed. Also, chi-square statistical analysis was used at the significance level of 0.05 for accepting or rejecting the hypotheses

5. Results

Table 2: Relationship that examines the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on Sex.

Chi-Square Tests						
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	5.735[a]	1	.017	.024	.021	
Continuity Correction[b]	3.742	1	.053			
Likelihood Ratio	7.950	1	.005	.024	.021	
Fisher's Exact Test				.024	.021	
Linear-by-Linear Association	5.544[c]	1	.019	.024	.021	.021
N of Valid Cases	30					
a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.60.						
b. Computed only for a 2x2 table						
c. The standardized statistic is -2.355.						

The results presented in Table 2 reveal a significant relationship between the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on Sex.The chi-square test of independence between sex and the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool yielded X^2=5.735 and a p-value of 0.024, warranting the rejection of the null hypothesis of independence. Hence from the test, it could be seen that knowledge of the factors contributing to diabetes self-management is sex dependent. This result reveal further that 100% of males had knowledge of eight or more of these factors, compared to about 65% for females. This leads to the conclusion that the males in the sampled population (Black Africans of Liverpool) were more versed than the females in the knowledge of the factors contributing to diabetes self-management.

Table 3(a): Relationship that examines the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on age

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.833[a]	1	.361	.651	.326	
Continuity Correction[b]	.208	1	.648			
Likelihood Ratio	.846	1	.358	.651	.326	
Fisher's Exact Test				.651	.326	
Linear-by-Linear Association	.806[c]	1	.369	.651	.326	.241
N of Valid Cases	30					
a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.00.						
b. Computed only for a 2x2 table						
c. The standardized statistic is .898						

The value of the X^2 statistic obtained was 0.833 and the p-value was 0.651, therefore the null hypothesis of independence is not rejected. This implies that most of the respondents' avail themselves of up to half of the factors contributing to diabetes self-management as ways of easily managing their diabetes. These choices were independent of the age of the respondents.

Table 3(b): Descriptive statistics of factors contributing to self-management of type 2 diabetes (Age)

Descriptives

To examine the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
40-44	5	292.8000	12.13260	5.42586	277.7354	307.8646	280.00	304.00
50-54	10	308.0000	9.42809	2.98142	301.2556	314.7444	296.00	320.00
60-64	7	305.1429	14.91564	5.63758	291.3482	318.9375	288.00	336.00
65-69	1	312.0000	.	.	.	.	312.00	312.00
70-74	6	320.0000	8.76356	3.57771	310.8032	329.1968	312.00	336.00
75-79	1	352.0000	.	.	.	.	352.00	352.00
Total	30	308.8000	15.66547	2.86011	302.9504	314.6496	280.00	352.00

The Table 3(b) above reveals the differences in the age range. It can be seen that age range of 75-79 is the highest while 40-44 age range is the lowest. This shows a significant difference on factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool in terms of age difference.

Table 4(a): Relationship that examines the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on marital status

Chi-Square Tests						
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3.617[a]	1	.057	.136	.072	
Continuity Correction[b]	1.985	1	.159			
Likelihood Ratio	5.398	1	.020	.079	.072	
Fisher's Exact Test				.136	.072	
Linear-by-Linear Association	3.488[c]	1	.062	.136	.072	.072
N of Valid Cases	28					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.93.
b. Computed only for a 2x2 table
c. The standardized statistic is 1.868

The chi-square test of independence between marital status and the factors contributing to diabetes self-management yielded X^2=3.617 and a p-value of 0.136, warranting the rejection of the null hypothesis of independence. Hence from the test, it could be seen that knowledge of the factors contributing to diabetes self-management is not marital status dependent. A further analysis shows that about 68% of married respondents had knowledge of eight or more of these factors, like the 100% that are not married. This leads to the conclusion that those reported as not married in the sampled population (Black Africans in Liverpool) were similarly up to date as those reported as being married in their knowledge of the factors contributing to diabetes self-management.

Table 4(b): Descriptive statistics of factors contributing to self-management of type 2 diabetes (Marital Status)

Descriptives

To examine the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
married	19	314.5263	15.33104	3.51718	307.1370	321.9156	288.00	352.00
divorced	4	300.0000	4.61880	2.30940	292.6505	307.3495	296.00	304.00
widowed	3	304.0000	8.00000	4.61880	284.1269	323.8731	296.00	312.00
seperated	2	296.0000	22.62742	16.00000	92.7007	499.2993	280.00	312.00
never married	2	292.0000	16.97056	12.00000	139.5255	444.4745	280.00	304.00
Total	30	308.8000	15.66547	2.86011	302.9504	314.6496	280.00	352.00

Table 4(b) above also revealed clearly that married participants have the highest mean. Therefore, there is relationship between factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on marital status.

Table 5: Relationship that examine the factors contributing to self-management of type 2diabetes among the Black Africans in Liverpool based on African country of origin

Chi-Square Tests						
	Value	Df	Asymp Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.833[a]	1	.361	.651	.326	
Continuity Correction[b]	.208	1	.648			
Likelihood Ratio	.846	1	.358	.651	.326	
Fisher's Exact Test				.651	.326	
Linear-by-Linear Association	.806[c]	1	.369	.651	.326	.241
N of Valid Cases	30					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.00.
b. Computed only for a 2x2 table
c. The standardized statistic is -.898.

The chi-square test of independence between the variable country of origin and the factors contributing to diabetes self-management was thus carried out. The value of the X^2 statistic obtained was 0.833 and the p-value was 0.651, thus leading to not to reject the null hypothesis of independence. The conclusion is that, on the basis of the data, the African country of origin of the respondents did not affect their response on knowledge of factors contributing to diabetes self-management. However, 87% of Nigerians engaged in eight or more of those activities listed as a means of easily managing their diabetes, as compared to 73% of non-Nigerians.

Table 6: Relationship that examine the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on year of diagnoses

Chi-Square Tests						
	Value	df	Asymp.Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.701[a]	1	.192	.358	.204	
Continuity Correction[b]	.703	1	.402			
Likelihood Ratio	1.870	1	.172	.358	.204	
Fisher's Exact Test				.358	.204	
Linear-by-Linear Association	1.645[c]	1	.200	.358	.204	.173
N of Valid Cases	30					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.40.
b. Computed only for a 2x2 table
c. The standardized statistic is 1.282.

The X^2 value obtained was 1.701 with a p-value of 0.358. Therefore, there is little evidence on the basis of the sample to reject the null hypothesis of independence. Thus, knowledge of the factors contributing to diabetes self-management is not dependent on the number of months or years of diagnosis. It could also be seen from the contingency table that about 72% of those diagnosed up to two years ago made use of eight or more of diabetics management plan as a means of managing their ailment, while the corresponding proportion for those diagnosed more than two years back was 92%.

Table 7: Relationship that examines the factors contributing to self-management of type 2 diabetes among the Black Africans in Liverpool based on level of education

Chi-Square Tests						
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.170[a]	1	.680	1.000	.520	
Continuity Correction[b]	.000	1	1.000			
Likelihood Ratio	.165	1	.685	1.000	.520	
Fisher's Exact Test				.645	.520	
Linear-by-Linear Association	.165[c]	1	.685	1.000	.520	.345
N of Valid Cases	30					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.60.
b. Computed only for a 2x2 table
c. The standardized statistic is .406.

The value of the X^2 statistic was 0.170 and the p-value was 1.0, hence the null hypothesis of independence cannot be rejected. There is thus no dependence between the educational status of the respondents and whether they make use of majority of the factors posed in the questionnaire as ways of managing their diabetes ailment. A further analysis showed that 82% of the non-graduates made use of more than half of the items listed as ways of managing the ailment, compared to about 75% of the graduate respondents, but this difference in proportion was not significant enough to warrant the rejection of the null hypothesis of independence.

6. Discussion of Findings

The results of this study show that out of the six socio-biographical variables considered (gender, age, marital status, year of diagnosis, country of origin, and level of education), four (age, marital status, year of diagnosis, and level of education) significantly had potential to influence the self-management of patients with type 2 diabetes. The results did not spark much surprise as Tang et al. (2008) showed that where educational levels were highest, less social support was reported and consequently self-management may be adversely affected. Lorig et al. (2013); Kivelowitz and Berenson (1981) refer to autonomous self-management support as the manner in which health care providers adopt a person-centred approach, where the needs and feelings of the individual with diabetes are considered of primary importance, management options are divulged and resources optimised. This is achieved in such a way that complications are prevented, clinical indicators improved and quality of life enhanced (Norris, et al., 2002).

7. Conclusion

This study sought to explore type 2 diabetes self-management among black Africans in Liverpool: the role of biographical mediators. It was revealed that the self-management of type 2 diabetes among the Black Africans in Liverpool was influenced by theirage, marital status, year of diagnosis, and level of education. However, this may be due to the fact that awareness of self-management methods among patients is a key to their survival. It is therefore concluded that health education as a means of assisting individuals, acting separately or collectively, to make informed decisions about matters affecting their personal health and those of others must be ensured. Acknowledging people's feelings and concerns and helping them to set achievable goals are achieved by using a patient-centred approach and motivating behavioural change.

Facilitating self-management involves helping individuals to find their own best combination of behaviours. Evidence shows that they can improve in self-care and make lifestyle changes if provided with support and if the programme is focused on problem-solving and social learning. It is suggested that educator skills and training should include

motivation methods, psychology, peer review and working with groups (Tang & Lansky, 2005).

References

[1] Bandura, Albert. 1997. *Self-Efficacy: The Exercise of Control* Macmillan.
[2] Bean, Debbie, Tim Cundy, and Keith J. Petrie. 2007. "Ethnic Differences in IllnessPerceptions, Self-Efficacy and Diabetes Self-Care." *Psychology and Health* 22 (7): 787-811.
[3] Beaser, R. and J. Hill. 2005. "*The Joslin Guide to Diabetes: A Program for Managing Your Treatment*.".The Joslin Diabetes Center, affiliated with Harvard Medical School.
[4] Bodenheimer, Thomas, Kate Lorig, Halsted Holman, and Kevin Grumbach. 2002. "Patient Self-Management of Chronic Disease in Primary Care." *Jama* 288 (19): 2469-2475.
[5] Department of Health 2005. *Supporting People with Long Term Conditions: An NHS and Social Care Model to Support Local Innovation and Integration*.Great Britain.
[6] Department of Health. 2006. *Our Health, our Care, our Say: A New Direction for Community Services*. Vol. 6737. The Stationery Office.
[7] Diabetes, U. K. 2010. "Diabetes in the UK 2010: Key Statistics on Diabetes. [Online] Http://www. Diabetes. Org. Uk/Documents/Reports." *Diabetes_in_the_UK_2010.Pdf*.
[8] Diabetes in the Uk.2000. *"the Missing Million": Perceptions and Reality of DiabetesToday*.Diabetes UK.
[9] Ferzacca, Steve. 2000."Actually, I Don'T Feel that Bad": Managing Diabetes and the Clinical Encounter." *Medical Anthropology Quarterly* 14 (1): 28-50.
[10] Funnell, Martha M. and Robert M. Anderson. 2003. "Patient Empowerment: A Look Back, a Look Ahead." *The Diabetes Educator* 29 (3): 454-464.
[11] Funnell, Martha M., Robert M. Anderson, Anita Austin, and Sandra J. Gillespie. 2007. "Individualization of Diabetes Self-Management Education." *The Diabetes Educator* 33 (1): 45-49.
[12] Glasgow, Russell E., Edwin B. Fisher, Barbara J. Anderson, Annette LaGreca, David Marrero, Suzanne B. Johnson, Richard R. Rubin, and Daniel J. Cox. 1999. "Behavioral Science in Diabetes. Contributions and Opportunities." *Diabetes Care* 22 (5): 832-843.
[13] Glasgow, Russell E., Deborah J. Toobert, and Cynthia D. Gillette. 2001. "Psychosocial Barriers to Diabetes Self-Management and Quality of Life." *Diabetes Spectrum* 14 (1): 33-41.
[14] Gray, Alastair, Maria Raikou, Alistair McGuire, Paul Fenn, Richard Stevens, Carole Cull, Irene Stratton, Amanda Adler, Rury Holman, and Robert Turner. 2000. "Cost Effectiveness of an Intensive Blood Glucose Control Policy in Patients with Type 2 Diabetes: Economic Analysis Alongside Randomised Controlled Trial (UKPDS 41)." *Bmj* 320 (7246): 1373-1378.
[15] Green, Judith Alyce and Robert Shellenberger. 1991. *The Dynamics of Health and Wellness: A Biopsychosocial Approach* Houghton Mifflin Harcourt School.
[16] Hales, Dianne R. 2011. *An Invitation to Health: Choosing to Change*. 14th Ed.; Belmont, CA: Wadsworth/Cengage Brooks/Cole.
[17] Havas, Stephen and Jennifer Mayfield. 2004. *Self-Control: A Physician's Guide to Blood Glucose Monitoring in the Management of Diabetes*. Leawood, KS: American Academy of Family Physicians.
[18] Healthcare Commission. 2007. "Managing Diabetes: Improving Services for People with Diabetes." *London: Commission for Healthcare Audit and Inspection*.
[19] Holt, Tim A. and Sudhesh Kumar. 2015. *ABC of Diabetes*. Seventh ed. Chichester, West Sussex; Hoboken, NJ: John Wiley and Sons, Inc.
[20] Holt, Tim A., Sudhesh Kumar, and Peter J. Watkins. 2010. *ABC of Diabetes*. 6th ed. Chichester, West Sussex, UK; Hoboken, NJ: Wiley-Blackwell/BMJ.
[21] Kennedy, Anne, Anne Rogers, and Peter Bower. 2007. "Support for Self-Care for Patients with Chronic Disease." *BMJ* 335 (7627): 968-970.
[22] Kivelowitz, Terri S. and Laura Berenson. 1981. *Diabetes, a Guide to Self-Management for Patients and their Families*. Englewood Cliffs, N.J.: Prentice Hall.
[23] Leeman, Jennifer. 2006. "Interventions to Improve Diabetes Self-Management Utility and Relevance for Practice." *The Diabetes Educator* 32 (4): 571-583.
[24] Lorig, Kate R. and Halsted R. Holman. 2003. "Self-Management Education: History, Definition, Outcomes, and Mechanisms." *Annals of Behavioral Medicine* 26 (1): 1-7.
[25] Lorig, Kate R., David S. Sobel, Philip L. Ritter, Diana Laurent, and Mary Hobbs. 2000. "Effect of a Self-Management Program on Patients with Chronic Disease." *Effective Clinical Practice: ECP* 4 (6): 256-262.
[26] Lorig, Kate, Halsted Holman, David S. Sobel, and Diana Laurent. 2013. *Living a Healthy Life with Chronic Conditions: Self-Management of Heart Disease, Arthritis, Diabetes, Depression, Asthma, Bronchitis, Emphysema and Other Physical and Mental Health Conditions*. Fourth ed. Boulder, Colorado: Bull Publishing Company.
[27] McEwen, Marylyn M. and Marion K. Slack. 2005. "Factors Associated with Health-Related Behaviors in Latinos with Or at Risk of Diabetes." *Hispanic Health Care International* 3 (3): 143-152.
[28] McEwen, Marylyn Morris, Martha Baird, Alice Pasvogel, and Gwen Gallegos. 2007. "Health–illness Transition Experiences among Mexican Immigrant Women with Diabetes." *Family & Community Health* 30 (3): 201-212.
[29] Norris, Susan L., Joseph Lau, S. Jay Smith, Christopher H. Schmid, and Michael M. Engelgau. 2002. "Self-Management Education for Adults with Type 2 Diabetes." *Diabetes Care* 25 (7): 1159-1171.
[30] Orem, D. (1995). *Nursing: Concepts of practice* (5th Ed.). St. Louis, MO: Mosby-YearBook, Inc.
[31] Nyenwe, Ebenezer A., Terri W. Jerkins, Guillermo E. Umpierrez, and Abbas E. Kitabchi. 2011. "Management of Type 2 Diabetes: Evolving Strategies for the Treatment of Patients with Type 2 Diabetes." *Metabolism* 60 (1): 1-23.
[32] Orem, D. E. 1991. *"Concepts of Practice."* 4thEdition, Mosby Yearbook, St.Louise: 95-110.

[33] Purdie, Nola and Andrea McCrindle. 2002. "Self-Regulation, Self-Efficacy and Health Behavior Change in Older Adults." *Educational Gerontology* 28 (5): 379-400.
[34] Schoenberg, Nancy E. and Suzanne C. Drungle. 2001. "Barriers to Non–Insulin Dependent Diabetes Mellitus (NIDDM) Self-Care Practices among Older Women." *Journal of Aging and Health* 13 (4): 443-466.
[35] Shrivastava, Saurabh RamBihariLal, Prateek Saurabh Shrivastava, and Jegadeesh Ramasamy. 2013. "Role of Self-Care in Management of Diabetes Mellitus." *Journal of Diabetes & Metabolic Disorders* 12 (1): 14.
[36] Siripitayakunkit, Apinya, SomchitHanucharurnkul, Gail D'EramoMelkus, ThavatchaiVorapongsathorn, ChatcharitRattarasarn, and ManeeArpanantikul. 2008. "Factors Contributing to Integrating Lifestyle in Thai Women with Type 2 Diabetes." *Pacific Rim International Journal of Nursing Research* 12 (3): 166-178.
[37] Skelly, A. H. 1992. *Psychosocial Determinants of Self-Care Practices and Glycemic Control in Black Women with Type II-Diabetes Mellitus.* 239-262.Thesis (Ph.D.)State University of New York at Buffalo.
[38] Sproston, Kerry and Jennifer Mindell. 2006. "Health Survey for England 2004. the Health of Minority Ethnic Groups".
[39] Tang, Ying Ho, Samantha Pang, Moon Fai Chan, Grace SP Yeung, and Vincent TF Yeung. 2008. "Health Literacy, Complication Awareness, and Diabetic Control in Patients with Type 2 Diabetes Mellitus." *Journal of AdvancedNursing* 62 (1): 74-83.
[40] Vincent, Deborah, Lauren Clark, Lorena Marquez Zimmer, and Jessica Sanchez. 2006. "Using Focus Groups to Develop a Culturally Competent Diabetes Self-Management Program for Mexican Americans." *The Diabetes Educator* 32 (1): 89-97.
[41] Weiss, B. D. 2005. *"Epidemiology of Low Health Literacy."Understanding Health Literacy: Implications for Medicine and Public Health.USA:* American Medical Association 1740.
[42] Weiss, Stuart R., Shu-Lin Cheng, Ione A. Kourides, Robert A. Gelfand, and William H. Landschulz. 2003. "Inhaled Insulin Provides Improved Glycemic Control in Patients with Type 2 Diabetes Mellitus Inadequately Controlled with Oral Agents: A Randomized Controlled Trial." *Archives of Internal Medicine* 163 (19): 2277-2282.
[43] Whittemore, Robin, Gail D'EramoMelkus, and Margaret Grey. 2005. "Metabolic Control, Self-management and Psychosocial Adjustment in Women with Type 2 Diabetes." *Journal of Clinical Nursing* 14 (2): 195-203.
[44] World Health Organization. 2008. "International Diabetes Federation (2006) Definition and Diagnosis of Diabetes Mellitus and Intermediate Hyperglycemia." *Report of a WHO/IDF Consultation.Geneva*.
[45] Zgibor, Janice C. and Thomas J. Songer. 2001. "External Barriers to Diabetes Care: Addressing Personal and Health Systems Issues." *Diabetes Spectrum* 14 (1): 23-28.