



RESEARCH ARTICLE

Inter-correlation of the positive health aspects among the type 2 diabetes mellitus patients

<sup>1,\*</sup>Aradhana Panigrahi and <sup>2</sup>Bhaswati Patnaik

<sup>1</sup>Department of Humanities and Social Sciences, National Institute of Technology, Rourkela, India

<sup>2</sup>Department of Psychology, Utkal University, India

ARTICLE INFO

Article History:

Received 20<sup>th</sup> May, 2018  
Received in revised form  
14<sup>th</sup> June, 2018  
Accepted 27<sup>th</sup> July, 2018  
Published online 30<sup>th</sup> August, 2018

Key Words:

Type 2 diabetes mellitus,  
Positive health,  
Life satisfaction,  
Hope, Affect,  
Happiness,  
Relaxation

ABSTRACT

Life style diseases like type 2 diabetes mellitus as well as other diseases of affluence which includes hypertension, obesity, arthritis, cardiovascular diseases etc. are most important health concern in the 21st century. Type 2 diabetes is a chronic disease that disturbs a patient's general health and well-being in various ways. For example, impose of severe dietary restrictions and daily self-administration of medicines or insulin may adversely affect a patient's health-related quality of life (HRQOL). The present study focuses and explores the relationships between the various positive health aspects such as, life satisfaction, hope, happiness, relaxation and affect as major constructs which acts as mediating and moderating factors for reducing stress and thereby enhancing the quality of life within an individual. The prospective study was conducted on the clinically diagnosed type 2 diabetes mellitus patients in the various government and private hospitals of Bhubaneswar and Cuttack, Odisha in the eastern part of India. During the study period, 350 participants clinically diagnosed with type 2 diabetes mellitus patients were selected based on the inclusion and exclusion criteria. The selected participants were administered with the various scales included in the positive health aspects after seeking their consent. The inter-correlation matrix indicated that all the factors like life satisfaction, hope, happiness, relaxation and positive affect has a significant positive correlation.

Copyright © 2018, Aradhana Panigrahi and Bhaswati Patnaik. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Aradhana Panigrahi and Bhaswati Patnaik, 2018. "Inter-correlation of the positive health aspects among the type 2 diabetes mellitus patients", International Journal of Current Research, 10, (08), 72461-72465.

INTRODUCTION

The International Diabetes Federation (2015) stated that there are around 415 million people worldwide who are suffering from diabetes mellitus and South East Asia accounts for around 78.3 millions of people suffering from the disease. India is the second largest country with diabetes population after China (IDF, 2015). Type 2 diabetes mellitus accounts for 85%–95% of diagnosed cases (Sacks, 2011). It is estimated that by 2025, the figure of patients with diabetes around the world will be increased to over 330 million; accounting for about 6.5% of the world's population and by 2035, the number could rise to almost 600 million (Karłowicz, 2010 and Sieradzki, 2007). Diabetes Mellitus is a chronic condition that can have severe negative consequences on health and well-being. Type 2 diabetes mellitus patients comprise the majority of the diabetes population and the number is growing rapidly (Panigrahi, 2018). Type 2 diabetes is a chronic disease that disturbs a patient's general health and well-being in various ways. For example, impose of severe dietary restrictions and daily self-administration of medicines or insulin may

adversely affect a patient's health-related quality of life (HRQOL) (Rubin, 1991). In addition, the long-term complications of diabetes mellitus, such as, heart disease, cardiovascular disorders, nephropathy, neuropathy etc. with their considerable impact on health, may also have a negative consequence on quality of life, as discussed in the U.K. Prospective Diabetes Study (UKPDS) study (1991). The presence of diabetes mellitus hampers the quality of life, relationships and family (Polonsky, 2000). The quality of life (QoL) of an individual is affected by the diabetes related complications, comorbidities, an increase in the economic burden. The QoL assessment is considered an important measure of outcome in chronic disease management. In this study, the quality of life is measured in terms of the presence of the positive health aspects, such as, life satisfaction, hope, affect, happiness and relaxation which are essential in the health management skills of a type 2 diabetes mellitus patient. The comorbidity between the physical conditions of chronic illness and diseases and the psychosocial health has been an important concern between the health care professionals and the researchers. Life satisfaction refers to a person's subjective and overall evaluations of the positive aspects of his or her life. Variables like good job, better physical and mental health and positive life events are associated significantly with high level

\*Corresponding author: Aradhana Panigrahi,

Department of Humanities and Social Sciences, National Institute of Technology Rourkela India

Smith, 1999 and Easterlin, 2006). A number of studies have focused on the need of the medical interventions and the self-care practices by the patients which can help in preventing the complications associated with diabetes mellitus (Eastman and Keen, 1997). In spite of the interventions, the prevalence rate remains high. This may be due to the lack of motivations to self-care and adhere to the treatment regimen. According to Polonsky (2002) failure, hopelessness and disorders in the psychosocial health are some of the factors that reduce the effectiveness of self-care and decreased motivation. A cross-sectional study was conducted by Shamsalnia, Pourghaznein and Parsia (2015) on 150 patients suffering from type 2 diabetes mellitus to study the level of hope and its relationship with the religious coping. It was found that the hope factor among the patients were affected by significant factors such as, positive religious coping, married life and social support. Psychological well-being is a very idiosyncratic term which refers to the overall satisfaction with all elements in life, self-actualisation, peace and happiness. It is the ability to cope with the demands of diabetes and adhere to the treatment, sustain social relationships and prevent the onset of the associated complications (Eiser *et al.*, 1992). Akahashi *et al.*, (2010) studied community involvement associated with life satisfaction among elderly people with diabetes, a questionnaires covering physical, psychological, and social aspects was administered by interview to 56 elderly outpatients with diabetes mellitus. Community involvement, social inquisitiveness, relationships with other people, and support from families living together with the participants positively correlated with high life satisfaction scores. The community participation, support from family members living with the patients, and the absence of neuropathy were independently associated with high life satisfaction scores.

A study conducted by Rubin and Peyrot (1999) on the self-perception of quality of life among type 2 diabetic adults, physical and social functioning, perceived mental and physical well-being. It was found that better glycemic control is related to better quality of life. Complications of any kind had a negative impact on the well-being. Moreover, with the improvement in the patient's health status their perceived ability to control their disease also increased thereby improving the quality of life in them. In the present day, stress exists in every human's life at any time and its influence on is multi-dimensional. Stress activates different physical and mental reactions within the patients with diabetes there by reducing quality of life. Diabetes is a disorder of glucose metabolism caused by a lack of the pancreatic hormone insulin, which results in the accumulation of sugar in the bloodstream (hyperglycemia) and the appearance of sugar in the urine. The common symptoms include thirst, tiredness, weight loss, and excessive urination. The failure to metabolize glucose leads to the breakdown of fats in the body as an alternative source of energy; this process disturbs the acid-base balance in the body and results in the accumulation of ketones in the blood (ketosis) which, if untreated, can lead to convulsions, coma, and death. The present study focuses and explores the relationships between the various positive health aspects such as, life satisfaction, hope, happiness, relaxation and affect as major constructs which acts as mediating and moderating factors for reducing stress and thereby enhancing the quality of life within an individual.

**Life satisfaction:** Life satisfaction involves largely to the entire life of a person including all the aspects in it. Life

satisfaction is the dominance of positive emotional states to the negative ones in the daily life and means to be good in different views such as happiness and morality. Without satisfaction in life a human being cannot lead a peaceful and prosperous life. It is very much essential to learn to reduce tensions, worries and anxieties of daily life. Life satisfaction refers to an individual's overall perception of well-being, quality of life and happiness (Noone, 1998).

### Hope

Hope is a dynamic cognitive motivational system. Under this conceptualization of hope, emotions follow cognitions. Hope leads to learning aims, which are beneficial to growth and improvement (Kauffman, 2011). People with learning goals that are positively related to success are actively involved in their learning, continuously planning strategies to reach their goals, and observing their development to stay on track. Those lacking hope, on the other hand, tend to take on mastery goals. People with mastery goals choose easy chores that don't offer a challenge or opportunity for growth. When they fail, they resign. People with mastery goals act helpless, and feel a lack of control over their environment (Kauffman, 2011b).

### Happiness

Happiness is a subjective experience that brings elation within an individual. Koopmans *et al* (2008) conducted a 15-year longitudinal study into the happiness of elderly people, known as the Arnhem Elderly Study and found higher levels of happiness leads longer lifespan. Researchers classify happiness as either being hedonic or eudaimonic. These schools of thought are largely attributed to the Greek philosophers Aristippus and Aristotle, respectively. Hedonic happiness is basically defined as increased pleasure and decreased pain. It revolves around a person's current feelings and emotional state. Positive emotions include feelings of pleasure, joy, curiosity, pride, awe, and excitement. Negative emotions include feelings of anger, shame, guilt, stress, or sadness. Eudaimonic happiness revolves around a person's satisfaction with their life. It is more reflective of their life experiences and actions irrespective of their current state of emotions. Purpose and meaning in life, flourishing, growth, and self-actualization are all concepts that are related to, or a part of, eudaimonic happiness (Boniwell, 2015). One is concerned with the short term, transient feelings or emotions. It can be influenced by moods or daily experiences. The other is a reflection of how a person sees their life and longer term outcomes. Their pursuits, actions, values, and the direction in life.

### Relaxation

Relaxation itself can be useful in a number of circumstances including: the promotion of rest, recovery and healing, the removal of stress related reactions, e.g. increased muscular tension, etc. The establishing of a physical and mental state can have an increased receptivity to positive mental imagery. It is easy enough to become excited or stressed. A relaxation means a systematic method that can provide a more effective form of that can be achieved by taking a stroll or a nap. Through relaxation, one can learn to achieve a state of rest that is deeper than that of sleep, while remaining conscious and experience what is happening. With regular practice an individual can also become familiar with the relaxed state. The factors discussed

above are considered in the following research as the various aspects of positive health.

### Affect

According to the Diagnostic and Statistical Manual of Mental Disorders- IV TR (DSM-IV TR), affect is an emotion or a subjectively experienced feeling. An affect is an unconscious experience of intensity; it is a moment of inaccurate and unstructured potential. Affect is the most abstract term out of the three terms namely feeling, emotion and affect, because affect cannot be fully apprehended in language, and it is always preceding to and/or is outside of consciousness (Shouse, 2005). Masumi (1987) described that affect is the body's way of getting ready for action in a given circumstance by adding a measurable dimension of strength to the quality of an experience. It is a part of the process of an organism's interaction with stimuli. The word also refers sometimes to affect displayed, which is "a facial, vocal, or gestural behavior that serves as an indicator of affect" (American Psychological Association, 2006). The present study focuses and explores the relationships between the various positive health aspects such as, life satisfaction, hope, happiness, relaxation and affect as major constructs which acts as mediating and moderating factors for reducing stress and thereby enhancing the quality of life within an individual.

### Research Question

Is there any relationship between the positive health aspects that is, life satisfaction, hope, happiness, relaxation, positive affect and negative affect among type 2 diabetic mellitus patients?

### Objectives

To explore the relationship between the positive health aspects that is, life satisfaction, hope, happiness, relaxation, positive affect and negative affect among type 2 diabetic mellitus patients.

## MATERIALS AND METHODS

The prospective study was conducted on the clinically diagnosed type 2 diabetes mellitus patients in the various government and private hospitals of Bhubaneswar and Cuttack, Odisha in the eastern part of India, after obtaining the permissions from the respected head of the departments.

Scale (SWLS), a measure to evaluate satisfaction with the respondent's life as a whole developed by Ed Diener, Emmons, Larsen and Griffin (1985), the Adult Hope Scale (AHS), a measure to evaluate hope which is a positive motivational state that is based on an interactively derived sense of successful agency (goal directed energy) and pathways (planning to meet goals) was developed by Snyder, Irving, and Anderson, 1991, the PANAS-X, a measure to assess the specific, distinguishable affective emotional states that arise from within the broader general dimensions of positive and negative emotional experience. The face scale measured the happiness which is a mental or emotional state of well-being characterized by positive or pleasant emotions ranging from contentment to intense joy. It contains eight graphical faces expressing the various emotions or feelings ranging from extreme happy to extremely sad. The subject has to mark the face indicating his subjective feelings that he is experiencing at that particular moment. The relaxation scale indicates the relaxation in general. It is a release of tension, a return to equilibrium. An individual has to indicate the extent of his/her state of relaxation by indicating a number in a 10-point scale ranging from not at all relaxed to completely relax. The higher was the scale; the higher is the state of relaxation. Data was analysed using SPSS 20.0.

## RESULTS

The results was analysed to find the inter- correlation between the positive health aspects, that is, the life satisfaction, hope, happiness, relaxation and affect (which includes positive affect and negative affect). It was found that there was a significant positive relationship between life satisfaction and hope ( $r = .57, p < .01$ ), life satisfaction and happiness ( $r = .71, p < .01$ ), life satisfaction and relaxation ( $r = .43, p < .01$ ) and life satisfaction and positive affect ( $r = .66, p < .01$ ). This indicated that as the life satisfaction increases the hope, happiness, relaxation and positive affect also increases. There was a significant negative relationship between life satisfaction and negative affect ( $r = -.43, p < .05$ ) indicating that as the life satisfaction increases the negative affect decreases. The results also showed that there was a significant positive relationship between the hope and happiness ( $r = .61, p < .01$ ), hope and relaxation ( $r = .54, p < .01$ ) and hope and positive affect ( $r = .35, p < .01$ ). The results indicated that as hope increases the other factor such as, happiness, relaxation and positive affect also increases. There was a significant negative relationship between hope and negative affect ( $r = -.43, p < .01$ ). This indicates that as the as the hope increases the negative affect decreases.

**Table 1. Summary of the inter-correlation of the positive health aspects**

	M	SD	Life Satisfaction	Hope	Happiness	Relaxation	Positive affect	Negative affect
Life satisfaction	24.34	6.46	-					
Hope	46.28	7.02	.57**	-				
Happiness	8.5	2.33	.71**	.61**	-			
Relaxation	6.7	1.9	.43**	.54**	.47**	-		
Positive affect	27.97	6.72	.66**	.35**	.59**	.35**	-	
Negative affect	27.24	6.14	-.31*	-.43**	-.11**	-.36**	-.44**	-
Note.	** $p < .01$ , * $p < .05$							

The study was conducted for a period of four months. During the study period, 350 type 2 diabetes mellitus patients were recruited based on the inclusion and exclusion criteria. The selected participants were administered with the various scales included in the positive health aspects after seeking their consent. The scales included were, the Satisfaction with Life

The analysis of the results showed that there is a significant positive relationship between happiness and relaxation ( $r = .47, p < .01$ ) and happiness and positive affect ( $r = .59, p < .01$ ). This indicated that as happiness increases the relaxation and positive affect also increases. There was a significant negative relationship between happiness and negative affect ( $r = -.11, p$

< .01). This indicates that as the happiness increases the negative affect decreases. The analysis also showed that there is a significant positive relationship between relaxation and positive affect ( $r = .35$ ,  $p = <.01$ ), indicating that as the relaxation increases the positive affect also increases. There was a significant negative relationship between relaxation and negative affect ( $r = -.36$ ,  $P < .01$ ), indicating that as relaxation increases the negative affect decreases. There was a significant negative relationship between the positive affect and negative affect ( $r = -.44$ ,  $p < .01$ ), indicating that as the positive health increases the negative affect decreases.

## Conclusion

The objective of the study was to explore the relationship between the positive health aspects that is, life satisfaction, hope, happiness, relaxation, positive affect and negative affect among type 2 diabetic mellitus patients. The objective was framed to support the idea there will be a positive significant correlation between the factors of the positive health aspects. The inter-correlation matrix indicated that all the factors like life satisfaction, hope, happiness, relaxation and positive affect has a significant positive correlation. The results suggested that as the life satisfaction increases the hope, happiness, relaxation, positive affect also increases. It appears that life satisfaction has a high and strong correlation with hope, happiness and positive affect and medium correlation with relaxation. There was a significant positive correlation between hope with happiness, relaxation and positive affect. Hope has high and strong correlation with happiness and relaxation. It specifies that as hope increases within an individual the associated factors happiness, relaxation and positive affect also increases. The results pointed that the happiness was significant and positively correlated with relaxation and positive affect. As the happiness increases the individual gets more relaxed and enhances the positive affect within him/ her. It was also notices that happiness was significant and positively correlated with relaxation. As an individual gets happier so the relaxation also increases. It can be concluded that the positive health aspects, such as, life satisfaction, hope, happiness, relaxation and positive affect have a significant positive inter relationship between them. According to a study by Donnellan *et al.*, 2005, the results indicated that the higher the happiness levels the higher are individuals life satisfaction. It appears that happiness and satisfaction carry an extremely significant correlation with each other and self-esteem is highly correlated with subjective happiness and life satisfaction on an individual scale also. It was seen that all the factors had a significant negative correlation with negative affect. It indicates that as the negative affect within an individual increases, the positive health aspects, such as, life satisfaction, hope, affect, relaxation and happiness subsequently decreases.

## REFERENCES

Acknowledgments for DSM-IV.(n.d.). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)*. doi:10.1176/appi.books.9780890423349.11470

Akahashi, M., Araki A, Watanabe S, Haga H, Kimbara Y , Tamura Y, Chiba Y, Mori S, ItoH, Shibata H. 2010. Community Participation is Associated with Life Satisfaction in Elderly People with Diabetes Mellitus.

Nihon Ronen Igakkai Zasshi. *Japanese Journal of Geriatrics*, 47(2):140-146

Boniwell, I. 2017. What are the Benefits of Hope, Optimism and Pessimism? Retrieved from <http://positivepsychology.org.uk/optimism-and-hope/>

Diener ED, Suh E, Lucas R, and Smith H. 1999. Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125(2): 276-302.

Diener, E., Suh, E. M., Lucas, R. E., and Smith, H. L. (1999). Subjective Well-Being: Three Decades of Progress. *Psychological Bulletin*, 125, 276-302.

Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., and Caspi, A. 2005. Low Self-Esteem Is Related to Aggression, Antisocial Behavior, and Delinquency. *Psychological Science*, 16(4), 328-335. doi:10.1111/j.0956-7976.2005.01535.x

Easterlin, R.A. 2006. Life Cycle Happiness and Its Sources: Intersections of Psychology, Economics and Demography. *Journal of Economic Psychology*, 27, 463- 482.

Eastman, R. C. and Keen, H. 1997. The impact of cardiovascular disease on people with diabetes: The potential for prevention. *The Lancet*, 350, 29-32. [http://dx.doi.org/10.1016/S0140-6736\(97\)90026-X](http://dx.doi.org/10.1016/S0140-6736(97)90026-X)

Eiser, C., Flynn, M., Green, E., Havermans, T., Kirby, R., Sandeman, D., and Tooke, J. E. 1992. Quality of Life in Young Adults with Type 1 Diabetes in Relation to Demographic and Disease Variables. *Diabetic Medicine*, 9(4), 375-378. doi:10.1111/j.1464-5491.1992.tb01800.x

Essays, UK. 2013. Definition Of Life Satisfaction Psychology Essay. Retrieved from <https://www.ukessays.com/essays/psychology/definition-of-life-satisfaction-psychology-essay.php?vref=1>

Karłowicz, A., Korzon-Burakowska, A., Skuratowicz-Kubicka, A., Kunicka, K., Świerblewska, E., and Burakowski, I. 2010. Level of knowledge on diabetic foot in syndrome in type 2 diabetic patients. *Diabetol Practical*, 11(4), 109–117.

Koopmans, T. A., Geleijnse, J. M., Zitman, F. G., and Giltay, E. J. 2008. Effects of Happiness on All-Cause Mortality During 15 Years of Follow-Up: The Arnhem Elderly Study. *Journal of Happiness Studies*, 11(1), 113-124. doi:10.1007/s10902-008-9127-0

Massumi, B. 1987. Notes on the Translation and Acknowledgements. In Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*. Minneapolis: U of Minnesota P, 1987

Noone, T. B. 1998. Appreciation. *Franciscan Studies*, 56(1), Ix-X. doi:10.1353/frc.1998.0000

Ogurtsova, K., Fernandes, J. D., Huang, Y., Linnenkamp, U., Guariguata, L., Cho, N., Makaroff, L. 2017. IDF Diabetes Atlas: Global estimates for the prevalence of diabetes for 2015 and 2040. *Diabetes Research and Clinical Practice*, 128, 40-50. doi:10.1016/j.diabres.2017.03.024

Panigrahi, A. 2018. Life Satisfaction among the Type 2 Diabetes Mellitus Patients. *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, 5 (5), 145-147.

Polonsky, W. H. 2002. Emotional and quality-of-life aspects of diabetes management. *Current diabetes reports*, 2(2), 153-159. <http://dx.doi.org/10.1007/s11892-002-0075-5>

Polonsky, W. H. 2002. Emotional and quality-of-life aspects of diabetes management. *Current diabetes reports*, 2(2), 153-159. <http://dx.doi.org/10.1007/s11892-002-0075-5>

Rubin, R. R., and Peyrot, M. 1999. Quality of life and diabetes. *Diabetes/Metabolism Research and Reviews*,

- 15(3), 205-218. doi:10.1002/(sici)1520-7560(199905/06)15:3<205::AID-DMRR29>3.0.CO;2-O
- Rubin, R. R., and Peyrot, M. 1999. Quality of life and diabetes. *Diabetes/Metabolism Research and Reviews*, 15(3), 205-218. DOI: 10.1002/(SICI)1520-7560(199905/06)15:3<205::AID-DMRR29>3.0.CO;2-O.
- Sacks, D. B., Arnold, M., Bakris, G. L., Bruns, D. E., Horvath, A. R., Kirkman, M. S., . . . Nathan, D. M. 2011. Guidelines and Recommendations for Laboratory Analysis in the Diagnosis and Management of Diabetes Mellitus. *Clinical Chemistry*, 57(6). doi:10.1373/clinchem.2010.161596
- Shamsalinea, A., Pourghaznein, T., and Parsa, M. 2016. The relationship between hope and religious coping among patients with type 2 diabetes. *Global Journal of Health Science*, 8(1). doi:10.5539/gjhs.v8n1p208
- Shouse, E. 2005. "Feeling, Emotion, Affect," *M/C Journal*, 8(6). Retrieved from <http://journal.media-culture.org.au/0512/03-shouse.php>
- Snyder, C. R., Irving, L., and Anderson, J. R. 1991. Hope and health: Measuring the will and the ways. In C. R. Snyder, and D. R. Forsyth (Eds.), *Handbook of social and clinical psychology: The health perspective* (pp. 285-305). Elmsford, NY: PergamonPress.

\*\*\*\*\*