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Research Protocol

Effect of Music Therapy on Diabetic IT Professionals

C Anjali Devi*

Professor, Department of Food and Nutrition, Osmania University, Hyderabad, India

***Corresponding Author**: C Anjali Devi, Professor, Department of Food and Nutrition, Osmania University, Hyderabad, India.

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Abstract

Longitudinal study is conducted to see the effect of music on working group adults aged 30 - 60 years who were diagnosed as diabetic. 800 patients (440- men and 360 women) were randomly selected from clinics, colonies and corporate offices in Hyderabad India. They were asked to follow their regular medical regime consisting of medicines, diet, and exercise. In addition six songs (three modern and three devotional) approved by music therapist are given for the patients to listen for 40 minutes daily. Fasting blood glucose levels were taken at the beginning of the study, end of first ear and once after second-year. There was not a single diabetic who had normal value. In the age group of 30 - 40 both men and women responded better than the other age groups. The percentages were from zero to 26.2 and 20.2 among men and women respectively while in the other age groups the percentage normal went up from zero level to 1.5 % to 15% among women and zero to 1.9 to 23.9 among men by two years. The music has influenced significantly in all age groups and both sexes.

Keywords: *Music Therapist; Fasting Glucose Levels; Regular Regime; Medical Protocol*

Introduction

Diabetes is India's fast growing disease with 72 million cases reported in 2017 and is expected to double by 2025 [1]. This is an alarming situation which may culminate into multiple irreversible health issues later in life. Of the several causes of diabetes stress, emotional instability and anxiety were considered to be the major debilitating factors. To relieve stress, music therapy was reported to be a good option. Music therapy or listening to music of their choice has proved to increase the immune- globin A which lowers the production of cortisol - the hormone that causes stress, reduces anxiety in cancer patients [2,3]. Dr. Harrell [4] advised that listening to music on daily basis for a few minutes makes one happier and healthier . Most of the studies were done on people abroad and studies on Indian population are scanty, pilot study was conducted on geriatric population [5] with diabetes. The present study is a longitudinal study for two years among employed adults (30 - 60 years).

Materials and Methods

A longitudinal study for two years (2016 - 2018) was done to see the effect of music on fasting blood sugar levels. 1000 diabetic patients aged 30 - 60 years who were employed in IT and other software companies were identified from clinics, colonies and corporate offices and those who were willing to participate in the study. The protocol consisted of continuing their regular treatment consisting of a low calorie diet, medical prescription, and exercise suitable to their age. Music therapy is added to the existing regimen to see its effect on fasting blood sugar levels. 6 songs approved by a music therapist (three devotional and three modern songs) were given to patients and were asked to listen for 40 minutes daily. By the end of the program 800 patients remained who successfully followed the program (Table 1) 200 patients dropped at various levels of study as they either developed complications, hospitalized, did not have time or did not like music. Readings were taken once every year and were monitored throughout the two years of the study.

Age group	Males	Females	Total
30 - 40	130	110	240
41 - 50	130	120	250
51 - 60	180	130	310
	440	360	800

Table 1: *Particulars of the sample.*

Results

Age wise distribution of males in different fasting blood sugar levels showed that at the initial stage there are no cases in the normal category (Table 2). By the end of first year the percentage in the normal category rose to 6.2, 4.6, 1.1 and by second year the percentage increased to 26.2%, 16.9%, 23.9% in 30 - 40, 41 - 50 and 51 - 60 age groups respectively on other hand those in the highest range of 151 - 160 mg /dl the percent consistently decreased from 24.7, 26.3 and 29.5 to 7.7, 4.7 and 5.0 respectively.

Blood sugar	Age Groups (Men)											
mg/di	30 - 40			41 - 50			51 - 60			Pooled		
	IR	1st yr	2nd yr	IR	1st yr	2nd yr	IR	1st yr	2nd yr	IR	1st yr	2nd yr
< 100	0	6.2 (8)	26.2 (34)	0	4.6 (6)	16.9 (22)	0	1.1 (2)	23.9 (43)	0	3.6 (16)	22.5 (99)
101 - 110	1.5 (2)	6.2 (8)	16.9 (22)	2.3 (3)	4.6 (6)	13.8 (18)	4.4 (8)	7.2 (13)	20.0 (36)	3.0 (13)	6.2 (27)	17.3 (76)
111 - 120	6.9 (9)	3.1 (4)	15.4 (20)	4.6 (6)	9.2 (12)	13.8 (18)	3.3 (6)	7.2 (13)	19.4 (35)	4.8 (21)	6.6 (29)	16.6 (73)
121 - 130	16 9 (22)	16.9 (22)	18.4 (24)	13.8 (18)	9.2 (12)	24.6 (32)	18.9 (34)	18.9 (34)	17.8 (32)	16.8 (74)	15.5 (68)	20.0 (88)
131 - 140	23.1 (30)	22.3 (29)	9.2 (12)	25.3 (33)	24.6 (32)	16.9 (22)	27.2 (49)	26.7 (48)	8.9 (16)	25.4 (112)	24.8 (109)	11.4 (50)
141 - 150	26.9 (35)	23.0 (30)	6.2 (8)	27.7 (36)	26.3 (34)	9.3 (12)	16.7 (30)	28.9 (52)	5.0 (9)	22.9 (101)	26.4 (116)	6.6 (29)
151 - 160	24.7 (32)	22.3 (29)	7.7 (10)	26.3 (34)	21.5 (28)	4.7 (6)	29.5 (53)	10.0 (18)	5.0 (9)	27.0 (119)	17.0 (75)	5.6 (25)
	100 (130)	100 (130)	100 (130)	100 (130)	100 (130)	100 (130)	100 (130)	100 (130)	100 (180)	100 (440)	100 (440)	100 (440)

Table 2: *Age wise distribution of men with diabetes before and after introducing music*

Similar trend is observed among women also the percentage in normal category of < 100 mg/dl is zero to 5.5 to 20.0 percent, 0 to 5.0 to 15%, 0 to 1.5 to 14.5% in the age groups of 30 - 40, 41 - 50 and 51 - 60 years respectively. Drastic reduction in the highest level of 151 - 160 mg/dl is from 12.8 in the initial stage to 9.1, 23.3 to10.0, 15.4 to 7.7 percent in the age groups of 30 - 40, 41 - 50, 51 - 60 respectively. The difference in between sexes is not very significant.

Blood sugar	Age Groups (Women)											
mg/dl	30 - 40			41 - 50			51 - 60			Pooled		
	IR	1st yr	2nd yr	IR	1st yr	2nd yr	IR	1st yr	2nd yr	IR	1st yr	2nd yr
< 100	0	5.5 (6)	20.0 (22)		5.0 (6)	15.0 (18)	0	1.5 (2)	14.6 (19)	0	3.9 (14)	16.4 (59)
101-110	13.6 (15)	7.2 (8)	15.4 (17)	1.7 (2)	6.7 (8)	15.0 (18)	1.5 (2)	13.8 (18)	19.2 (25)	5.3 (19)	7.5 (27)	16.7 (60)
111-120	13.6 (15)	3.6 (4)	16.4 (18)	5.0 (6)	10.0 (12)	10.0 (12)	9.2 (12)	12.4 (16)	27.7 (36)	9.2 (33)	8.1 (29)	18.3 (66)
121-130	18.2 (20)	14.5 (16)	10.9 (12)	15.0 (18)	16.7 (20)	16.7 (20)	25.4 (33)	21.5 (28)	13.8 (18)	19.7 (71)	17.7 (64)	13.9 (50)
131-140	20.0 (22)	25.4 (28)	19.1 (21)	28.3 (34)	31.6 (38)	20.8 (25)	30.0 (39)	20.0 (26)	10.8 (14)	26.4 (95)	25.6 (92)	16.7 (60)
141-150	21.8 (24)	23.7 (26)	19.1 (10)	26.7 (32)	18.3 (22)	12.5 (15)	18.5 (24)	13.9 (18)	6.2 (8)	22.2 (80)	21.1 (76)	9.2 (33)
151-160	12.8 (14)	20 0 (22)	9.1 (10)	23.3 (28)	11.7 (14)	10.0 (12)	15.4 (20)	16.9 (22)	7.7 (10)	17.2 (62)	16.1 (58)	8.8 (32)
	100 (110)	100 (110)	100 (110)	100 (120)	100 (120)	100 (120)	100 (130)	100 (130)	100 (130)	100 (360)	100 (360)	100 (360)

Table 3: *Age wise distribution of women with diabetes before and after introducing music.*

The trend indicates that the working sector are over worked due to long working hours, irregular timings coupled with household work contributed to stress related diabetes. Introduction of music could have had considerable effect on reliving stress and thereby reducing the fasting blood sugar levels.

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