

Assessment of Health Promotion and Lifestyle for Hyperlipidemics in Maldives

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ABSTRACT

Health promotion is a process that allows people to control their actions in a way to improve their health status. It includes the person's behavior towards their environment and society. The questionnaire, Health Promotion Lifestyle Profile II was used to assess the lifestyle pattern and behavior of the subjects. The 52 statements were categorized into 6 sub categories with an option to select the frequency of the act in their routines. The overall score for the HPLP II was 2.6 ± 0.5 . The score was assessed for subscales which revealed that health responsibility scores was 2.4 ± 0.7 , physical activity was 2.0 ± 0.7 , nutrition was 2.5 ± 0.6 , Spiritual growth was 2.9 ± 0.6 , interpersonal relations was 3.0 ± 0.5 and stress management was 2.6 ± 0.6 . It can be concluded that the overall score for HPLP II was moderate. Health relation and physical activity score was low among the subjects while subscales of nutrition, spiritual growth, interpersonal relations and stress management remained moderate.

Keywords: Hyperlipidemia, Health Promotion, Spiritual Growth, Nutritional Status, Physical Activity, Stress Management, Interpersonal Relations, Health Responsibility.

INTRODUCTION

The Maldives, a small country, a necklace of islands set across in the equator. Like various other countries, it had adapted the altering world and welcomed many variations introduced into their traditions and culture as described by Ellis R. (2008).^[1] Masters T. (2009) explained that the main part of the Maldivian economy was maintained by the fish and the boats. However, over the recent years tourism had become the main form of income in this country.^[2]

Lamberti S. (2007) defined that the main diet of the Maldivian folks were made up of fish and coconuts while spices were used to enhance their flavor. Most common and popular dishes include *garudhiya* (fish soup), *mashuni* (fish and coconut mix), *thelulimas* (fried fish) and *hedhika* (a deep fried or baked fish appetizer).^[3] Similar to

normal South Indian cuisine, rice is the major form of energy in their diet as explained by another author Hayes D and Lauden R. (2009).^[4]

National Cholesterol Education Program, (1994) stated that Hyperlipidemia is a condition where there is rise in the blood lipid level, largely cholesterol and triglycerides, in the blood. These fatty substances are transported in the blood attached to proteins since it is the only way that these fatty substances can remain dissolved while in circulation.^[5]

The Health Promotion Lifestyle Profile II (HPLP II) is a brushed up version of HPLP (Walker SN et al., 1987) which was first introduced by walker et al. (1995).^[6] It consists of 52 questions and the six subscale to assess Health Promoting Behavior. Studies by Hulme PA et al., (2003), Wang Y et al. (2007) and Wei CNet

al., (2000) after being interpreted into different languages including Spanish, Japanese, Arabic, Chinese, and Turkish and its validity and reliability have been verified. [7-9]

METHODOLOGY

Demographic Data

The word demography is derived from the Greek word – *demos*, people and *graphos*, writing. Hence it is the study of human population based on their size, composition (age, sex) and their distribution in space. Demographic data means information about human population, its structure, composition and distribution and any changes in a given period of time and the effect of these on the socio economic conditions of a country *Young A. et al. (2003)*. [10] Stating their name in the questionnaire is considered as optional or as the participant’s choice.

Education level of the family, wage structure of the family along with the occupation was asked from each subject. Furthermore self-reported socio-economic status was taken into account. The signs and symptoms table notes down frequency and level of discomfort the subjects feel at

different stages of the disease condition. Frequency of the discomfort such as weakness or loss of balance was recorded per month.

Health Promotion Lifestyle Profile II

The Health Promoting Lifestyle Profile II (HPLP-II) questionnaire is the brushed up version of the HPLP questionnaire and was first constructed by Walker *et al.* (1987). [11] There a total of 52 statements which are distributed into six categories through which the scale determines the level of healthy lifestyle as expressed by Singh AR., 1966. [6]

The subscales include spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility and stress management. Each subject was asked to mark the frequency of each behavior as accurately as possible. The stated frequencies include never, sometimes, often and routinely. This scale was used to measure the lifestyle practices of the subjects.

The scale for HPLP II, states that if the mean value is below 2.5 then it is considered as low. The values 2.5-3.0 are considered as moderate and the values above 3.0 are considered as high.

RESULT AND DISCUSSION

Table 1.1- Socio- Demographic Data (N=100)

	FREQUENCY	PERCENT (%)
AGE		
25 - 35 YRS	25	25.0
36 - 45 YRS	28	28.0
46 - 55 YRS	47	47.0
GENDER		
Male	50	50.0
Female	50	50.0
RELIGION		
Muslim	100	100.0
MARITAL STATUS		
Married	69	69.0
Widowed	7	7.0
Divorced	13	13.0
Single	11	11.0
FAMILY TYPE		
Joint	60	60.0
Nuclear	40	40.0
EDUCATION LEVEL		
Professional or Honors	8	8.0
Graduate or Post Graduate	34	34.0
Intermediate or Post High School Diploma	14	14.0
High School Certificate	7	7.0
Middle School Certificate	11	11.0
Primary School Certificate	18	18.0
Illiterate	8	8.0

Table 1.1 to be continued...

OCCUPATION TYPE		
Profession	30	30.0
Semi – Profession	20	20.0
Clerical, Shop Owner	12	12.0
Skilled Worker	9	9.0
Semi – Skilled Worker	12	12.0
Unskilled Worker	8	8.0
Unemployed	9	9.0
HOUSEHOLD YEARLY INCOME		
≥ 535,256 RF	23	23.0
535,257 - 1,210,895 RF	15	15.0
1,210,896 - 6,055,315 RF	7	7.0
6,055,316 - 7,801,556 RF	6	6.0
7,801,557 - 14,921,016 RF	8	8.0
14,921,016 - 24,206,714 RF	13	13.0
24,206,715 - 38,059,114 RF	14	14.0
38,059,115 - 48,712,572 RF	10	10.0
48,712,573 - 78,384,317 RF	3	3.0
≤ 207,644,854 RF	1	1.0
SOCIO-ECONOMIC STATUS		
Upper Class	1	1.0
Upper Middle Class	38	38.0
Lower Middle Class	28	28.0
Upper Lower	27	27.0
Lower	6	6.0

The table 1.1 shows the demographic data of the total subjects (n=100). The subjects when distributed based on age shows that there are 25 (25%) between the age of 25 -35 years, 28 (28%) between the age group of 36 -45 years and 47 (47%) between the age groups of 46 – 55 years.

Distribution based on gender shows that 50 (50%) were male and the 50 (50%) were female. All the subjects were practicing Islamic religion. 69 (69%) of the subjects were married, 7 (7%) of the subjects were widowed, 13 (13%) divorced and the rest of the 11 (11%) were single respectively. 60 of the subjects had joint families and the other 40 were in The subjects were divided into various socio economic status depending upon their education levels, type of occupation and household yearly income. Divided based on the education levels the table shows that 8 had professional honors, 34 (34%) had graduate or post graduate degrees, 14 (14%) had Intermediate or Post High School Diploma, 7 (7%) had high school certificate, 11 (11%) had Middle School Certificate, 18 (18%) had Primary School Certificate and 8 (8%) were illiterate respectively.

Distribution based on type of occupation, the table shows that 30 (30%)

had professional jobs, while 20 (20%) of the total subjects had semi-professional jobs. Clerical or a shop owner’s were 12 (12%) while 9 (9%) were skilled employees. Semi-skilled employees were 12 (12%), 8 (8%) unskilled and 9 (9%) were unemployed.

The division based on household yearly income showed that 23 (23%) earned less than 535,256 rufiyaa also earnings of most of the subjects, 15 (15%) subjects had earnings of 535,257 - 1,210,895 rufiyaa, 7 (7%) had earnings of 1,210,896 - 6,055,315 rufiyaa while 6 (6%) earned 6,055,316 - 7,801,556 rufiyaa respectively. A monthly income of 7,801,557 - 14,921,016 rufiyaa was earned by 8 (8%), 13 (13%) earned 14,921,016 - 24,206,714 rufiyaa, 14 (14%) had an earnings 24,206,715 - 38,059,114, 10 (10%) earned 38,059,115 - 48,712,572 rufiyaa while 3 (3%) had household earnings of 48,712,573 - 78,384,317 respectively. Only 1 (1%) had an earnings of more than 207,644,854 rufiyaa.

The socio economic status derived from the above data concludes that 1 (1%) belong to the upper class of socio economy. The upper middle income class was occupied by most 38 (38%) of the subjects. 28 (8%) were classified as lower middle class, 27 (27%) upper lower class and 6 (6%) belonged to lower class.

Health Promotion Lifestyle Profile II (HPLP II) was used to assess the health promotion lifestyle pattern of the subjects. It contains six subcategories including health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations and stress management which were used to measure the subjects' aspects of lifestyle.

Table 1.2 – Descriptive Statistics for HPLP II Sub-scales

Sub Scales	Mean±SD	Range
Health Responsibility	2.4±0.7	1-4
Physical Activity	2.0±0.7	1-4
Nutrition	2.5±0.6	1-4
Spiritual Growth	2.9±0.6	1-4
Interpersonal Relations	3.0±0.5	1-4
Stress Management	2.6±0.6	1-4
Overall Score	2.6±0.5	1.6 - 3.7

The table 1.2 shows the descriptive statistics for HPLP II. The table reveals that the total average score for the subjects was 2.6 (SD=0.5). The highest mean score is found in Interpersonal relations (M=3.0, SD=0.5) while the lowest score is found in Physical activity (M=2.0, SD=0.7) respectively. Health responsibility had a mean score of 2.4 (SD=0.7), Nutrition had a mean score of 2.5 (SD=0.6), Spiritual growth had a mean score of 2.9 (SD=0.6) while Stress management had a mean score of 2.6 (SD=0.5).

Table 1.3 – Mean and Standard Deviations for Overall HPLP II and Sub-scales

Variable	n	Overall Score	Health Responsibility	Physical Activity	Nutrition	Spiritual Growth	Interpersonal Relations	Stress management
Gender								
Male	50	2.5±0.5	2.4±0.8	2.1±0.6	2.4±0.6	3.0±0.5	2.9±0.5	2.6±0.6
Female	50	2.6±0.5	2.4±0.6	2.0±0.8	2.7±0.6	2.9±0.7	3.0±0.6	2.6±0.6
p- value*		.539	.579	.946	.014	.467	.447	.961
Age								
25 -35 yrs	25	2.5±0.4	2.3±0.7	2.0±0.6	2.3±0.5	2.9±0.4	2.8±0.5	2.6±0.5
36 - 45 yrs	28	2.7±0.5	2.5±0.8	2.2±0.7	2.6±0.6	3.1±0.6	3.1±0.6	2.7±0.6
46 -55 yrs	47	2.5±0.5	2.4±0.7	2.0±0.8	2.6±0.6	2.8±0.7	3.0±0.5	2.5±0.7
p- value**		.407	.506	.504	.225	.285	.313	.602
Marital Status								
Married	69	2.6±0.5	2.5±0.7	2.2±0.8	2.6±0.6	3.0±0.6	3.1±0.5	2.6±0.6
Widowed	7	2.0±0.3	1.9±0.3	1.5±0.4	2.2±0.4	2.3±0.3	2.2±0.3	2.2±0.4
Divorced	13	2.6±0.5	2.4±0.7	1.9±0.6	2.6±0.5	2.9±0.7	2.9±0.6	2.6±0.7
Single	11	2.4±0.2	2.2±0.5	1.9±0.5	2.1±0.5	2.9±0.3	2.8±0.5	2.6±0.4
p- value**		.008	.177	.069	.036	.022	.000	.361
Type of Family								
Joint	60	2.6±0.5	2.4±0.7	2.0±0.7	2.5±0.6	2.8±0.6	3.0±0.5	2.6±0.6
Nuclear	40	2.6±0.5	2.4±0.7	2.1±0.7	2.6±0.5	3.0±0.5	3.0±0.6	2.6±0.6
p- value*		.347	.626	.596	.179	.141	.889	.580
Socio-Economic Status								
Upper	1	2.9±0	3.6±0	1.4±0	2.6±0	3.8±0	3.9±0.0	2.3±0
Upper Middle	38	2.7±0.5	2.6±0.7	2.3±0.7	2.8±0.6	3.0±0.6	3.0±0.6	2.7±0.7
Lower Middle	28	2.6±0.5	2.4±0.7	2.1±0.8	2.5±0.6	3.0±0.6	2.8±0.5	2.7±0.6
Upper Lower	27	2.4±0.4	2.2±0.6	1.7±0.5	2.3±0.5	2.7±0.5	2.6±0.6	2.5±0.5
Lower	6	2.1±0.4	1.7±0.4	1.6±0.5	2.0±0.7	2.5±0.5	3.0±0.5	2.1±0.4
p- value**		.004	.007	.010	.004	.040	.036	.091

* Significant at $\alpha < 0.05$ (2 Tailed) using Independent Samples T-Test

** Significant at $\alpha < 0.05$ using One Way ANOVA

The Table 1.3 shows mean and standard deviation for all HPLPII and the subscales. Independent T-Test and One Way ANOVA was done find out if there was statistically significant difference in the data.

Overall score for females (M=2.6, SD=0.5) is higher than the overall score for males (M=2.5, SD=0.5) respectively. The mean for health responsibility score was same for both males (M=2.4, SD=0.8) and

females (M=2.4, SD=0.6). The mean value, 2.1 (SD=0.6) for physical activity was more than in females 2.0 (SD=0.8). The nutrition mean score for females 2.7 (SD=0.6) were higher than the nutrition mean score for males 2.4 (SD=0.6). For Spiritual growth the males 3.0 (SD=0.5) had a higher mean than females 2.9 (SD=0.7). In Interpersonal relations females 3.0 (SD=0.6) had higher mean score compared to the males 2.9 (SD=0.5). Stress management mean scores

show the same for both males (M=2.6, SD=0.6) and females (M=2.6, SD=0.6). Independent T-Test was carried out which revealed that, p-value for overall score (p-value=.539), health responsibility (p-value=.579), physical activity (p-value=.946), spiritual growth (p-value=.467), interpersonal relations (p-value=.447) and stress management (p-value=.961) were higher than 0.05, hence a statistically significant difference does not exist. Nutrition (p-value=.014) sub scale had a p-value below 0.05, which shows that a statistically significant difference does exist.

The overall mean score was highest for age group 36- 45 yrs (M=2.7, SD=0.5), while both the age groups 25- 35 yrs (M=2.5, SD=0.4) and 46-55 yrs (M=2.5, SD=0.5) had the same mean. The age group 36-45yrs had the highest mean 2.5 (SD=0.8) for Health responsibility sub-scale, while the age group 46-55 yrs had the moderate value 2.4 (SD=0.7) and the age group 25- 35 yrs had the lowest mean 2.3 (SD=0.7). The sub-scale physical activity shows that 36-45 yrs had the highest mean 2.2 (SD=0.7), both the other ages groups 25-35 yrs (M=2.0, SD=0.6) and 46-55 yrs (M=2.0, SD=0.8) having the same mean. From the nutrition sub-scale both 36-45 yrs (M=2.6, SD=0.6) and 46-55 yrs (M=2.6, SD=0.6) had the highest mean score. The lowest mean 2.3 (SD=0.5) was scored by 25-35 yrs age group. The highest spiritual growth score 3.1 (SD=0.6) was found among the age group of 36-45 yrs. It was followed by the mean score of 25-35 yrs (M=2.9, SD=0.4) and then 46-55 yrs (M=2.8, SD=0.7). Based on the mean scores of Interpersonal relations it shows that 36-45 yrs (M=3.1, SD=0.6) had the highest score. 46-55 yrs (M=3.0, SD=0.5) age group had a moderate mean score followed by 25-35 yrs (M=2.8, SD=0.5). As for the score of the stress management the highest mean score belongs to the age group 36-45 yrs (M=2.7, SD=0.6) followed by 23- 35yrs (M=2.6, SD=0.5) and lowest mean score belongs to the age group 45-55 yrs (M=2.5, SD=0.7). One way ANOVA test was done to find that the p-

value of for overall score (p-value=.407), health responsibility (p-value=.506), physical activity (p-value=.504), nutrition (p-value=.225), spiritual growth (p-value=.285), interpersonal relations (p-value=.313) and stress management (p-value=.602) were higher than 0.05, hence there is no statistically significant difference.

The overall score based on marital status showed that the married (M=2.6, SD=0.5) and the divorced (M=2.6, SD=0.5) had the highest means overall. It was followed by single (M=2.4, SD=0.2) and then the widowed (M=2.0, SD=0.3). Based on the mean health responsibility scores it shows that married mean score (M=2.5, SD=0.7) was the highest. It was followed by divorced mean score (M=2.4, SD=0.7) and then the single mean score (M=2.2, SD=0.5). The lowest is the mean score of the widowed (M=1.9, SD=0.3). The married group (M=2.2, SD=0.8) held the highest mean score for physical activity. It was followed by the mean score of divorced (M=1.9, SD=0.6) and single (M=1.9, SD=0.5) group. The lowest mean score was held by the widowed (M=1.5, SD=0.4). The married group (M=2.6, SD=0.6) and the divorced group (M=2.6, SD=0.5) had the highest mean score. Followed by the widowed (M=2.2, SD=0.4) and the singles (M=2.1, SD=0.5) group. In the subscale of spiritual growth the married group (M=3.0, SD=0.6) had the highest means score. It was followed both the divorced (M=2.9, SD=0.3) and single group (M=2.9, SD=0.7). The widowed group (M=2.3, SD=0.3) had the lowest mean score. In the subscale of interpersonal relations the married group (M=3.1, SD=0.5) had the highest mean score. It was followed by the mean score of the divorced (M=2.9, SD=0.6) and the singles group (M=2.8, SD=0.5). The widowed group (M=2.2, SD=0.3) had the lowest mean score. In the subscale of stress management, the married group (M=2.6, SD=0.6), the divorced (M=2.6, SD=0.7) and the singles (M=2.6, SD=0.4) had the highest mean score. The widowed group (M=2.2,

SD=0.4) had the lowest mean score. One way ANOVA test was done to find that the p-value of for health responsibility (p-value=.177), physical activity (p-value=.069), nutrition (p-value=.036), spiritual growth (p-value=.022) and stress management (p-value=.361) were higher than 0.05, hence a statistically significant difference does not exist. The overall score (p-value=.008), sub-scale interpersonal relation (p-value=.000) had a p-value below 0.05, which shows that a statistically significant difference exists.

HPLP II based on family type shows that the joint (M=2.6, SD=0.5) and the nuclear (M=2.6, SD=0.5) family had the same mean score. The subscale health responsibility also shows the same mean for joint (M=2.4, SD=0.7) and nuclear (M=2.4, SD=0.7) families. In subscale physical activity the nuclear families (M=2.1, SD=0.7) had a higher mean compared to joint families (M=2.0, SD=0.7). In the nutrition sub-scale nuclear families (M=2.6, SD=0.5) had a higher mean compared to joint families (M=2.5, SD=0.6). In subscale spiritual growth nuclear families (M=3.0, SD=0.5) had higher mean compared to joint families (M=2.8, SD=0.6). In the subscale of interpersonal relations both the joint (M=3.0, SD=0.5) and the nuclear (M=3.0, SD=0.6) families had the same mean. Even in the subscale stress management both the joint (M=2.6, SD=0.6) and the nuclear (M=2.6, SD=0.6) families had the same mean. Independent T-Test was carried out which revealed that, p-value for overall score (p-value=.347), health responsibility (p-value=.626), physical activity (p-value=.596), nutrition (p-value=.179), spiritual growth (p-value=.141), interpersonal relations (p-value=.889) and stress management (p-value=.580) were higher than 0.05, hence a statistically significant difference does not exist.

The means score when compared on the basis of socio economy, the upper class (M=2.9, SD=0) had the highest mean followed by upper middle (M=2.7, SD=0.5), lower middle (M=2.6, SD=0.5) and then

upper lower class (M=2.4, SD=0.4). The lower class (M=2.1, SD=0.4) had the lowest overall mean. For the subscale health responsibility, the upper class (M=3.6, SD=0.0) had the highest mean score, followed by upper middle (M=2.6, SD=0.7), lower middle (M=2.4, SD=0.7) and upper lower class (M=2.2, SD=0.6). The lower class (M=1.7, SD=0.4) had the lowest mean. The highest mean value for the subscale physical activity is from upper middle class (M=2.3, SD=0.7), followed by lower middle (M=1.7, SD=0.8), upper lower (M=1.6, SD=0.5) and lower class (M=2.2, SD=0.5). The upper class (M=1.4, SD=0.0) had the lowest mean. From the subscale nutrition the upper middle class (M=2.8, SD=0.6) had the highest mean score, followed by Upper class (M=2.6, SD=0.0), lower middle (M=2.5, SD=0.6) and upper lower class (M=2.3, SD=0.5). The lower class (M=2.0, SD=0.7) had the lowest mean score. In spiritual growth, the upper class (M=3.8, SD=0.0) had the highest mean value followed by upper middle (M=3.0, SD=0.6), lower middle (M=3.0, SD=0.6) and then upper lower class (M=2.7, SD=0.5). The lower class (M=2.5, SD=0.0) had the least mean score. In the subscale Interpersonal relations, the upper class (M=3.9, SD=0.0) had the highest mean, followed by upper middle (M=3.0, SD=0.6) and lower class (M=3.0, SD=0.5) and then the lower middle class (M=2.8, SD=0.6). The upper lower class (M=2.6, SD=0.5) had the lowest mean score. In the subscale of stress management, the upper middle (M=2.7, SD=0.7) and the lower middle class (M=2.7, SD=0.6) had the highest mean score. It was followed by the upper lower (M=2.5, SD=0.5) and the upper class (M=2.3, SD=0.0). The lower class (M=2.1, SD=0.4) had the least mean score. One way ANOVA test was done to find that the p-value of for stress management (p-value=.091) were higher than 0.05, hence there no statistically significant difference. The overall score (p-value=.004), health responsibility (p-value=.007), physical activity (p-value=.010), nutrition (p-value=.004), spiritual growth (p-

value=.040), interpersonal relations (p-value=.036) had a p-value below 0.05, which shows that there is a statistically significant difference.

CONCLUSION

The overall score for HPLP II was moderate. Health relation and physical activity score was low among the subjects while subscales of nutrition, spiritual growth, interpersonal relations and stress management remained moderate.

Based on gender, the overall score for females were moderate for males it was low. For the subscales health relations and physical activity were low for both genders. Nutrition score moderate for females but low for males. Spiritual growth score was high for males but moderate for females. Interpersonal relations score was high for females but moderate for males. Stress management score was moderate for both genders.

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How to cite this article: Rarawagh A, Mshif M, Fnjum MS. Assessment of health promotion and lifestyle for hyperlipidemics in maldives. Int J Health Sci Res. 2017; 7(7):273-279.
