OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

NUTRITION, DIET INTAKE & PATTERNS FOLLOWED BY WOMEN: A LITERATURE REVIEW

Anupama Bharti[1], Dr.Monica Munjial Singh[2]
Research Fellow[1], Associate Professor[2],University Institute of Emerging Areas in Social Science, Centre for Social Work, Panjab University, Chandigarh,India.
bharti.anupama09@gmail.com[1]

Abstract: **Dietary patterns and nutritional intake of food is an emerging area of research work. Whereas the level of nutrition is affected not only by food availability but also by sanitation such as access to safe drinking water and disease. In addition, education can also play a vital role in improving nutritional intake and balance. The fundamental indicator of good health depends upon the socio-economic conditions in which people live and the intake of food of different varieties for example vegetables, fruits and animal fat. Present Literature review provides a range of dietary practices, taste preferences, nutritional beliefs and knowledge, cultural practices and analysis a degree of traditional factors associated with food consumption in the stereotype society. A secondary aim of this review is to investigate whereas the dietary patterns are connected with risk factors for nutrition-related diseases. The review was carried out various research papers, articles, reports based on food patterns & nutrition intake among women. Present study brings close findings that most of the Indian women population are vegetarian believers and this section neglect most of the nutrition items such as (fruits, nuts and animal food) which results in poor diet intake, followed to Recommended Daily Allowance (RDA) standards. However, there are limited studies which explore the relationship of cultural beliefs & nutritional dietary patterns followed by women. Secondly, most of the studies are on pregnant women diet consumption patterns but studies on another age group of the women sections are less.**

Keywords: Women, Food, Dietary patterns & Nutritional intake, India, Literature review.

---∴∴∴---

I INTRODUCTION

Nutrients are consumed through the food that we eat the whole day, and through metabolic processes, in the body digestive system, these nutrients are absorbed at a cellular level in the body. [1]On the other hand, these three categories (under nutrition, over nutrition, and malnutrition) are linked to less quality or inferior health outcomes. Such poor diets have been associated with the number ofvarious health issues like chronic diseases, including cardiovascular disease, Type-2 diabetes, cancer, osteoporosis and anaemia (Lytle et al. 2002).[2]Research reports given (Steinmetz & Potter 1996) showed that less intake diet of fruit and vegetables add to the risk of developing cancer. [3]This less consumption may also lead to some cardiovascular disease also (Hung et al. 2004). [4]While a less intake of fibre food has been associated with overweight (Patrick et al. 2004).[5] When we talk about Indian nutrient intake or diet, India has a rich and highly diverse food, and its various diets are strongly associated with social identity, religion and other cultural factors. [6] This nutritional practice also attached to local agricultural practices and availability of diverse foods. [7] Number of studies were done and found data on dietary habits &nutritional intake among male, female, children or based on pregnant women's and tried to identify different diet patterns followed by these group in diverse areas of the various countries. These research studies have been at variance in data used to analyze food consumption and the methods used to define nutritional diet patterns in context with women population. In context with India, Nationally representative data are rare because of the scale of undertaking national dietary surveys in such a large country. In many studies, adata-driven method is mainly used to identify the food consumption patterns and combination with one another or the dietary method consumed by a specific group of women,

especially pregnant/latching women. Thus far, there is generally no fixed method for such nutritional analyses, and several different statistical methods are used commonly for identifying food intake.

II OBJECTIVES OF THE STUDY

The present literature review aims to draw together the existing literature of dietary modelling studies or to categorize the common food dietary patterns among women segment with primary socio-demographic distinctiveness. This is particularly essential for the country like India where a considerable dietary food intake changeover from traditional diets to the 'Western' ways of eating habit.

III METHOD OF THE STUDY

We performed a literature review explored from secondary data collected various research article, reports, websites, newspaper, thesis, dissertation etc published between the year (1977-2017) to identify food dietary patterns and variations in these patterns by region, age and sex. The researcher also quantifies the associations between membership of food intake and risk factors for chronic diseases, health issues.

IV RESULTS OF THE REVIEW

For the purposes of this literature review, the focus will be on the diet and nutrition of apprentices, although the influence of other factors like (lifestyle, socio-economic characteristics, cultural beliefs, environmental factors) is acknowledged through various studies done in previous years are as followed:Study was done by Park (1977) emphasis on the teaching of nutrition through nurses, Nutrition education should also be extended to the method of working, hygiene practice in the handling of food and preservation of foods. The study emphasis on cooking demonstrations exhibitions and kitchen garden are practical methods of nutrition education nutrition education takes longer time than any other health components to show results. Successful nutrition education means the individual has adopted a new idea.[8]Banerji (1985) studied the aspects of healthcare in India, argued that provision for health services in India remains curative and urban in its orientation and that (i) it is accessible only to the 'upper crusts' of the society; (ii) its manpower development and curative institutions are moulded in the western model; and (iii) a wide cultural gap exists between the providers of health services and people.[9] Dasgupta, R. (1989)reviews both the undernutrition which implies calories deficiency or hunger and the malnutrition. Cross-sectional analysis has been done in respect of rural and urban areas, different states and different income group. Further, it has been done to examine the trend of the nutritional situation as it has developed at all India level. Lastly,, the composition of average Indian diet and importance of different food groups have been found low.[10]Kumar (1990) the research explores that in the matter of access to health and nutrition services women get low priority. The researcher made use of the theoretical framework, the nutritional status of women and child appears to be low, but the women seem to be even poorer women without good mental and physical care for the mother herself, health programmes are doomed to failure.[11]Banerji (1992) discussed issues related to various weaknesses in health services in the country. These weaknesses were evaluated through the universal programmes of immunisation; the goitre control programme; strengthening of health services in tribal, hilly and desert regions; regional disparities; health education and indigenous system of medicines. [12]Akhtar &Khan (1993)analysed the spatial distribution of health care delivery system in terms of institutions, hospital beds, and medical personnel as a ratio to population and in relation to geographic distances from the users in Jammu and Kashmir.[13]Dev&Guha (1994) examined the locational dynamics and utilization pattern of health care facilities in Himachal Pradesh. [14]Singh &Gupta (1995)investigated the health seeking behaviour of the tribal communities in four tribal districts of Rajasthan in India. They observed that people generally do not pay much attention to the routine problems during ante-natal, natal and post-natal periods, which they regard as a built-in part of childbearing and child-rearing.

A considerable amount of money and time is spent by these tribes on health. But their level of health education is extremely poor. Due to their belief, they visit traditional healers and ill-qualified medical practitioners. [15]Goel (2004)the research highlighted the women should themselves exert pressure to get the due benefits from their welfare. Further, the contemporary social situation of women in India should be not frustrating and disheartening but should be rather challenging and it is the men and women of, India particularly the women who have to face the challenges. He further suggests that all of us who are associated with the development of the country, in any capacity, must renew our dedication to the cause of women which would lead to national development and modernization. There is also a need of making realistic policies for women health and nutrition.[16]Patasani (2005) studied the conceptual framework on cultural and religious factors in education and reproductive health. The Further he has concluded that effect of culture on reproductive health policy for youth in some countries cultural taboos on sexuality have made it very difficult to create adequate policies and programmes to deal with youth and reproductive health.[17]Panda (2007) have mentioned, the reproductive health of Indian women, despite the interest in women's reproductive health in India, information on their reproductive health and awareness

presents a back picture and continuous to patchy. Further, the emphasis that the issues related to sexuality and reproductive health are rarely discussed openly, often leading to ignorance and misconceptions. [18]Jose & Navaneetham (2008) the researchers analysed the level of women's malnutrition in India over the seven years between 1998-99 and 2005-06 based National Family Health Survey (NFHS). Higher incidence of malnutrition among poor women indicated the poverty as a major cause of it, so do the prevalence of anaemia among women from all economic groups, even wealthier, has significantly risen. Also found that this serious implication on health is not only because of poverty but also it indicated the gender-based discriminatory and rigid gender norms prevailing in the society.

Furthermore,iron deficiency anaemia not only prevailing among the women from different social groups, but age at marriage, education level, type of dwelling, the availability of healthcare and social norms are also it is equally responsible for women's malnutrition.[19]Intra Health International (2008)It is an evidenced-based research review which focused on the community involvement and Village Health Committee (VHCs) in decentralizing and achieving the good health and nutritional level of the rural people especially women. It is evidenced from the project that for the more functioning of the VHCs and to promote the health and nutrition level in India, it requires community participation, linking of community to VHCs, Community Representation in the VHCs, Civil society participation, and linking to the Government Service. The expert had identified the several evidenced gap where additional knowledge is needed. [20]Rout (2009). The study attempts to capture the difference between standard and actual level of food intake among different groups of women, based on NHFS 2 data.

A profound variation in nutritional status was observed between the rural and urban women in Orissa. And about food consumption patterns, urban women enjoyed better position in food items. Further the variation in nutrition was not found to be very high between different categories which clearly show that the condition of nutrition among women in Orissa was improving.[21]Madhavi & Singh (2011) studied the nutritional status of rural pregnant women in Hebbal village of Karnataka. During the cross-sectional community based study they found that the prevalence of anaemia was very high among the rural women (66.67 percent) and majority of them were illiterate (98.2 percent). The prevalence of anaemia was maximum (39.74 percent) in the age group 20-24 years followed by 32.06 percent , 15.48 percent and 12.82 percent in the age group 25-29 years, < 20 years and > 30 years respectively. None of them were consuming more than 2500 Kcal/ day. Furthermore it has been found that the utilization of health services among of rural women were more in Govt. hospital but preference for place of delivery were equal between hospital and home. [22]Kane, Intern & Campaign (2011). The study was conducted in two districts of Jharkhand namely Ranchi and Hazaribagh. Found that about 12 percent eligible women do not receive Take Home Rations, (THR), whereas 88 percent do receive it. Also found that there is significant relationship between family size and mother and child's nutritional status. The researchers surprisingly failed to establish a relationship between boys and girls in terms of nutritional status. The contribution factors for this may be the availability of food and same anganwadi for both sexes. [23]Pradhan et al. (2012)cross-sectional study of nutritional status of women sweepers Midnapore Municipality of West Bengal, respondents (56) 55.35 percent were suffering from underweight and 41.07 percent were suffering from under-nutrition respectively. Study has also revealed that 55.35 percent of women sweepers were having protein deficiency and more than 60 percent were suffering from both the calcium and iron deficiencies. Furthermore, found that about 19.64 percent, 67.85 percent, 16.07 percent, 55.35 percent and 37.5 percent are suffering from vitamin - A, B complex, C, D and E deficiencies respectively.

This may be due to negligence of the aged sweepers to their own food consumption in respect to others age groups. [24]Ganjiwal (2012)the researcher focused on the two states of country namely Bihar and Kerala, where there is strong distinction in terms of health care and services. Furthermore, the researcher have identified that prevalence of anaemia high compared to Bihar. In Bihar antenatal care is low against Kerala (28.1 percent 99.3 percent respectively). The domestic violence in Bihar is rampant at 59% against only 16% in Kerala. The researcher concluded that the very existence of gender bias lead to the present situation of women in terms of health and state must work for women empowerment which in turns will result in nation development. [25]Sandhyarani&Rao (2013), focused on ICDS and keeping in mind the functioning of anganwadi Centres, the researcher have emphasized on the role and responsibilities of anganwari Workers especially in Mysore District of Karnataka. It has been found that majority of the respondents were between the age groups of 35-45 years i.e.60 percent (49/112), 70 percent (85) were matriculated, 80 percent (98) were married. The researchers also have found that the respondents were also active in Self Help Groups (SHGs) called as Stree Shakti Groups, further have found that anganwadi Workers also shouldering their responsibilities to combat against child marriage, one of the evil of the society of today's world. [26]Payghan BS, Kadam& Reedy (2014)this research shows that 68% of urban respondents and 73% of rural respondents are avoiding some foods like papaya, coconut, and meat during pregnancy. The main finding of the study is that the rural mothers are lacking in the

awareness regarding the consequences of inadequate nutrition during the pregnancy on the mother as compared to the women living in urban areas. So there is a need to identify local socio-cultural beliefs and practices to plan customized nutritional intervention programme.[35]Vir SC& MalikRicha (2015) the researcher review highlight the urgent need to address the public health problem of undernutrition in women. Secondary data has been used in this study. The study focused that undernutrition in women is not limited to access to adequate and diversified food but is influenced by early marriage and conception, education, empowerment and decision making power, domestic violence.

[36]Green R, Milner J, Joy M, Agrawal S & Dangour D.A(2016) this study is undertook a systematic review of published and grey literature exploring dietary patterns and relationships with diet-related on-communicable diseases in India. Identified that mostly dietary patterns were vegetarian with a predominance of fruit, vegetables and pulses, as well as cereals; dietary patterns based on high-fat, high-sugar foods and more meat. Lastly this review shows that dietary pattern analyses can be highly valuable in assessing variability in national diets and diet-disease relationships.[33]L. Vatsala, Prakash Jamuna & NS prabhavathi (2017) the researcher used purposive sampling to collect data regarding the nutritional and food security status of women. The 24 h dietary recall method has been used which shows that diets were deficient in protein, dietary fiber and iron. Also, an overall assessment of food security indicated that the diets needed qualitative improvement and despite being engaged in agriculture, protective foods were missing from dietary patterns. Lastly, the study concludes that welfare programs have to be implemented in such a way that at least one member in a family should acquire the capacity to earn which enables the families to have adequate access tothe right amount of food for maintaining health.

[37]R Chaya, S.G Pallavi, G. Meenakshi (2017)aims to determine the dietary intake, physical activity, and assess the body mass index (BMI)among the postmenopausal women. A structured questionnaire was used to collectsocio-demographic, physical activity level and anthropometric data included height, weight, waist, and hipcircumference. Dietary intake was also determined by using 24 h dietary recall method. Finds out that nutrient and food group deficiencies were observed among postmenopausal women physical inactivity and effects of menopausal transition instigate increased BMI imposing a need to educate on nutrition and physical activity.[38]

Discussion: Astudy was done by Tepper, Choi &Nayga 1997,those demographic factors, socio-economic status, as well as caste, social, and cultural variables also persuade the food choices & dietary patterns. [27]Poor dietary intake collective with extreme energy costs due to high levels of daily physical activity, related to agriculture work and domestic activities done in India has been reported to influence maternal nutrition with adverse impact on birth weight (Rao et al., 2013). [28] Our literature review explores there is an indication of a relationship between dietary pattern and body size, but hypertension, diabetes and cardiovascular problems, cholesterol levels were also found to be extensively associated to food patterns and dietary intake. A high-quality breakfast, intake mixture of three or more food groups (like milk, fruits, vegetable, nuts, bread, cereals) gives a person healthier mental health to adolescents segment because these food groups have a good source of carbohydrates, calcium, B vitamins, iron that really have an effect on brain functioning (O'Sullivan et al. 2008).[29]As we talk about gender differences The U.S. Preventive Services Task Force (1996) reviewed a number of studies on nutritional diet and food intake, this reviewed explored that half of all casualty can be prevented by adopting some modification in individual health behaviours, such as dietary intake of nutritional food.

[30](Department of Health and Ageing [DOHA] 2010c) estimated that the average life expectancy for Australian women is 84 years and on the other hand a man is having 79 years of age, they believe that an adoption of health-related believe model can moderate these different figures and provide prevention from various chronic diseases. [31]A study titled Types of Food and Nutrient Intake in India: This Review also estimated that children & adults followed a vegetarian food habit varies from region to region or based on geographical areas with cultural beliefs this food intake is less than Recommended Daily Allowance (RDA) standards this food intake may lead to nutritional deficit among various segments of the society especially children & women. [32]Another review was done by Rosemary Green, et al (206) also supported that dietary patterns & food intake in a country like India are extremely varied, including habitual vegetarian those that include high-fat, high-sugar foods. The studyfound huge regional variations and some evidence of changes in patterns over time, found an association of dietary patterns, nutritional food intake & health impact of both on various groups. Differentiate by sweets, spicy fried snacks & between meat and obesity, in addition to cardio vascular diseases factors.

[33]Another study based on association of Nutrition & women with entitled “Dietary intake patterns and nutritional status of women of reproductive age in Nepal: findings from a health survey” by Shiva Bhandari, et al. (2016) the greater part of women consumed cereals at least once a day in all three ecological regions. The greater part of women in hills consumed pulses thrice a week. In Terai district of Nepal maximum women consumed vegetables thrice a week. The dietary intake patterns to combat against

nutritional deficiencies are not the appropriate and nutritional status of women of reproductive age is still poor. [34]

V CONCLUSION

From the above literature review, it is seen that women's health especially nutritional status of women is very important and crucial an aspect from the viewpoint of health and development. This review gives an indication that significant variability between food intakes within a nation can be capture using dietary patterns studies, these studies can help categorize key relations among diet and disease. This will be helpful for health and nutrition concerning authorizes informative how to objective dietary intake interference to reduce disease burdens.

REFERENCES

[1] Gibney, M., Lanham-New, S., Cassidy, A. & Vorster, H. 2009, Introduction to human nutrition, 2nd ed, Wiley-Blackwell, San Francisco.

[2] Lytle, L.A., Himes, J.H., Feldman, H., Zive, M., Dwyer, J., Hoelscher, D. et al. 2002, 'Nutrient intake over time in a multi-ethnic sample of youth', Public Health Nutrition, v.5, n.2, pp.319-328.

[3] Steinmetz, K.A. & Potter, J.D. 1996, 'Vegetable, fruit and cancer prevention: A review', Journal of the American Dietetic Association, v.96, n.10, pp.1027-1039.

[4] Hung, H.-C., Joshipura, K.J., Jiang, R., Hu, F.B., Hunter, D., Smith-Warner, S.A. et al. 2004, 'Fruit and vegetable intake and risk of major chronic disease', Journal of the National Cancer Institute, v.96, n.21, pp.1577-1584.

[5] Patrick, K., Norman, G.J., Calfas, K.J., Sallis, J.F., Zabinski, M.F., Rupp, J. et al. 2004, 'Diet, physical activity, and sedentary behaviours as risk factors for overweight in adolescence', Archives of Pediatric Adolescent Medicine, v.158, pp.385-390.

[6] Vecchio MG, et al. (2014) Types of food and nutrient intake in India: a literature review. Indian J Pediatr 81, Suppl. 1, 17–22.

[7] Subramanyam MA, et al. (2010) socioeconomic inequalities in childhood undernutrition in India: analyzing trends between 1992 and 2005. PLoS ONE 5, e11392

[8] Park, K. (1977).*Preventive and Social Medicine.*Jabalpur: BanarsidasBhanot Publishers.

[9] Banerji, D. (1985). Sickness of Health Services, *Economicand Political Review.* Vol. 23, No.29, pp. 926- 927.

[10] Dasgupta, R. (1989). Nutrition In Perspective. Institute for Economic Growth. New Delhi: NirmalSingal For Navrang.pp. 1-22

[11] Kumar, R. (1990). *Women and Health Development: Women Health Development and Administration Principles and Practices.* New Delhi: Deep & Deep Publications.pp. 1-67

[12] Banerji, D. (1992). Health Policies and Programmes in India in the Eighties, *Economic and Political Review*. Vol. 27, No. 12, pp. 599-607.

[13] Akhtar, R. and A. Khan. (1993). Spatial Organization of Health facilities in Jammu and Kashmir. *Annals, NAGI*, Vol.13, No.2, pp. 29-38.

[14] Dev, A. and S. Guha. (1994). Geography of Health Care Planning: A Case Study of Rural Planning: A case of Rural Himachal Pradesh. *Transactions Institute of Indian Geographers*, Vol. 16, No. 1, pp. 1-9.

[15] Singh, L. and S. Gupta. (1995). Health Seeking Behaviour and Healthcare Services in Rajasthan, India: A Tribal Community's Perspective. *Institute of Health Management Research*. Jaipur.

[16] Goel, A. (Ed.) (2004). Constitutional Status, Women Potentialities and Globalisation.*Organisation and Structure of Women Development.* New Delhi: Deep & Deep Publications.pp. 9-41

[17] Patasani, P. (2005). Education, Population, and Reproductive Health: Perspective of health care New Delhi: Nam Trade Service Centre.pp. 45-58

[18] Panda, R. (2007). *Women in India issues, perspective and solutions*. New Delhi: New Century Publications.

[19] Jose,S., Navaneetham, K. (2008) A Factsheet on Women's Malnutrition in India. *Economic and Political Weekly*, available at http://environmentportal.in/files/6_20.pdf

[20] Usaid (2008). *Role of Village Health Committees in Improving Health and Nutrition Outcomes: A Review of Evidence from India.* Available at http://www.intrahealth.org/files/media/vistaar-project/VHC.pdf

[21] Rout, N. (2009). *Food Consumption Pattern and Nutritional Status of Women in Orissa: A Rural-Urban Differential*. [online] Journal of Human Ecology Volume 25, 2009 – IssueAvailable at http://Food Consumption Pattern and Nutritional Status of Women in Orissa: A Rural-Urban Differential

[22] Madhavi, L., & Singh, H. (2011). Nutritional Status of Rural Women. *Peoples Journal of Scientific research, 4(2),* pp. 20-23.

[23] Kane, J. and Campaign, G.(2011). Available at http://www.jhsph.edu/research/centers-and-institutes/womens-and-childrens-health-policycenter/publications/Changing_Definit ions.pdf

[24] Pradhan, S. et al. (2012) National status assessment among women sweepers in Midnaporemunicipality of West Bengal, India. *Journal of Medicine Research*, Vol.1(3), pp.-108-111

[25] Ganjiwale, J. (2012). Current health status of women in India:Issues and challenges, *Healthline*, Vol.3(2), pp. 55-59

[26] M.C. Sandhyarani&Dr C. UshaRao (2013). Role and Responsibilities of Anganwadi workers, with special reference to Mysore district. *International Journal of Science, Environment and Technology*, Vol. 2, No 6. Available at http://www.ijset.net/5-c/IJSET%2019.pdf

[27] Tepper, B. J., Choi, Y.-S. &Nayga, R. M. 1997, 'Understanding food choice in adult men: Influence of nutrition knowledge, food beliefs and dietary restraint', Food Quality and Preference, v.8, n.4, pp.307-317.

[28] Rao, S., Kanade, A., Margetts, B.M.,Yajnik, C.S., Lubree, H., Rege, S. et al. (2003). Maternal activity in relation to birth size in rural India. The Pune Maternal Nutrition Study, Eur. J. Clin Nut, 57,531-42.

[29] O'Sullivan, et al. 2008, 'A good quality breakfast is associated with better mental health in adolescence', Public Health Nutrition, v.12, n.2, pp.249-258.

[30] U.S. Preventive Services Task Force 1996, Guide to clinical preventive services, 2nd ed, Williams & Wilkins: Baltimore.

[31] Department of Health and Ageing [DOHA] 2010c. National Male Health Policy: Building on the strengths of Australian males, DOHA, Canberra.

[32] Vecchio, M., Paramesh, E., Paramesh, H., Loganes, C., Ballali, S., Gafare, C., Verduci, E. and Gulati, A. (2014). Types of Food and Nutrient Intake in India: A Literature Review. *The Indian Journal of Pediatrics*, 81(S1), pp.17-22.

[33] Green, R., Milner, J., M. Joy, E., Agrawal, S. and Dangour, A. (2016). *Dietary patterns in India: a systematic review*. [online] British Journal of Nutrition (2016), 116, 142–148 doi: 10.1017/S0007114516001598. Available at: http://Dietary patterns in India: a systematic review.

[34] Bhandar, S. et al. (2016). *Dietary intake patterns and nutritional status of women of reproductive age in Nepal: findings from a health survey*. [online] Bhandari et al. Archives of Public Health (2016) 74:2 DOI 10.1186/s13690-016-0114-3. Available at: http://Dietary intake patterns and nutritional status of women of reproductive age in Nepal: findings from a health survey.

[35] Payghan, B., S Kadam, S. and Reddy, R. (2014). *A Comparative Study of Nutritional Awareness among Urban-Rural Pregnant Mothers*. [online] Available at http://A Comparative Study of Nutritional Awareness among Urban-Rural Pregnant Mothers.

[36] Vir, S. and Malik, R. (2015). *Nutrition Situation of Women in India: Current Status, Implications on Child Undernutrition and Challenges Ahead*. [online] Statistics and Applications {ISSN 2454-7395(online)} Volume 13, Nos. 1&2, 2015 (New Series), pp. 71-84. Available at: http://Nutrition Situation of Women in India: Current Status, Implications on Child Undernutrition and Challenges Ahead.

[37] L, V., Prakash, J. and SN, P. (2017). *Food Security and Nutritional Status of Women Selected from a Rural Area in South India*. [online] Available at http://Food Security and Nutritional Status of Women Selected from a Rural Area in South India.

[38] Ranasinghe, C., G. Shettigar, P. and Garg, M. (2017). *Dietary Intake, Physical Activity and Body Mass Index among Postmenopausal Women*. [online] Available at: http://www.jmidlifehealth.org/temp/JMid-lifeHealth84163-9136453_023216.pdf