

# **HEALTH AND PHYSICAL ACTIVITY MESSAGES AMONG ETHNIC MINORITY GROUPS: SOUTH ASIAN FAMILIES**

WHITNEY BABAKUS CURRY

## **Introduction**

It is generally accepted that the burden of disease morbidity and mortality is not shared across all ethnic groups (August & Sorkin, 2010) and that ethnic minority groups (EMGs) experience higher levels of a range of chronic diseases (Griffiths et al., 2005, Nazroo, 2003). Self-reported poor health developed nations such as the United Kingdom (UK) is highest among EMGs (Gatineau & Mathrani, 2011). Findings from the National Survey of Ethnic Minorities indicate that health inequalities among EMGs in the UK increase with age and become more pronounced after age 30 (Nazroo, 2003). One area in which this disparity is clearly seen to affect the health of EMGs is physical activity (PA). The positive relationship between PA and health has been well established over the past 50 years (Tremblay, 2006) and recently the role of sedentary time (ST) has been shown to adversely affect health outcomes (Owen et al., 2009).

Globally, it is believed that as many as 80% of the population is not physically active (WHO, 2012). In nations such as the United States, Australia, and the UK, levels of inactivity among EMGs are estimated to be between 62%-87% (Antikainen et al., 2005; Dogra et al., 2010). Over the past three decades policy makers and health practitioners have recognised the need for improved policy guidelines to encourage increased participation in PA in EMGs and to decrease ST. These guidelines however, may not lead to an uptake of PA by those who are not physically active. There is limited evidence as to why this is the case, but it may be attributed to a lack of culturally tailored messages and low level of understanding of how to engage with diverse communities (Burholt & Dobbs, 2010).

One speculation is that the socio-ecological determinants of health are not being considered in the framework and implementation of health promotion and policies (Halfon & Hichstein, 2002). These determinants include the demographic, psychological, social, cultural, and environmental factors that influence health behaviour choices (Jonnalagadda & Diwan, 2005; Lord et al., 2011). Determinants exert their influence through multiple levels and pathways to influence activity patterns (King et al., 2001). Among socio-economic determinants of health, families are now becoming the focus of research aimed at improving the health of EMGs as they may be an advantageous pathway to deliver health promotion messages (King et al., 2001). Currently there is little known about how ethnic minority families transmit and absorb health messages. It is therefore essential for the role of families to be examined as a pathway for the dissemination of positive health messages to EMGs.

### **Aims of This Chapter**

There is a major gap in knowledge of how to encourage EMGs to become more active and less sedentary and evidence on interventions aimed at these groups shows no or limited successes in the goal (Babakus & Thompson, 2012; Bernardi, 2011; Caperchione et al., 2009). It is therefore imperative to increase our knowledge of how health and PA messages are transmitted among and between members of EMGs, specifically within families, in order to utilise these pathways more fully and incorporate them into interventions. This chapter will discuss how health and PA messages are taken up by EMG families. A recent study on South Asian (SA) families in the UK will be discussed. Throughout this chapter SA families and specifically Bangladeshi and Pakistani families will be used as examples. Limited research indicates that SAs living outside their native countries, do not engage in recommended levels of PA and are highly sedentary, putting them at increased risk for chronic disease morbidity and mortality (Graham, 2004; Jonnalagadda & Diwan, 2005). Finally, this chapter will make

recommendations for how future health promotion, policies and interventions can benefit from understanding and incorporating these lessons into their development.

## **Literature Review**

### ***Determinants of Physical Activity and Sedentary Time***

A socio-ecological model of PA/ST can organise our understanding internal and external influences on these behaviours. Socio-ecological model includes demographic, psychological, social, cultural, and environmental determinants of PA and ST behaviours (WHO, 2012a). The complex interactions of these determinants on individuals and within communities can create barriers to increasing activity or alternatively may facilitate participation in PA (Frohlich & Potvin, 2008; Rafnsson & Bhopal, 2009). This section will focus on the social and cultural determinants of PA and ST in EMG families.

### ***Social Determinants***

Social support is an important factor in the health of EMGs. It has been defined as the help, care and companionship that others provide (Ryan et al., 2005). It is widely accepted that social support can provide individuals with a sense of well-being and may encourage positive health behaviours (Stephens et al., 2011). Social support offers protection against psychological stress and increases personal control (Umberson et al., 2010). Literature suggests that lack of social support influences the way EMGs perceive their health and may contribute engaging in fewer health promoting behaviours such as PA (Caperchine et al., 2009; Jonnalagadda & Diwan, 2005). Evenson et al. (2004) found that social support is one of the most consistent correlates of PA and may be equally as important as age and gender in determining PA behaviour.

Just as social support has an influence on PA and ST, the social networks in which this support takes place can have a positive or negative effect on activity. Social networks are characterized by links between an individual and others in the immediate community and those outside of the community (Umberson et al., 2010). Individuals make decisions within the context of the social networks to which they belong (Bernardi, 2011; Mahler & Pessar, 2001).

One major social network is the family. It has been found that SAs immigrating to the UK were more likely to do so because they had family living there, and upon arrival they came to live in predominantly SA neighbourhoods (Smith et al., 2009). When a social network becomes ethnic-specific, the advantages that initially made the network strong such as a sense of support from familiar peers, may become limiting in that information or support from the wider society may not infiltrate the network (Ryan, 2011). A high quality social network, such as one which extends beyond the immediate family and community, can influence health through dissemination of health knowledge, increases in healthy lifestyle activities and influence of social norms that promote health (Stephens et al. 2011; Yu et al., 2011).

### *Cultural Determinants*

The culture of members of a social network will often dictate what is acceptable behaviour for its members. Culture can be defined as the beliefs, abilities and customs that one acquires as a member of society (Caroppo et al., 2009). Aspects of culture can include language, diet, religious beliefs, attitudes, and family traditions (Jonnalagadda & Diwan, 2002). Studies have identified that SA cultures for example, may place a higher value on women staying in the home, dressing modestly, and promoting a sense of family and community over an individualistic ideal such as engaging in PA for one's own personal benefit (Bao & Lam,

2008; Downie et al., 2007). Faith and religion are also critical components of SA culture and central to many families. In fact, 92.4% of Bangladeshis and Pakistanis living in the UK are Muslim and account for 17% of the Muslim community in the UK (Alexander et al., 2010). Research suggests that SAs view their religion as a large part of their identity construction (Caroppo et al., 2009; Egan et al., 2009).

While the Muslim faith encourages healthy lifestyles and family taking a central role in achieving those healthy lifestyles, familial responsibilities may take priority (Grace et al., 2008 ; Laird et al., 2007). In a study by Grace et al (2008) on the influence of culture on health, they found that religious leaders supported and encouraged healthy lifestyle habits such as increased PA, though a woman's duty to take care of the family was prioritised higher than taking care of personal needs. Moreover, researchers have consistently found that exercise for health has little cultural meaning to SAs and activities such as sport are not usually performed by adults (Cerin & Leslie, 2008). There may also be social barriers to PA (Griffiths et al., 2005) such as social sanction or gossip about a SA woman if she participates in PA or sports since it is not commonly accepted in this culture (Grace et al., 2008).

### **South Asian Families in the UK**

Bangladeshi and Pakistani groups make up a significant portion of the SA population in the UK (nearly 1 million born outside of the UK but now living in the UK). UK Bangladeshis and Pakistanis have been reported to be religiously homogenous, with 92% identifying themselves as Muslim in the 2011 Census (Ballard, 2011). Additionally, these groups have been reported to be the most socio-economically deprived of the SA groups and one of the most deprived populations in the UK, having high rates of unemployment and low rates of education (Alexander et al., 2010).

The following research was conducted with communities in Cardiff, Wales. In 2011 it was estimated that those of SA descent made up 4% of the population and there were nearly 4,838 Bangladeshis and 2,637 Pakistanis living in Cardiff (Office for National Statistics, 2012). These large and comparatively young EMGs in the UK are known to have poor health outcomes, and engaging them in this research offers a unique opportunity to understand how PA/ST messages are transmitted and understood.

### ***Study Background***

Twenty-four Bangladeshi and Pakistani mothers and daughters participated in semi-structured interviews. A full explanation of the methods and analyses can be found elsewhere (Curry et al., 2015). The aim of this study was to use semi-structured interviews to explore the shared experiences of SA mothers and daughters in the UK in relation to PA and ST, and investigate how active living message are disseminated among SA families.

### ***Main Findings***

#### ***Conceptualisation and Contextualisation***

Frequently the terms PA and exercise are used interchangeably in the literature to indicate bodily movement above rest that results in energy expenditure (Eyler et al., 2003). Therefore interview questions began with asking if SA women would explain what each term meant to them. Women conceptualised PA as keeping busy or just moving around a lot. This can be seen in the many references to being active through daily housework. As one 36 year-old Bangladeshi woman described:

“...Physically active to me means doing things. Being busy with life,

housework, cooking, cleaning and going out and about.”

Nearly all women indicated that being physically active meant being healthy. Particularly, being active helped keep illnesses away. A 39 year-old Pakistani woman, when asked what she thought it meant to be physically active, commented that:

“I think it’s good to be active. It’s good for your health. Um, otherwise you’ve got all these other illnesses that come along.”

The concept of “sedentary” was explored before asking participants how much ST they engage in. Most women did not know what the word sedentary meant and required an explanation by the interviewer. Once defined, participants expressed the concept of being sedentary as falling into two main categories. Firstly, being sedentary was seen as resting or “taking it easy.” Nearly all women who referred to being sedentary as resting commented on a sense of deserving a rest after a long and busy day. Many women wanted to relax after doing their housework. One 61 year-old Pakistani woman said:

“I have um, something...to do all the time. Either cleaning the house or like you know...Well in the evening I do take rest. I just um, I lay down and then I do nothing. But um, I think that I deserve [to rest] after the whole day.”

Not only does this provide a picture of this woman's concept of what it means to be sedentary, but it is also a reflection of what her position within the family unit. It is clear that it is expected that she will be busy with family-related tasks during the day and is allowed (by her family or herself) to take a rest. This cultural expectation was pervasive in interviews,

with nearly all mothers and daughters indicating the importance of family responsibility before taking care of one's self.

Other women referred to being sedentary as being lazy. They conceptualised being sedentary as not keeping up with their housework and being a “lady of leisure.” Importantly, both younger and older women remarked that after a woman becomes a grandmother (around age 40), she becomes very sedentary and stops doing things for herself. This was said to be a widespread practice in the community. The daughter-in-law was identified as being primarily responsible for taking care of the older woman and what used to be her household duties. One older (60 year-old) Pakistani woman commented:

“...problem becomes when woman becomes mother-in-law and come homes and that's it. It's my time to sit now. She [daughter-in-law] will do everything. It's her responsibility. I done my job. Even mother-in-law may still be in early forties. So that's where the thing goes wrong. Personally that's my view.”

One younger (36 year old) Bangladeshi woman agreed, but expresses difficulty in changing this cultural norm within the family social network:

“They [daughters-in-law] have to encourage their mother-in-law to do a little bit of housework. Um, I know like within Asian culture it's rude to ask somebody to do that.”

All mothers and daughters in this study referred to this specific cultural phenomenon. Within the SA family social network this message has carried from the 'home' countries of

Bangladesh and Pakistan where this practice originated and is being passed to subsequent generations in the UK.

### ***Health Messages***

#### *Messages External to Family*

Messages on PA/ST from outside the family originated from health professionals, friends, and members of the community. Many women were advised by their GPs to be cautious about participating in activity due to ill health and injuries. One 46 year-old Bangladeshi woman described why she cannot be active:

“I try to be but my health prevents it at the moment. ‘Cause I’ve got so many kinds of illnesses so there are certain exercises that I wanted to do which I am not able at the moment. That’s because doctors told me to take things easy.”

Women indicated that GPs did not spend enough time with them or give them enough guidance on what to do for PA. The only guidance they were offered was that they needed to exercise for their health. A 52 year-old Pakistani woman explained how more help from GPs would break this barrier to PA:

“I think actually give them [referring to the patient] a bit more time when they go to see you [referring to the GP]. Actually listen to your problems. No, it’s true. Because half the problem is solved when the professional you speak to actually listens to you.”

A need to be social during PA was found among SA women. Many women preferred to engage in PA with other women and also needed the encouragement of others to educate and motivate them to be active. When these were not in place women are less likely to engage in PA. One 58 year-old Pakistani woman described why this is the case:

“I’m more of a social person. So I find exercising or going for walks with someone enjoyable. I’m not one of those people who will just get up and go for a walk by themselves. So I always need to arrange some things.”

Women did not want to be seen by others in the community as being lazy or ‘sitting around doing nothing.’ Women who were seen to be sitting around and seemingly not doing their housework were judged negatively. One Pakistani woman said she would call a sedentary woman a “lady of leisure,” which was emphasized as a derogatory reference. Messages on PA from friends indicated that PA should be a social activity and enjoyed in the company of other women (though never men). SA women preferred to engage in PA if it meant that they could visit with their friends and family at the same time. In fact, many women modeled their PA behaviour after the more active women in the community.

### *Messages From Within the Family*

Strong and entrenched messages on PA and ST were found to be transmitted throughout SA families. As previously discussed, becoming a mother-in-law equated to being expected to be less active as a result of traditional practices. Among SA women in this sample there was an expectation for themselves and from the family that as they get older, they are entitled to relax. Many women explained that they had “done their job” and that now it was time to

enjoy life, which included spending a great deal of their time in ST. Others were sedentary out of boredom since they had become a mother-in-law with fewer familial responsibilities. Many women admitted to being bored in the evenings and therefore were more sedentary during that time.

When women were asked how to encourage older ladies to be more active, they said that mothers-in-law should not allow their daughter-in-law to do everything for them. It is a cultural tradition for this to happen, but both younger and older participants agreed that it had become an unhealthy one. Every mother and daughter interviewed expressed worry about a current disease or worry about developing a disease related to obesity. Although the traditional message of the mother-in-law stepping back from housework once she has a daughter-in-law was still in effect, all recognised that due to the health consequences of inactivity, obesity and disease, this practice should not continue in its current state. Many women acknowledged though, that this traditional message would be very difficult to change. One 39 year-old Pakistani woman described this:

“...well the daughters all help the mothers anyway. But um, mothers should be active in some way and be more independent and not rely on other people. Mainly because they think they can't do it. That's the situation isn't it?”

Family caring responsibilities were expected to take precedence over all other activities in a SA woman's life. This took the form of caring for husbands, children and ageing parents. No woman in this sample was free from some type of family caring obligation. Overlapping with caring responsibilities is family pressure to prioritise housework over PA. Women frequently noted that they were expected to ensure that all family and household needs were met before

engaging in any outside activities. Again, daughters-in-law caring for mothers-in-law was seen as the norm and daughters felt pressure to continue this tradition. One daughter explained that in fact it is not the daughter who can encourage mothers to be active but it is the “younger ones and husbands. Can’t forget them.”

At the social level, other family members such as a daughter or friends were the most influential in delivering messages on PA and encouraging SA women to be more active. Women said that having their daughters, sisters, and other SA women to be active with made the activity more fun, therefore they would be more likely to continue. Younger women (those not yet a mother-in-law) were the greatest source of information on activities and many made an effort to bring groups of others, both younger and older, together to engage in activity. It seemed that being active was more acceptable if the activity was conducted with other SA women, especially other female family members. Additionally, these women were the source of knowledge on the benefits of PA as well as where activities were taking place. One 36 year-old Bangladeshi woman talks about her enjoyment of being social during PA:

“I think we go through phases where my friends and my sister, if we are doing something for an event we all get together and we perform and we dance. And that’s when we’re doing lots of dancing and practices.”

Using cultural events to incorporate PA such as dance is one major example of a culturally responsive practice. This activity was accepted by both male and female family members as appropriate activity to engage in. It seemed that special dispensation for taking time away from family responsibilities was made for these activities because of wider cultural

importance. Although, once the cultural event was over, women no longer expected to engage in these activities.

Many women acknowledged the importance of getting children involved in PA at a young age and having young people help to educate older women. Several mothers of younger children encouraged their children to be active. This was through after-school activities and sports. Utilising younger people to help encourage older women to be more active was suggested by several participants, although this was seen as a difficult subject to tackle due to cultural norms.

### **Concluding thoughts and reflections**

SA mothers and daughters in this example conceptualised PA first and foremost as being good for their health. When probed for what types of activities might constitute PA, most identified housework and “keeping busy” as their main modes of PA. This concept of PA was transmitted throughout families and perpetuated from generation to generation as mothers and daughters reported similar conceptualisations.

Women identified one of two conceptualisations of ST: resting or being lazy; concepts tied very closely to their family social network and cultural traditions. Since most women perceived their days to be filled with housework and family obligations that kept them busy, many believed they deserved to rest in the evenings or were expected to. In contrast, others saw it as being lazy if a woman was known to be ‘sitting around.’ If this was the case, she was not completing her household tasks and was therefore seen negatively by others in the community. This social pressure was pervasive within the family social networks of the mothers and daughters interviewed.

The only exception to this negative opinion was in reference to mothers-in-law. It was an accepted fact that as a mother-in-law, they were entitled to do a great deal of sitting after having raised a family and done the housework for many years. At this point in the life course, the daughters-in-law take over these responsibilities. While everyone (including the male family members, according to the women) acknowledged this was the case, all women interviewed conceded that this habit was not healthy to engage in. All women recognised that there are health risks that result from leading a sedentary lifestyle. The importance of family traditions has been found in other studies on SA women (Siddiqui et al., 2008; Sriskantharajah & Kai, 2007). These studies also found that women understood the importance of being active, but that family responsibilities and traditions often prevented them from engaging in PA.

Messages on PA and ST among SA mothers and daughters were transmitted through several key routes: family (specifically daughters and often sisters or aunts), friends, medical professionals (GPs) and members of the community. Crucially, cultural traditions and messages such as the position of mothers-in-law and the role of women in caretaking influenced family members' understanding of PA/ST, their motivation to engage in these activities, and their own transmission of these traditions and messages. Scholars such as Bourdieu have acknowledged the strong association between the social construction of family and the social pressures exerted on individuals (Bourdieu, 1996). This is made clear in the case of the SA families in this study. Cultural customs and expectations of family were exerted on mothers and daughters, resulting in the aforementioned messages on PA and ST. These can be considered social and cultural determinants of PA/ST in SA families.

As previously discussed, traditional health promotion has largely failed to have any positive effect on the PA and ST levels of EMGs. It is reasonable to posit that one of the factors contributing to this failure is the incongruence between these health promotion programmes and the social and cultural traditions of many ethnic minority families. While going to the gym or exercising are often prescribed by GPs and other health professionals, evidence suggests that PA needs to be prescribed within the confines of the social and cultural structures in which patients find themselves. The cultural practices of SA and many other EMG families are largely unknown or ignored by health promotion and policies. Health promotion and policies would benefit from an increased understanding of how diverse families understand and transmit health messages.

## References

Alexander, C, Firoz, S, and Rashid, N. (2010) **The Bengali diaspora in Britain: a review of the literature**. London: London School of Economics.

Antikainen, L, Ellis, R, Kosma, M, et al. (2005) Examining Change in Theory-based Physical Activity Beliefs of Culturally Diverse Older Adults. **Journal of Applied Gerontology**, 29(4): 507-517.

August, K. J. and Sorkin, D. (2010) Racial and Ethnic Disparities in Indicators of Physical Health Status: Do They Still Exist Throughout Late Life? **Journal of the American Geriatrics Society**, 58:2009–2015.

Babakus, W. and Thomposon, J.L. (2012) Physical activity among South Asian women: a systematic, mixed-methods review. **International Journal of Behavioral Nutrition and Physical Activity**, 9:150-168.

Ballard, R. (2011) **The current demographic characteristics of the South Asian presence in Britain: an analysis of the results of the 2011 census**. Manchester: University of Manchester.

Bao, X., and Lam, S. (2008) Who Makes the Choice? Rethinking the Role of Autonomy and Relatedness in Chinese Children's Motivation. **Child Development**, 44(9): 1175-1184.

Bernardi, L. (2011) A mixed-methods social networks study design for research on transnational families. **Journal of Marriage and Family**, 73:788-803.

Bourdieu, P. (1996) On the Family as a Realized Category. **Theory, Culture & Society**, 13: 19-26.

Burholt, V. and Dobbs, C. (2010) Caregiving and care-receiving relationships of older South Asians. **Geriatric Psychiatry**, 24(4):215-225.

Caperchione, C.M., Kolt, G.S., and Mummery, K.W. (2009) Physical activity in culturally and linguistically diverse migrant groups to Western Society. **Sports Medicine**, 39(3):167-177.

Caroppo, E., Muscelli, C., Brogna, P., et al. (2009) Relating with migrants: ethnopsychiatry and psychotherapy. **Annali dell' Ist Superiore Sanita.**, 45(3):331-340.

Cerin, E. and Leslie, E. (2008) How socio-economic status contributes to participation in leisure-time physical activity. **Social Science & Medicine**, 66:2596-2609.

Curry, W.B., Duda, J.L. and Thompson, J.L. (2015) Perceived and Objectively Measured Physical Activity and Sedentary Time among South Asian Women in the UK. **International Journal of Environmental Research and Public Health**, 12(3): 3152-3173.

Dogra S., Meisner B.A., and Adern C.I. (2010) Variation in mode of physical activity by ethnicity and time since immigration: a cross-sectional analysis. **International Journal of Behavioral Nutrition and Physical Activity**, 7:75-85.

Downie, M., Cua, S.N., Koestner, R., et al. (2007) The Relations of Parental Autonomy Support to Cultural Internalization and Well-Being of Immigrants and Sojourners. **Cultural Diversity and Ethnic Minority Psychology**, 13(3):241-249.

Eapen, D., Kalra, G.L., Merchant, N., et al. (2009) Metabolic syndrome and cardiovascular disease in South Asians. **Vascular Health and Risk Management**, 5:731-743.

Egan, M., Tannahill, C., Petticrew, M., et al. (2009) Psychosocial risk factors in home and community settings and their associations with population health and health inequalities: A systematic meta-review. **BMC Public Health**, 8:239-251.

Evenson, K., Olga, R., Sarmiento, L., et al. (2004) Acculturation and physical activity among North Carolina Latina immigrants. **Social Science & Medicine**, 59:2509-2522.

Eyler A.A., Matson-Kaffman D., Young D.R., et al. (2003) Quantitative study of Correlates of physical activity in women from diverse racial/ethnic groups. Women's Cardiovascular Health Network Project introduction and methodology. **American Journal of Preventive Medicine**, 25:1-14.

Frohlich, K.L. and Potvin, L. (2008) The inequality paradox: the population approach and vulnerable populations. **Government, Politics, and Law**, 98(2):1-6.

Gatineau, M, and Mathrani, S. (2011) Ethnicity and obesity in the UK. **Perspectives in Public Health**, 131:159-160.

Grace, C., Begum, R., Subhani, S., et al. (2008) Prevention of type 2 diabetes in British Bangladeshis : qualitative study of community, religious, and professional perspectives. **BMJ**, 337: a1931-a1938.

Graham, H. (2004) **Socioeconomic inequalities in health in the UK: evidence on patterns and determinants**. Lancaster University: Institute for Health Research.

Griffiths, C., Justhna M., Abdul A., Jean Ramsay, et al. (2005) Randomized controlled trial of a lay-led self-management programme for Bangladeshi patients with chronic disease.

**British Journal of Medical Practice**, 55:831-837.

Halfon, N., and Hochstein, M. (2002) Life course health development: an integrated framework for developing health, policy, and research. **The Millbank Quarterly**, 80(3):433-479.

Jonnalagadda S., and Diwan S (2002) Regional variations in dietary intake and body mass index of first-generation Asian-Indian immigrants in the United States. **Journal of the American Dietetic** 2002, 102(9):1286–1289.

Jonnalagadda, S. and Diwan S. (2005). Health Behaviors, Chronic Disease Prevalence and Self-Rated Health of Older Asian Indian Immigrants in the U.S. **Journal of Immigrant Health**, 7(2):75-83.

King, A. C., Castro, C., Wilcox, S., et al. (2001) Personal and Environmental Factors Associated With Physical Inactivity Among Different Racial-Ethnic Groups of U.S. Middle-Aged and Older-Aged Women. **Health Psychology**, 19(4):354-364.

Laird, L.D., Amer, M.M., Barnett, E.D., et al. (2007) Muslim patients and health disparities in the UK and the US. **Archives of Disease in Childhood**, 92:922-926.

Lord, S., Francois, S. Chastin, M., et al. (2011) Exploring patterns of daily physical activity and sedentary behaviour in community-dwelling older adults. **Age and Ageing**, 40:205-210.

Mahler, S.J. and Pessar, P.R. (2001) Gendered geographies of power: analyzing gender across transnational spaces. **Identities**, 7(4): 441-459.

Nazroo, J.Y. (2003) The Structuring of Ethnic Inequalities in Health: Economic Position, Racial Discrimination, and Racism. **American Journal of Public Health**, 93(2):277-284.

Office for National Statistics. (2012). 2011 Census: Country of birth (detailed), local authorities in England and Wales. In 2011 Census, Key Statistics for Local Authorities in England and Wales. Accessed April 2015 [[http://www.ons.gov.uk/ons/publications/reference-tables.html?newquery=\\*&newoffset=25&pageSize=25&edition=tcm%3A77-286262](http://www.ons.gov.uk/ons/publications/reference-tables.html?newquery=*&newoffset=25&pageSize=25&edition=tcm%3A77-286262)].

Owen, N., Bauman, A., and Brown, W. (2009) Too much sitting: a novel and important predictor of chronic disease risk? **British Journal of Sports Medicine**, 43(2):81-83.

Rafnsson, S.B. and Bhopal,RS. (2009) Large-scale epidemiological data on cardiovascular diseases and diabetes in migrant and ethnic minority groups in Europe. **The European Journal of Public Health**, 19(5):1-8.

Ryan, R.M., LaGuardia, J.G., Solky-Butzel, J., et al. On the interpersonal regulation of emotional: Emotional reliance across gender, relationships, and culture. **Personal Relationships**, 12:145-163.

Ryan, L. (2011) Migrants' social networks and weak ties: accessing resources and constructing relationships post-migration. **The Sociological Review**, 59(4): 707-724.

Siddiqui F.R., Ur-Rahman M., Bhatti M.A., et al. (2008) Knowledge, attitudes and practices to lifestyle risk factors for coronary heart disease (CHD) and diabetes amongst South Asians in North Kirklees, England- A focus group study. **Pakistan Armed Forces Journal**, 3:1-9.

Smith, N.R., Kelly, Y.J., and Nazroo, J.Y. (2009) Intergenerational continuities of ethnic inequalities in general health in England. **Journal of Epidemiology and Community Health**, 63:253-258.

Sriskantharajah J. and Kai J. (2007) Promoting physical activity among South Asian women with coronary heart disease and diabetes: what might help? **Family Practice**, 24(1):71–76.

Stephens, C., Alpass, F., Towers, A., et al. (2011) The effects of types of social networks, perceived social support, and loneliness on the health of older people: accounting for the social context. **Journal of Aging and Health**, 23:887-911.

Tremblay, M.S., Bryan, S.N., Perez, C.E., et al. (2006) Physical Activity and Immigrant Status Evidence from the Canadian Community Health Survey. **Canadian Journal of Public Health**, 97(4):277-282.

Umberson, D., Crosnoe, R., and Reczek, C. (2010) Social Relationships and Health Behavior Across the Life Course. **The Annual Review of Sociology**, 36:139–157.

World Health Organization (WHO). (2012) **Social determinants of health. Report by the Secretariat**. 1-5.

Yu, G., Renton, A., Schmidt, E., et al. (2011) A multilevel analysis of the association between social networks and support on leisure time physical activity: evidence from 40 disadvantaged areas in London. **Health & Place**, 17:1023-1029.

### **Keywords**

Physical activity, sedentary time, ethnic minority health, health promotion, diversity