Patient Education and Counselling

The experience and influence of social support and social dynamics on cardiovascular disease prevention in migrant Pakistani communities: a qualitative synthesis

Farina Kokab[1]

F.Kokab@bham.ac.uk

Sheila Greenfield[1]

S.M.Greenfield@bham.ac.uk

Antje Lindenmeyer[1]

A.Lindenmeyer@bham.ac.uk

Manbinder Sidhu[2]

M.S.Sidhu@bham.ac.uk

Lynda Tait[3]

Lynda.Tait@nottingham.ac.uk

Paramjit Gill[4]

P.S.Gill@bham.ac.uk

Corresponding author: Farina Kokab [1]Institute of Applied Health Research, The University of Birmingham, Edgbaston, Birmingham, UK, B15 2TT

[2]Department of Health Sciences, College of Medicine, Biological Sciences, and Psychology, University of Leicester, Centre for Medicine, University Road, Leicester, LE1 7RH, UK

[3]School of Health Sciences, The University of Nottingham, Nottingham, UK, NG7 2RD

[4]Warwick Medical School, Warwick, Coventry, UK, CV4 7AL

Abstract

Objective

The objective of this research was to synthesise qualitative literature about the perceived influence and experience of social support, in relation to cardiovascular disease (CVD) prevention in migrant Pakistani communities.

Methods

Articles were systematically reviewed, critically appraised, and analysed using an adapted meta-ethnography approach.

Results

Sixteen qualitative studies on health behaviours related to CVD prevention were included. Findings include four sub-themes under two substantive thematic areas that focus on: 1) family dynamics and 2) community dynamics influenced by discrimination. For members of the Pakistani community, gendered family dynamics and discrimination from outside and within community networks influenced behaviour change.

Conclusion

The authors of the synthesis developed multi-layered, contextualised interpretations of the care needs of an established multi-generational community. Future qualitative studies taking an intersectional approach to interpreting the role of social networks in migrant communities should take into account gender, identity, culture and faith.

Practice implications

Health care providers should focus on cultural awareness and sensitivity during consultations. In particular, general practitioners can benefit from the insight they gain from patient experiences, allowing for more appropriate recommendations.

1. Introduction

Providing optimal health to individuals in diverse communities and migrant populations in Western Europe and North America presents a series of challenges to healthcare systems and professionals who need to adapt and deliver appropriate care [1]. The Health and Social Care Act (UK) [2] recommends equitable access to all, but there is much disagreement about whether the UK's National Health Services (NHS) achieves social justice or fairness [3]. There is mounting pressure on healthcare providers, specifically the primary care service, to deliver appropriate care and accessible resources to the growing population of people in the UK who are ethnically diverse, and getting older [4, 5, 6]. Policy recommendations and guidelines reflect the varied healthcare needs of minority ethnic communities and practitioners are encouraged to assess South Asian patients for health risks, such as diabetes, at an earlier age than the general population [7]. However, lifestyle recommendations can fail to consider the heterogeneity within minority ethnic communities, including socio-cultural and religious nuances that may deter patients from engaging with health services or consolidate difficulties in finding suitable information [8]. Members of the South Asian community have an elevated cardiovascular risk [9] with individuals from the Pakistani community residing in some of the most socio-economically deprived areas [10].

Healthcare does not exist in a social vacuum, as individuals are affected by internal factors (i.e. personal behaviours) and external factors (e.g. immediate surroundings). Socio-cultural influences play an important role in the development of health related behaviours [11]. The theory of social capital aims to understand how access to available social resources (support and information) that may enable healthy behaviours is influenced by an individual's social networks, trust, and cultural norms [12, 13]. There is a scarcity of health care research exploring the effects of social capital in minority ethnic population; however, there is research within the context of social support, where social support is explored qualitatively to gain insight into the initiation and maintenance of healthy behaviours [14, 15, 16, 17]. Although theories differ in their definition of social support, it can be

broadly understood as "aid and assistance exchanged through social relationships and interpersonal transactions, and includes four distinct types of support: (a) emotional support, including expressions of empathy, trust, caring, (b) instrumental support, including tangible aid or service, (c) appraisal support, including information that is used for self-evaluation, and (d) informational support, including advice, suggestions and information" [18]. Social support can be viewed as assistance given within a system or network of support which can be emotional (caring, trust), instrumental (tangible aid), or informational/appraisal (helping to solve a problem) [19]. This type of social support [18, 19] can counter experiences of racism and encourage the pursuit of non-discriminatory healthcare within the parameters of the community's norms [20, 21]. The support may be more widely available in an area of 'ethnic density' where a large proportion of ethnic minority residents can mitigate the detrimental effects of racism on health through social networks and supportive communities [22]. Social networks and network based support are important in the prevention and management of health conditions, including self-care, which can alleviate some of the demands placed on healthcare professionals [23]. For the purpose of this synthesis, social support was used as a proxy for social capital to understand social networks and cultural norms, and consequently an individual's ability to access emotional, instrumental, and material aid from their network of family and friends [13, 18].

Despite playing an important role in the area of self-management, social support is accessed differently by Europeans and South Asian people, as diverse social resources are utilised by each community group [21, 24]. The negative aspects of social support can include the absence or withdrawal of social support for a particular activity within a social network. In a bid to maintain in-group protection, individuals may shape their health goals and targeted behaviour, which can involve acceptance of common social norms and practices where the pursuit of 'culturally novel' health activities can lead to disagreement or exclusion, e.g. preferring an individual meal pattern as opposed to communal eating [21, 23, 25]. Individuals who limit socialising can have a lack of

awareness for a broader range of health benefits, including the advantages of exercise (Lawton). Such behaviour can be interpreted as a social dynamic, as it is a consequence of the group's behaviour or interactions of individuals within the group [27].

Members of the Pakistani community who practice *Islam* face high levels of discrimination, which has an impact on their physical and mental health exacerbated by the tension between practising 'traditional' or 'modern' (Western) lifestyles [28]. For example, Pakistani women may avoid non-segregated exercise facilities in order to maintain culturally and religiously advocated veiling [29, 30]. Decisions about preventive activities may be based on the level of family and community support available to pursue them. This creates a need for health workers to consider the external influences on the attempts made by an individual to address the prevention of non-communicable diseases, such as cardiovascular disease (CVD).

Qualitative research has been conducted with South Asian communities to understand their experiences and views on CVD prevention; however, reviews synthesising their perspectives tend to report on mixed ethnic cohorts and cluster South Asian participants into homogenised groups [17, 31, 32, 33]. Therefore, the purpose of this qualitative synthesis is to identify and critically evaluate existing qualitative literature on social support (including the availability of instrumental, emotional, and material aid) related to health/CVD prevention, across the community, within familiar social networks, and intimate relationships (consisting of friends and family). Social support will be explored in relation to CVD prevention amongst the migrant Pakistani community. The synthesis also aims to interpret findings to provide insight into social support and relationships, alongside any social, cultural or religious dynamics that may emerge as influencing CVD prevention in 1st and 2nd generation Pakistani migrants.

2. Methods

A meta-ethnography approach has been used in this qualitative synthesis to compare, analyse and develop the interpretations made by study authors [34, 35]. This method synthesises the findings across different qualitative studies to provide a comprehensive understanding of a particular phenomenon, in comparison to an integrative approach that is limited by summarising findings across the literature. Initially the review included studies focusing on the importance of social capital; the outlook was then widened to include social support or networks. The overall aim of the synthesis is to understand social dynamics in Pakistani communities and their implications for preventative actions.

Literature was systematically identified, collated and appraised drawing on guidelines from CASP, PRISMA and Cochrane [36, 37, 38].

2.1 Search strategy

Systematic online searches were conducted between August 2013 and September 2015 in databases from social, medical and psychological research fields including Web of Knowledge, MEDLINE, EMBASE, ASSIA, IBSS, Science Direct, CINAHL and APA PsycNET. Reference lists of retrieved articles were searched manually and authors were contacted to provide unpublished or published papers that were not openly accessible. EndNote reference manager (Version X5) was used to store references and remove duplicate papers.

2.2 Search terms

A scoping search was completed to identify key terms and phrases, authors and journals pertaining to social capital, CVD prevention, and the Pakistani migrant community. As there was a dearth of literature, the scoping search terms were disassembled into relevant or associated 'proxy' terms. For

example, social capital was deconstructed to social support, trust, cultural norms, and social networks (Table 1).

Search terms within the main categories of social capital, CVD prevention, Pakistani community, and qualitative research were combined using the BOOLEAN term 'OR'. The results of these searches were combined using 'AND'.

2.3 Inclusion criteria

Peer-reviewed qualitative literature published in English, between 1960 and 2015, with a Pakistani, Muslim, or mixed-ethnic migrant sample consisting of 1st or 2nd generation community members aged 18 and above were included in the synthesis.

A focus was maintained on primary CVD prevention (e.g. through diet and exercise) and how social support can help or hinder it. Studies were included only if they were conducted in high-income 'developed' countries (such as Canada or the UK).

2.4 Quality assessment and data extraction

The CASP quality assessment tool was used for appraisal [38]. Two reviewers (FK, PG) filtered papers at the title and abstract level based on the inclusion criteria and eligibility checklist. Three reviewers (FK, PG, and SG) assessed the quality of full text papers and reviewed each stage independently. Any disagreement or discrepancies over inclusion or exclusion were resolved through discussion between the three reviewers. Data extraction was completed using the Cochrane qualitative systematic review framework, which provided a uniform method for obtaining data [37]. Papers were initially categorised into five main topics based on the preventative behaviour they explored [39]. The topics included: 1) physical activity, 2) socio-cultural models of CVD, 3) quality of life and decision making, 4) dietary habits, and 5) smoking.

2.5 Synthesis

The findings were synthesised using meta-ethnography techniques that included translation of findings across different papers (e.g. understanding whether a similar phenomenon was described using different terms or frameworks) and re-interpretation of these findings to provide conceptual insights and novel interpretations [34]. The 1st order interpretations (summarised views of the participants in the study) and 2nd order interpretations (more abstract findings and interpretations) were synthesised and agreed by the reviewers (FK, PG, SG) into 3rd order interpretations that extended beyond the original results [40]. Full text papers included in the synthesis were placed into a cohesive table that incorporated new insights, increased the possibilities for interpretation and maintained a connection to the original findings [41]. Three papers were randomly selected to form an initial thematic structure to reduce bias and preclude authors from selecting papers closest to their own understanding [42]. The thematic structure was used to organise the remaining papers, where categories were added and altered with the addition of each paper as an iterative process as findings were compared and contrasted for similarities and differences.

3. Results

Of 2,763 papers identified, 56 qualified for full text article review, with 40 papers excluded, resulting in 16 papers for quality assessment. Papers were excluded if the research population was undefined, quantitative methodology was used, or health conditions were not related to CVD prevention or social interactions (Figure 1).

3.1 Critical appraisal and quality assessment

The quality of research was determined by categorising the articles as either conceptually relevant 'key papers' or papers that while being descriptive still made an 'important contribution' to the aim and scope of the synthesis [34, 39].

The methodological rigour of the studies included in the synthesis was assessed by appraising the conduct of the studies, including 'research quality' and 'cultural competence'. Research quality for the studies was defined by using CASP headings for reliability, validity and rigour [38].

The reviewers defined cultural competence as researchers' ability to reflect on the data collection process and determine whether appropriate validation from participants' perspective was sought on the research process and outcomes [43]. Research with multilingual, multi-ethnic participants should reflect their needs and overcome language barriers and community specific cultural or religious concerns. This included matching participants to researchers by gender or ethnicity, choice of either focus group or interview, data collection in participant's preferred language, piloting interview guides, and incorporating feedback from other participants themselves, bilingual researchers or other link workers to achieve an in-depth understanding of cultural nuances [4, 44, 45, 46, 47] (Table 2).

3.2 Interpretation of themes

The 3rd order constructs were developed via extraction and interpretation of 1st (descriptive) and 2nd order (explanatory) constructs (Figure 2). Social capital was included in the search of the databases, but social support developed as a key concept due to its importance in personal relationships, family networks and wider communities. The synthesis resulted in two major themes; 1) Family dynamics and 2) community dynamics influenced by discrimination (Figure 1). Participant quotes were referred to but not used for a formal secondary analysis [40, 48].

3.2.1 Family dynamics: family influence on culturally appropriate behaviours

Prioritising familial obligations

Participants placed an emphasis on prioritising familial obligations and considering the influence of their socio-cultural environment on their behaviour. As a Pakistani female participant noted, "Women cannot go out. You have to cook and provide meals at the right time" [26]. Male and

female participants often commented on the differences in their ability to change their own behaviour or influence the behaviour of their family members. For example, male participants were concerned with occupational stress and expectations to provide for their family, whereas female participants were expected to prioritise their domestic and familial duties [32]. By exercising for personal benefits, some participants were concerned with being viewed as selfish [46], for taking away resources (such as time and energy) from their responsibility towards the betterment of their family and investing in activities that would only benefit themselves. Therefore, implied gender dimensions, familial role obligations including familial cohesion, jobs or housework can be prioritised and less importance is attributed to health or making changes to improve quality of life [4]. Well-being as a consequence of eating a healthy diet or exercising is viewed as a non-essential activity few can afford when conflicting familial expectations are being negotiated, such as cooking or working overtime. Physical health becomes a concern when it interferes with cultural norms or poses a serious concern to an individual's health.

Across the studies, participants described diet and exercise as non-essential activities where community members are expected to firstly, contribute to the economic development of the family, and secondly, prioritise cultural symbolism in relation to gender roles, such as women looking after children.

Socio-cultural concerns when accommodating Western practices and values

The pressure to maintain socio-cultural expectations whilst simultaneously addressing Western influences presented itself as a challenge for members of the South Asian community. Male participants struggled to socialise in Westernised workplaces that resulted in isolation, lack of informal support, language barriers, and inability to access essential services or communicate with key professionals, whilst women faced social isolation as a result of their traditional South Asian housewife status. Where male participants described limited time to exercise [49], women struggled

to find appropriate activities and support, despite the sense of 'achievement' associated with exercising [32]. Participants felt male stereotypes were reinforced by South Asian media and should be replaced by community role models who promote healthier lifestyles with a greater emphasis on familial health. The socio-cultural value attributed to food and tobacco products signified the outward representation of ethnicity and tradition used to strengthen social ties within South Asian minority sub-groups [14].

3.2.2 Health care related discrimination and community dynamics

Study participants reported instances where they encountered prejudiced treatment in primary care settings or from local community members. The perceived discrimination in healthcare settings decreased their likelihood of adhering to advice on the uptake of physical activity [17].

Discrimination within and outside of minority groups

Racism from White British people and the behaviour of fellow South Asian neighbours were cited as issues when trying to adjust to Western norms. This was described by one male Pakistani participant "We live in fear. Especially when you go to the park and White children call you *Paki*". Participants reported concern over sending family members, especially children, to public spaces unaccompanied, if the area was unfamiliar, or if they could be seen by disapproving neighbours from their community [16, 26]. Both overly vigilant neighbours and racism were associated with avoiding public spaces for physical activity and coping behaviours, such as over indulgence in food. Strong internal identities developed as a consequence of dealing with racism and participants sought relief through spirituality within familial social groups and limited ethnic diversity within their social networks. Individuals who felt victimised outside of culturally familiar spaces or helpless within their own ethnically similar social groups were forming stronger affiliations with people from very similar backgrounds and limiting their access to social resources found in other communities (e.g. help or information) [4].

Patients feeling neglected by GPs unwilling to listen

Discrimination, including within health contexts, influences community dynamics between South Asian minority ethnic groups and the wider population. In particular, the doctor-patient relationship was discussed as a reflection of how professionals or non-minority ethnic groups view ethnic minority community members. Mir and Sheikh's [50] study of Pakistani Muslims with chronic illnesses and their doctors found that discrimination from healthcare practitioners further increased health risks to patients due to the lack of continuous dialogue between health professionals and patients that was required to make behaviour change. Participants felt neglected by healthcare practitioners (GPs) who were unwilling to listen to or understand their physical or emotional problems, such as anxiety relating to over-reliance on medication. The views of health practitioners were incorporated with data collected from participants to provide greater insight into South Asian community members' experiences of health. Health practitioners reported limited confidence in their level of cultural competence when discussing health beliefs with members of minority ethnic groups and at times underestimated patients' ability to manage their own health, illness and disease. This created an atmosphere of perceived exclusion during the consultation that affected patients' emotional and physical well-being. Participants felt healthcare service providers should not draw on assumptions based on static interpretations of social identities that discriminate based on membership of a particular ethnic group, but consider individual circumstances before recommending lifestyle change [50]. In the context of discussing how preventative services such as exercise programmes are promoted, participants felt tailored, oral information that accommodated cultural identities and social relationships as most appropriate for their needs [51].

Participants noted that communication with health practitioners who failed to consider culture, religious or social circumstances of their patients demotivated them from any initiation or maintenance of behaviour change [50].

4. Discussion and conclusion

4.1 Discussion

4.1.1 Conceptualising social support and community dynamics

Our findings illustrate the complexities of social support and the influences of family and community dynamics on an individual's health behaviours.

Based on participants' views and authors' interpretations, we can understand how gender-based roles resonate with the experiences of first-generation migrants, where families depend on men to provide income whilst women care for their families at home. Therefore, both economic and cultural influences inform family dynamics, which in turn influence health behaviours that should be advocated by practitioners.

As a consequence of exploring social support in relation to CVD prevention in the migrant Pakistani community, the synthesis highlighted the importance of understanding shifting social and cultural dynamics that impact on an individual's ability to seek and access instrumental, material and emotional support. Social support has numerous definitions, however, a detailed inspection of the studies included in the synthesis helped determine similarities in their core understanding of social support in relation to prevention [52]. This included encouragement and approval for behaviour change from family and friends as emotional support, and instrumental support e.g. taking time to assist with translating conversations between doctors and patient [18, 19].

Our findings show that acknowledging the realities within which advice or support is offered may be invaluable. Primary care health practitioners can benefit from recognising the ethnic diversity within their patient groups, the level of cultural competency of their current prevention services, and any barriers to service provision [53]. As a consequence of taking these actions, healthcare providers can better incorporate culture, cross-cultural relationships, and better understand the dynamics that arise from cultural differences in developing tailored services [53].

Arguably, social and cultural dynamics need to be considered in multi-ethnic communities where individuals are often confronted with the challenges of intercultural healthcare, and are trying to

find a balance within the context and dynamics [54] of two (at times more) cultures. Healthcare advice should be circumstantial and appreciate that the likelihood of adherence to a behavioural change or lifestyle recommendation is not dependent solely on the individual or the availability of social support, but also how these actions (or inactions) can affect the dynamics within their family and community [55].

According to Christakis and Fowler [56], members of the same minority-ethnic group may share exposure to common socio-economic (e.g. demographic attributes) or environmental factors (e.g. viewing certain health campaigns) that may result in positive behaviour change, such as quitting smoking. However, group dynamics and interpersonal interactions may provide better understanding of how these actions take place. Neighbours, family members and the community can play varying roles in determining individual action or behaviour.

4.1.2 Strengths and limitations

A key strength of this synthesis is the identification of cultural barriers to healthcare delivery involving providers being sensitive to the needs of the diverse familial and community dynamics of the Pakistani population. Although factors such as empowerment and understanding of healthcare services have been mentioned in previous reviews, the current synthesis has identified more specific underlying components, such as the need for community role models, assessing causation of cardiac events, women's healthcare requirements, and highlighting diversity within ethnic minority populations where health choices are affected by specific socio-cultural influences [16, 39, 57].

Limitations of this research include the sampling technique applied by some studies e.g. use of convenience sampling that can bias the nature and interpretation of findings [15, 49]. Some studies had a very small sample of Pakistani members and it was difficult to draw strong (as well as applicable) conclusions from these. There was still a tendency to focus on the needs of migrant non-

English speaking participants, with limited findings that focused on the English speaking 2nd generation.

Although most of the studies included in the synthesis had a mixed South Asian cohort, the papers made it explicit, where possible, when Pakistani participants expressed their views. Furthermore, some papers used similar theoretical frameworks that helped to compare and contrast findings in order to draw out key conclusions. Consequently, a sizeable number of papers are included in the synthesis with a large overall sample size of participants resulting in a nuanced interpretation of care needs in an established multi-generational community. A detailed systematic approach was taken to complete the synthesis by multi-skilled reviewers who analysed the themes.

4.2 Conclusion

By exploring the socio-cultural dynamics that are important for members of the Pakistani community when making lifestyle choices, the synthesis emphasises the need for community based health initiatives. The aims addressed in this synthesis point towards a need to further develop and/or adapt existing healthcare programmes and interventions to fully benefit service users from the Pakistani Muslim community. Whilst trying to minimise stereotyping and prejudice is important, the implementation of any interventions requires endorsement from community members en masse. As a consequence of varying, multi-faceted socio-cultural factors embedded in the Pakistani community, it is not possible to simply address health inequalities by creating interventions or campaigns that address specific health problems without fully considering which lifestyle choices are or are not likely to be accepted by community members.

Diversity within communities adds to the complexities healthcare providers face when addressing these inequalities. An investigation of perceived social support and information accessed through professional or personal pathways could lead to a greater understanding of how individuals from minority ethnic sub-groups negotiate complex identities and shifting social circumstances in the

formation, management and maintenance of lifestyle change. Specifically, how social networks function to provide access to health resources can vary for men and women across different generations of the Pakistani community.

4.3 Practice implications

The synthesis contributes to the dialogue on minority ethnic healthcare needs and highlights the need for policymakers and practitioners to make lifestyle recommendations that consider the socio-cultural context within which patients are encouraged to make behavioural changes.

Findings from this synthesis highlight the importance of pluralistic identities [58] and how they shape the way in which members of the Pakistani community engage with professionals and community members when seeking lifestyle advice and information. The aforementioned themes have described the influence of family and community dynamics. Specifically, gendered, generational and cultural dynamics might impact on participants' ability to actively undergo behaviour change, such as alternative cooking techniques and opportunities to exercise in public spaces. Healthcare practitioners can benefit from understanding patients' individual circumstances before making lifestyle recommendations in order to limit stereotyping [50]. Patients should be able to communicate openly with practitioners who provide a comfortable, trustworthy and secure environment to discuss health choices. Otherwise, patients may continue to feel disengaged and unmotivated to participate in services that promote better health within and outside of healthcare settings. Authoritative communication styles used by some practitioners to talk to minority ethnic patients, especially those who are non-compliant, can result in discomfort and reluctance to engage [59]. Where participants lack interpersonal support from family, peers or other healthcare professionals, institutional and community services can help promote adherence to healthy behaviours e.g. physical activity [32]. A more patient-centred approach with greater contextual care (convenience of care, communication, delivery and personally relevant outcomes) may help practitioners to understand barriers to behaviour change [60].

The findings suggest the benefits of healthcare practitioner training to enhance their cultural competence. For example, health practitioners with a greater awareness of cultural gender norms that affect health behaviours can promote women's exercise groups to encourage participation of isolated community members [47].

Conflict of interest

The authors are not aware of any conflict of interest in regards to this manuscript.

Author contributions

FK carried out the literature searches. FK, SG and PG reviewed the searches for inclusion at title, abstract and full text level. FK carried out data extraction. FK, SG and PG carried out the quality assessment for literature and synthesised the findings with input from AL and MS. AL contributed to the quality assessment criteria for papers. PG and LT contributed to the initial idea which was later developed by FK, SG, MS and AL. FK wrote the paper. All authors have read and approved the final manuscript.

Acknowledgements

We wish to thank the Library Services and support staff at the University of Birmingham for their contribution to the literature search. This study was funded by the University of Birmingham and carried out in fulfilment of a PhD studentship.

Key words

Cardiovascular disease; social support; qualitative synthesis; meta-ethnography; minority ethnic; Pakistani; Muslim

References

1) Bhopal, R. Medicine and public health in a multiethnic world. *J Public Health*; (2009) 31: 315-321.

2) Health and Social Care Act (2012)*, c.7*. Available at: http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted (Accessed: 21 December 2016).

3) Dixon-Woods, M., Sutton, A., Shaw, R., Millet, T., Young, B., Bonas, S., Booth, A. and Jones, D. Appraising qualitative research for inclusion in systematic reviews: a quantitative and qualitative comparison of three methods. *J Health Serv Res Policy*, (2007) 12, 42-7

4) Moriarty, J.O. and Butt, J. Inequalities in quality of life among older people from different ethnic groups. *Ageing and Society,* (2004) 24, 729-53.

5) Boneham, M.A. and Sixsmith, J.A. The voices of older women in a disadvantaged community: Issues of health and social capital. *Social Science & Medicine,* (2006) 62, 269-79.

6) Lievesley, N. (2010) *"Older BME people and financial inclusion report: The future ageing of the ethnic minority population of England and Wales"*. London, Centre for policy and ageing

7) NICE (2012) *Type 2 diabetes: prevention in people at high risk*, Available: https://www.nice.org.uk/guidance/ph38/resources/type-2-diabetes-prevention-in-people-at-high-risk-1996304192197 (Last accessed: 1st September 2016)

8) NICE (2011) *Type 2 diabetes prevention: population and community-level interventions*¸ Available at: https://www.nice.org.uk/guidance/ph35/resources/type-2-diabetes-prevention-population-and-communitylevel-interventions-1996299153349 (Last accessed: 1st September 2016)

9) Gill, P.S.**,** Kai, J., Bhopal, R.S., & Wild, S. (2007) Health Care Needs Assessment: Black and Minority ethnic Groups. In: Raftery J, Stevens A, Mant J (Ed) *Health Care Needs Assessment. The epidemiologically based needs assessment reviews.* Third Series. Abingdon: Radcliffe Publishing Ltd.

10) Kenway, P. and Palmer, G. (2007) *"Poverty among ethnic groups how and why does it differ?*" Joseph Rowntree Foundation

11) Bush, J., White, M., Kai, J., et al. Understanding Influences On Smoking In Bangladeshi And Pakistani Adults: Community Based, Qualitative Study*. BMJ: British Medical Journal,* (2003) 326, pp. 962-965.

12) McLean, S.L., Schultz, D.A. and Steger, M.B. (eds.) (2002) *Social capital: critical perspectives on community and "Bowling alone*" USA: New York University press

13) Lin, N. (2001) *Social capital: A theory of social structure and action* New York Cambridge University Press.

14) Mukherjea, A., Morgan, P.A., Snowden, R.L., Ling, P.M., Ivey, S.L. 'Social and cultural influences on tobacco-related health disparities among South Asians in the United States ', *Tobacco Control*, (2011) 21, 422-28

15) Mellin-Olsen, T. and Wandel, M. Changes in food habits among Pakistani immigrant women in Oslo, Norway*. Ethnicity & Health,* (2005) 10, pp. 311-39.

16) Jepson, R., Harris, F.M., Bowes, A., et al. Physical Activity in South Asians: An In-Depth Qualitative Study to Explore Motivations and Facilitators. *PLoS ONE,* (2012) *7*.

17) Horne, M. and Tierney, S. What are the barriers and facilitators to exercise and physical activity uptake and adherence among South Asian older adults: A systematic review of qualitative studies. *Preventive Medicine*, (2012) 55, 276-84.

18) Fleury, J., Kwllwe, C. and Perez, Z. Social support theoretical perspective. *Geriatr Nurs*, (2009), 30, 11-14

19) Langford, C.P.H., Bowsher, H., Maloney, J.P. et al. Social support: a conceptual analysis. *Journal of Advanced Nursing*, (1997), 25, 95-100

20) Leary, M.R. and Baumeister, R.F. (2000*) "The nature and function of self-esteem: Sociometer theory".* In Mark, P.Z. (Ed.) Advances in Experimental Social Psychology. Academic Press 1-62.

21) Rutland, A., Killen, M. and Abrams, D. A new social-cognitive developmental perspective on prejudice: the interplay between morality and group identity. *Perspectives on Psychological Science,* (2010) 5, 279-91.

22) Becares, L., Nazroo, J. and Stafford, M. The buffering effects of ethnic density on experienced racism and health. *Health & Place*,(2009), 15, 700-708

23) Giannakakis, A.E. and Fritsche, I. Social Identities, Group Norms, and Threat: On the Malleability of Ingroup Bias. *Personality and Social Psychology Bulletin,* (2011) *37*, 82-93.

24) Pollard, T.M. and Guell, C. Assessing Physical Activity in Muslim Women of South Asian Origin. *Journal of Physical Activity & Health,* (2012) 9, pp.970-976.

25) Steinel, W., Van Kleef, G.A., Van Knippenberg, D., et alHow intragroup dynamics affect behaviour in intergroup conflict: The role of group norms, prototypicality, and need to belong. *Group Processes & Intergroup Relations*. (2010), 13, 779-94.

26) Lawton, J., Ahmad, N., Hanna, L., et al. 'I can't do any serious exercise': barriers to physical activity amongst people of Pakistani and Indian origin with Type 2 diabetes. *Health Educ Res,* (2006) 21, 43-54.

27) Tuma, N.B. and Hannan, M.T. (1984) Social dynamics models and methods. Academic Press Inc. Florida.

28) Laird, L.D., de Marrais, J. and Barnes, L.L. Portraying Islam and Muslims in MEDLINE: a content analysis. *Soc Sci Med,* (2007) 65, 2425-39.

29) Lawrence, P. and Rozmus, C. Culturally Sensitive Care of the Muslim Patient. *Journal of Transcultural Nursing,* (2001) *12*, 228-33.

30) Johnson, M.R.D. Perceptions of barriers to healthy physical activity among Asian communities*. Sport, Education and Society,* (2000) *5*, 51-70.

31) Galdas, P.M., Ratner, P.A. and Oliffe, J.L. A narrative review of South Asian patients' experiences of cardiac rehabilitation. *Journal of Clinical Nursing,* (2012) 21, 149-59.

32) Netto, G., Bhopal, R., Lederle, N., et al. How can health promotion interventions be adapted for minority ethnic communities? Five principles for guiding the development of behavioural interventions**.** *Health Promotion International,* (2010) 25, 248-57.

33) Koshoedo, S.A., Paul-Ebhohimhen, V.A., Jepson, R.G., Watson, M.C., 'Understanding the complex interplay of barriers to physical activity amongst black and minority ethnic groups in the United Kingdom: a qualitative synthesis using meta-ethnography', *BMC Public Health*, (2015) 15, 1-16.

34) Embuldeniya, G., Veinot, P., Bell, E., Bell, M., Nyhof-Young, J., Sale, J.E.M. and Britten, N 'The experience and impact of chronic disease peer support interventions: a qualitative synthesis', *Patient Education and Counselling,* (2013) *92*, 3-12.

35) Malpass, A., Shaw, A., Sharp, D., Walter, F., Feder, G., Ridd, M. and Kessler, D. '"Medication career" or "Moral career"? The two sides of managing antidepressants: a meta-ethnography of patients' experience of antidepressants', *Social Science & Medicine,* (2009) *68*, 154-68.

36) Moher, D., Liberati, A., Tatzlaff, J., et al. Preferred reporting items for systematic reviews analyses: the PRISMA statement*. PLoS Med,* (2009) *6*.

37) Noyes, J. and Lewin, S. (2011) *"Chapter 5: Extracting qualitative evidence"* in Noyes, J., Booth, A., Hannes, K., .Harden, A., .Harris, J., Lewin, S. & Lockwood, C. (Eds.) Supplementary guidance for inclusion of qualitative research in Cochrane systematic reviews of interventions. Cochrane collaboration qualitative methods group

38) CASP (2013) *CASP qualitative research* [online]. http://www.casp-uk.net/ [Accessed 09/13]

39) Dixon-Woods, M., Cavers, D., Agarwal, S., et al. Conducting a critical interpretive synthesis of the literature on access to healthcare by vulnerable groups. *BMC Med Res Methodol,* (2006), *6*.

40) Coughlan, M., Cronin, P. and Ryan, F. *'Synthesising the literature ',* in Coughlan, M., Cronin, P. and Ryan, F. (ed.) Doing a Literature Review in Nursing, Health and Social Care: SAGE Publications. Croydon: Sage, (2013), 103.

41) Britten, N., Campbell, R., Pope, C., Donovan, J., Morgan, M. and Pill, R. 'Using Meta-ethnography to synthesise qualitative research: a worked example', *J Health Serv Res Policy*, (2002), 7, 209-15.

42) Orwin, R.G (2003) *'Evaluating coding decisions'*, in Cooper, H and Hedges, L.V (ed.) The handbook of research synthesis. New York: Russel Sage Foundation, pp. 143.

43) Cottrell, R.R. and McKenzie, J.F. (2005) Health promotion & education research methods: using the five-chapter thesis/dissertation model. Jones and Bartlett Publishers, USA

44) Bonevski, B., Randell, M., Paul, C., Chapman, K., Twyman, L., Bryant, J., Brozek, I and Hughes, C. Reaching the hard-to-reach: a systematic review of strategies for improving health and medical research with socially disadvantaged groups, *BMC Medical Research Methodology*, (2014) 14, DOI**:** 10.1186/1471-2288-14-42

45) Ludwig, A.F., Cox, P. and Ellahi, B. Social and cultural construction of obesity among Pakistani Muslim women in North West England. *Public Health Nutr,* (2011)14, pp. 1842-50.

46) Sriskantharajah, J. and Kai, J. Promoting physical activity among South Asian women with coronary heart disease and diabetes: what might help? *Family Practice,* (2007) 24, 71 - 6.

47) Horne, M., Skelton, D.A., Speed, S. and Todd, C. 'Perceived barriers to initiating and maintaining physical activity among South Asian and White British adults in their 60's living in the United Kingdom: a qualitative study ', *Ethn Health,* (2013) 18, 626-45.

48) Shaw, R.L., Holland, C., Pattison, H.M. and Cooke, R. Patients' perceptions and experiences of cardiovascular disease and diabetes prevention programmes: A systematic review and framework synthesis using the Theoretical Domains Framework *Social Science & Medicine*, (2016), 156, 192-203

49) Gany, F.M., Gill, P.P., Ahmed, A., Acharya, S. and Leng, J '"Every disease…man can get can start in this cab": Focus groups to identify South Asian taxi driver's knowledge, attitudes and beliefs about cardiovascular disease and its risks ', *J Immigr Minor Health*. (2013), 15, 986-92.

50) Mir, G. and Sheikh, A. 'Fasting and prayer don't concern the doctors ... they don't even know what it is': communication, decision-making and perceived social relations of Pakistani Muslim patients with long-term illnesses. *Ethnicity & Health,* (2010), 15, 327-42.

51) Kousar, R., Burns, C. and Lewandowski, P. A culturally appropriate diet and lifestyle intervention can successfully treat the components of metabolic syndrome in female Pakistani immigrants residing in Melbourne, Australia. *Metabolism,* 57, (2008), 1502-08.

52) Williams, P., Barclay, L. and Schmied, V. Defining Social support in context: a necessary step in improving research, intervention, and practice. *Qualitative Health Research*, (2004), 14, 942-960

53) Zeh, P., Sandhu, H.K., Cannaby, A.M. et al. Research: Epidemiology. Exploring culturally competent primary care diabetes services: a single-city survey. *Diabetic Medicine*, (2015), 33, 786-793

54) Degire, L., Gastmans, C., Mahiew, :., Dierckx de Casterle, B, and Denier, Y. How do ethnic minority patients experience the intercultural care encounter in hospitals? A systematic review of qualitative research. *BMC Medical Ethics, (2017)* 18, DOI 10.1186/s12910-016-0163-8

55) Miller, T.A. and DiMatteo, M.R. Importance of family/social support and impact on adherence to diabetic therapy. *Diabetes Metab Syndr Obes*, (2013), 421-426

56) Christakis, N.A. and Fowler, J.H. The collective dynamics of smoking in a large social network. *The New England Journal of Medicine*, (2008), 2249-2258

57) Correa, F.P. The evaluation of qualitative research: a reflection from a justice perspective. *Qualitative Inquiry,* (2013), 19, 209-18.

58) Nash, C. Equity, diversity and interdependence: cultural policy in Northern Ireland, *Antipode*, (2008), 37, 272-300, DOI: 10.1111/j.0066-4812.2005.00493.x

59) Scheppers, E., Dongen, E., Dekker, J., Geertzen, J. and Dekker, J. Potential barriers to the use of health services among ethnic minorities: a review. *Family Practice*, (2006), 23, 325-348

60) Saha, S., Beach, M.C. and Cooper, L.A. Patient centeredness, cultural competence and healthcare quality, *J Natl Med Assoc,* (2010), 100, 1275-85

61) Netto, G., McCloughan, L. and Bhatnagar, A. Effective heart disease prevention: Lessons from a qualitative study of user perspectives in Bangladeshi, Indian and Pakistani communities*. Public Health,* (2007), 121, 177-86.

62) Cross-Bardell, L., George, T., Bhoday, M., Tuomainen, H., Qureshi, N. and Kai.. Perspectives on enhancing physical activity and diet for health promotion among at-risk urban UK South Asian communities: a qualitative study. *Qualitative Research BMJ Open*(2015) 5:e007317 doi:10.1136/bmjopen-2014-00731

63) Tirodkar, M.A., Baker, D.W., Khurana, N., Makoul, G., Paracha, M.W. and Kandula, N.R 'Explanatory models of coronary heart disease among South Asian immigrants. Patient education and counselling ', *Patient Educ Couns*, (2011), 85, pp. 230-36.

64) Kandula, N.R., Dave, S., De Chavez, P.J., Bharucha, H., Patel, Y., Seguil. P., Kumar, S., Baker, D.W., Spring, B. and Siddique, J. Translating a heart disease lifestyle intervention into the community: the South Asian Heart Lifestyle Intervention (SAHELI) study; a randomised control trial. *BMC Public Health* (2015). 15 doi 10.1186/s12889-015-2401-2

Table 1. Search words used

Social capital	Ethnicity	Health	Qualitative
Social*	Ethnic*	CVD/CHD	Interview
Social environment	Ethnic groups	Cardiovascular disease	Focus group
Social network	Ethnic diversity	Coronary heart disease	Ethnography
Social Capital	Divers*	Diabetes	Narrative
Sociability	Cultural diversity	Diabetes type 2/II/two	
Social relations	Acculturation	Obese	
Social isolation	Super diversity	Obesity	
Social support	South Asian /British South Asian /Asian	Hypertension	
Family support	Punjab*	Health*	
Famil*	Pakistan*	Health attitude	
Community	Minor* /Minority groups	Health behaviour	
Trust	Ethnic minority groups	High blood pressure	
Neighbourhood*	Ethnic*	Heart disease	
Cultur*	Ethnic density	Diet*	
Cultural norms	Ethnic enclave	Exercise	
Collective*	Ethnic segregation	Eating habits	
Inter/intra personal	Inequalit*	Physical exercise/activity	
Structural influences	Race /Racial	Cardiovascular disease	
Relation*	Racial identity	Cardiovascular risk	
Network ties	Race relations	Health inequalities	
	Racism	Healthy lifestyle	
	Inclusion/ exclusion	Lifestyle	
	UK/Birmingham	Life choices	
	Multicultural*	Smok*	
	Identity	Preventative	
	Ethnic identity	Primary care	
	Islam/Muslim/Punjab*		

Table 2. Description of studies based on topic of research, summary of key findings (1st and 2nd order interpretations), quality assessment, and risk of bias

Topic	Reference	Demographics	Data collection and analysis	Key findings	Methodological and analytical credibility
Physical activity	Perspectives on enhancing physical activity and diet for health promotion among at-risk urban UK South Asian communities: a qualitative study Cross-Bardell *et al*, (2015) [62]	UK 45 respondents, aged 19-67 17 Pakistanis	Interviews and family group interviews Thematic analysis	• Diet is culturally embedded and physical activity is an issue of cost, safety and time management between self and family • Participants preferred spoken, tailored information presented in familiar settings (e.g. home) • Perceived lack of support for prevention/access to services • Cultural identity and social relationships are important factors influencing lifestyles	• Purposeful sample of South Asians living in East Midlands • Use of bilingual female Muslim/Sikh researchers for data collection and checking transcripts for equivalence of meaning • Data analysis was iterative until saturation • Emerging themes were discussed in a multi-disciplinary team
	Perceived barriers to initiating and maintaining physical activity among South Asian and White British adults in their 60's living in the United Kingdom: a qualitative study Horne, *et al* (2013) [47]	UK 87 participants aged 60-60 22 Pakistanis	40 interviews and 15 focus groups Framework analysis	• Intrapersonal (sedentary behaviour, medical conditions), interpersonal (support from family, peers, and professionals), institutional and community (time, gender segregation, exercise on prescription) factors • Anxiety and misunderstanding of sports related injuries • Cultural sensitivity: within group differences on uptake or adherence	• Purposeful sampling from fieldwork observation (informal groups, leisure and volunteer centres) • Study advertised in ethnic enclaves • Translators present to ensure idioms expressed were accurately captured • Transcription by multilingual South Asian researcher • Focus groups based on gender and generation • Independent review of transcripts by researchers • Evaluation of final codes and themes

Promoting physical activity among South Asian women with coronary heart disease and diabetes: what might help? Sriskantharajah and Kai, (2007) [46]	UK 15 women aged 20-70 years living in the UK for 15-40 years 4 Pakistani	Interviews Constant comparison analysis	• Anxiety about vulnerability and potential harm from sports • Weight loss and body image are the main aim for some participants • Exercise beyond daily work is viewed as 'selfish' activity or doing 'Western' sports • Discomfort in exercising in public spaces due to modesty • Constrained by language • Motivation for women: improve appearance and general well-being	• Informal conversations to achieve trustworthy accounts of others experiences • Recruitment at 3 general practices, purposeful sampling for variation in ethnicity (urban and rural) • South Asian female interviewer with piloted interview guide • Multidisciplinary team discussions • Saturation at the 15th interview with no new emerging themes • Participants sent summary of results to confirm analysis • Deviant case analysis • Reflected on data collection process including potential influence of interpreter, and own health and professional backgrounds on their interpretation
"I can't do any serious exercise": barriers to physical activity amongst people of Pakistani and Indian origin with Type 2 diabetes Lawton *et al* (2006) [26]	UK 32 participants aged 18 and over 23 Pakistanis	Interviews Grounded theory	• Roles, norms and responsibilities: obligation to others/anti-social work hours • Cultural norms: married women expected to stay indoors with domestic chores • Migrant women: unfamiliar with socialising/limited knowledge of neighbourhood • Concern of being judged • External constraints: limited culturally sensitive facilities and cold	• Snowballing method: hard to reach participants • Recruitment until saturation • Interview offered in South Asian languages • Bilingual researchers with piloted topic guide • Deviant case analysis • Emerging themes explored with respondents

			climate • Experiences of disease: lethargy, lack of control, experiences of older kin, religious beliefs • Need for professional support	
Physical activity in South Asians: An in-depth qualitative study to explore motivations and facilitators Jepson *et al*, (2012) [16]	UK 59 participants, middle aged 36 Pakistani	Focus groups and interviews Thematic analysis	• Men: intrinsic motivation for social activities e.g. football • Women preferred indoor activities e.g. dance but unsuitable for Muslim women • Families: limited physical activity due to men at work/mosque • Motivation: social interaction, enjoyment, mental well-being (confidence or self-esteem) • Need for role models and leaders	• Purposeful sampling using 'gatekeeper' and community group recruitment for active and inactive participants • Topic guide developed with South Asian researcher • Data collection iterative to saturation • Researchers reflected on their disciplines, ethnic origin (two team members were South Asian), and their perspectives • Multi-disciplinary team discussion on theme development
Attitudes and beliefs to the uptake and maintenance of physical activity among community-dwelling South Asians aged 60-70 years: a qualitative study Horne *et al*, (2012) [17]	UK 46 South Asians aged 60-70 years 33 Pakistani	Focus groups and interviews Framework analysis	• Promotion: benefits of exercise, maintaining independence, social support • Muslim women: segregated areas • Adherence: social support, avoid embarrassment, confidence, psychosocial (achievement), integration into daily routine, commitment to a group • Cultural shift: women exercising for self not perceived society role • Limited knowledge: associating prayer with exercise	• Fieldwork in leisure group to provide opportunities for purposeful sampling • Gender separated focus groups • Sampling to saturation • Translated material

Socio-cultural models of CVD	Explanatory models of coronary heart disease among South Asian immigrants. Patient Education and Counselling Tirodkar, *et al* (2011) [63]	USA 75 participants aged 20-75 58 Muslims 19 Urdu speaking (Pakistanis)	Interviews Grounded theory	• Self-reported risk (familial), explanatory models of CHD • Fate mentioned by lower education/Urdu and Hindi speakers • Women prioritised positive mood over exercise	• Recruitment at leisure and health centres, business districts and referrals • Bilingual interviewer • 10 pilot interviews to develop coding scheme • Inter-coder reliability • Reliability coefficient was 99% between codes after discussions on discrepancies
	Effective heart disease prevention: lessons from a qualitative study of user perspectives in Bangladeshi, Indian and Pakistani communities. Netto, Mcloughlan and Bhatnagar (2007) [61]	UK 55 participants, aged 16 and above 15 Pakistani	Longitudinal focus group study (2 interviews at 6 month intervals) Grounded theory	• Varied knowledge of heart disease and risk factors • Stress of living in West • Exercise not always prioritised as preventative step • Barriers: changing own habits and those of others • Occupational (men), social and familial (women) factors • Body-image • Need for culturally sensitive service provision highlighted to empower users	• Random selection of participants from the *Khush Dil* clinic (previous research) • Information translated • Community worker fluent in South Asian languages • Bilingual health workers • Reduction of participants over time • Inter-rater reliability independent coding of data

Social and cultural construction of obesity among Pakistani Muslim women in North West England. Ludwig *et al*, (2011) [45]	UK 55, Pakistani women	6 focus groups and 10 interviews Ethnographic, phenomenological and sociological analysis	• Urban vs rural backgrounds: different beliefs, education, empowerment, marriage • Colder climate: sweating less, unsuitable traditional diet • Breakfast viewed as 'English' meal with few South Asian items • Cooking: male dominance and elders preference for home cooked • English vs Pakistani food: fast food or traditional meals • 2nd generation women ate more fast food • Increased weight sign of wealth • Multidimensional identity: religious influence (halal) • Exercise viewed as 'selfish' activity	• Recruitment of first- and second-generation women through community centres and snowballing • Trained female Pakistani translator • Use of non-Pakistani moderator • Sampling to saturation • Triangulation: discuss new themes, reduce bias, enhance validity • Framework analysis to interpret themes: Van Manen phenomenology and author's themes
A community and culture-centred approach to developing effective cardiovascular health messages Kandula *et al*, (2012) [64]	USA 58 Hindi or English speaking Indian or Pakistani, all immigrants aged 20-75 years 10 Pakistani	Focus groups and interviews Thematic analysis	• Lack of understanding as to why South Asians are targeted in awareness videos • Community heterogeneity and perceived risk not reflected • Health messages: need to incorporate stress/explanatory models based on familiar experiences/myths of stress and other factors	• Recruitment in health or community centres in densely populated South Asian areas • Snowballing method • Not all words translated to English as no equivalent • Categorical system to describe themes • Team discussion on themes and selection of examples to demonstrate major themes

Quality of life and decision making	"Every disease…man can get can start in this cab": focus groups to identify South Asian taxi driver's knowledge, attitudes and beliefs about cardiovascular disease and its risks Gany, *et al*, (2013) [49]	USA 31 participants aged 18-40 10 Pakistanis	Focus group Thematic analysis	• Fears: safety, income, facilities • Stress associated with CVD and stroke in Urdu/Hindi speakers • Job dissatisfaction: lack of time for family or health, physical discomfort, exhaustion and lack of exercise, cheap food at work • Limited safety and racial attack • Uptake of exercise: leaflets, convenient intervention sites • Limited knowledge/access	• Recruitment at densely populated South Asian areas • Sampling to saturation per language specific group • Focus group in preferred language with multilingual researcher • transcribed and translated • Possible selection bias: small sample, possibly healthier non-participants or younger • Comparison of generated themes and review of final set
	Inequalities in quality of life among older people from different ethnic groups Moriarty and Butt, (2004) [4]	UK 203 Afro-Caribbean, Asian, White and other background Aged 55 and above 13 Pakistani	Interview with open/closed questions Open coding	• Gender, occupational, socio-economic differences in health • Income allocation differences based on ethnicity • South Asian parents had regular contact with children but not additional support • Racism in England • Minority ethnic: lower health expectations than White	• Community centres and snowballing technique • Interview guide piloted in different languages • Matched trained interviewers on gender, ethnicity, language • Interview to saturation • Literacy/sight issues: provided with support • Efforts to avoid fatigue • Inter-rater reliability • The interviewer's gender and ethnicity were taken into consideration as participants may alter their responses to be more socially acceptable. Participants were matched to interviewers on ethnicity (and gender where possible).

"Fasting and prayer don't concern the doctor...they don't even know what it is": communication, decision-making and perceived social relations of Pakistani Muslim patients with long-term illnesses. Mir and Sheikh, (2010) [50]	UK 104 participants aged 18 and above 76 Punjabi/Mirpuri and 3 Urdu speaking	Longitudinal interviews, ethnographic fieldwork with 13 organisations Framework analysis	• Issues with languages • Fear of addiction to medication • Religion: adds meaning to experience of illness/lowers anxiety, important for some in decision making • Stereotypes: absence of dialogue with health providers results in views of oppressed Muslim women (presumed social identity) and fatalism • Perceptions of exclusion effect emotional and physical health • Idealised view of Pakistan due to social exclusion that undermined social capital in immigrant community	• Interviews and observations with patients, carers, General Practitioners, doctors in secondary care and other professionals • Recruitment via primary and secondary care contacts • Topic guide developed with community informants • Participants chose language • Patients/professionals recruited to saturation • Team members checked coding for reliability • Project advisory group: validated preliminary analysis • Analysis based on wider literature • Triangulation • Reflexivity at all stages • Deviant case analysis • Shifting subjectivities used to balance insider/outsider view • Attrition from 25 to 20 participants

Use of tobacco products	Social and cultural influences on tobacco-related health disparities among South Asians in the United States Mukherjea, *et al* (2011) [14]	USA 88 participants aged 18-65 28 Pakistanis	Focus groups and observations of tobacco products in ethnic outlets and cultural events Content analysis and thematic analysis	• Ethnic based perception of use of tobacco products • Some products seen as beneficial to health • Underestimated use of hookah pipe (Shisha) in 2nd generation • Social/cultural value of product • Outward representation of ethnicity and tradition • Used for socialising and distinguishing ethnicity or disadvantaged populations	• Recruitment in ethnic enclaves: flyers, organisations, electronic servers and ethnic media • Translators for idioms to accurately capture perspectives expressed in-language • Transcription by individual proficient in South Asian languages • Focus groups based on gender, generation • Transcripts independently coded by researchers • Complete data sets reviewed
	Understanding influences on smoking in Bangladeshi and Pakistani adults: community based, qualitative study Bush *et al*, (2003) [11]	UK 141 participants, 54 Pakistani Aged 18-80 years	Focus groups and interviews Thematic framework	• Men: bonding and tradition. Macho fashion reinforced by Indian media, stress relief • Women: taboo, effected chances of marriage, fewer opportunities to smoke (culturally and economically) • Youth 'Westernised' by smoking as related to female rebellion • Culturally acceptable for elders to smoke due to lack of knowledge, but youth smoke due to peers • Peer influence on uptake • Islam, tradition and family play role in influencing behaviours	• Community participatory approach for recruitment • Trained bilingual community researchers • Recruitment through religious and non-religious organisations, snowballing and social networks • Researchers matched to participants for language, sex and age as closely as possible • Single sex ethnic focus groups to increase cultural acceptability • Translations compared for consistency • Data generation to saturation • Interpretations discussed with local community researchers and research team

Dietary habits	Changes in food habits among Pakistani immigrant women in Oslo, Norway Mellin-Olsen and Wandel, (2005) [15]	Norway 25 women born in Pakistan in 1955, 1960 or 1970	Focus groups Open coding	• Shift in meal patterns from familial to independent • Traditional meal items replaced • Time taken to adjust • Children born in Norway had preference for different food • Physical activity: important to digest meals in small spaces • Weight gain was related to status • Attitudes changing amongst younger community members	• Purposeful sampling of women involved in the Oslo Health Study • Attrition between focus groups • Use of interpreters • Interpretation of all data rechecked and discussed by researchers • Use of different interpreters could lead to bias or misunderstandings • Careful considerations were given to data analysis including extent and intensity of comments.

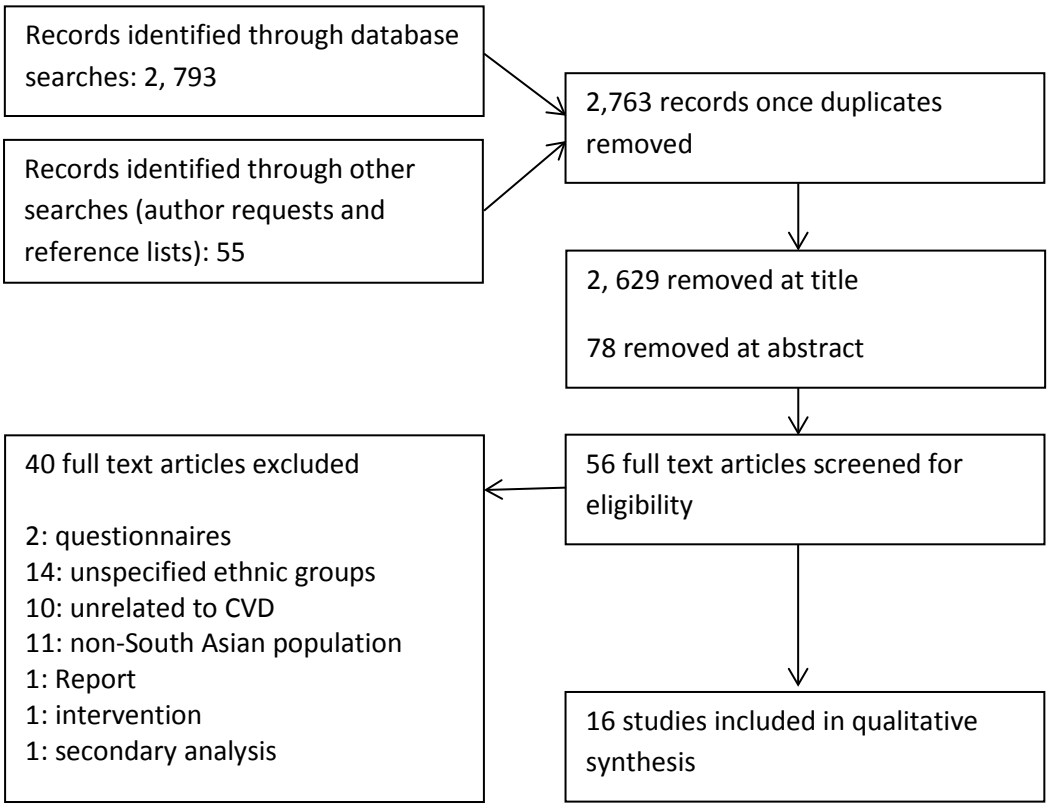

Figure 1. Flow chart of papers included and excluded at each stage

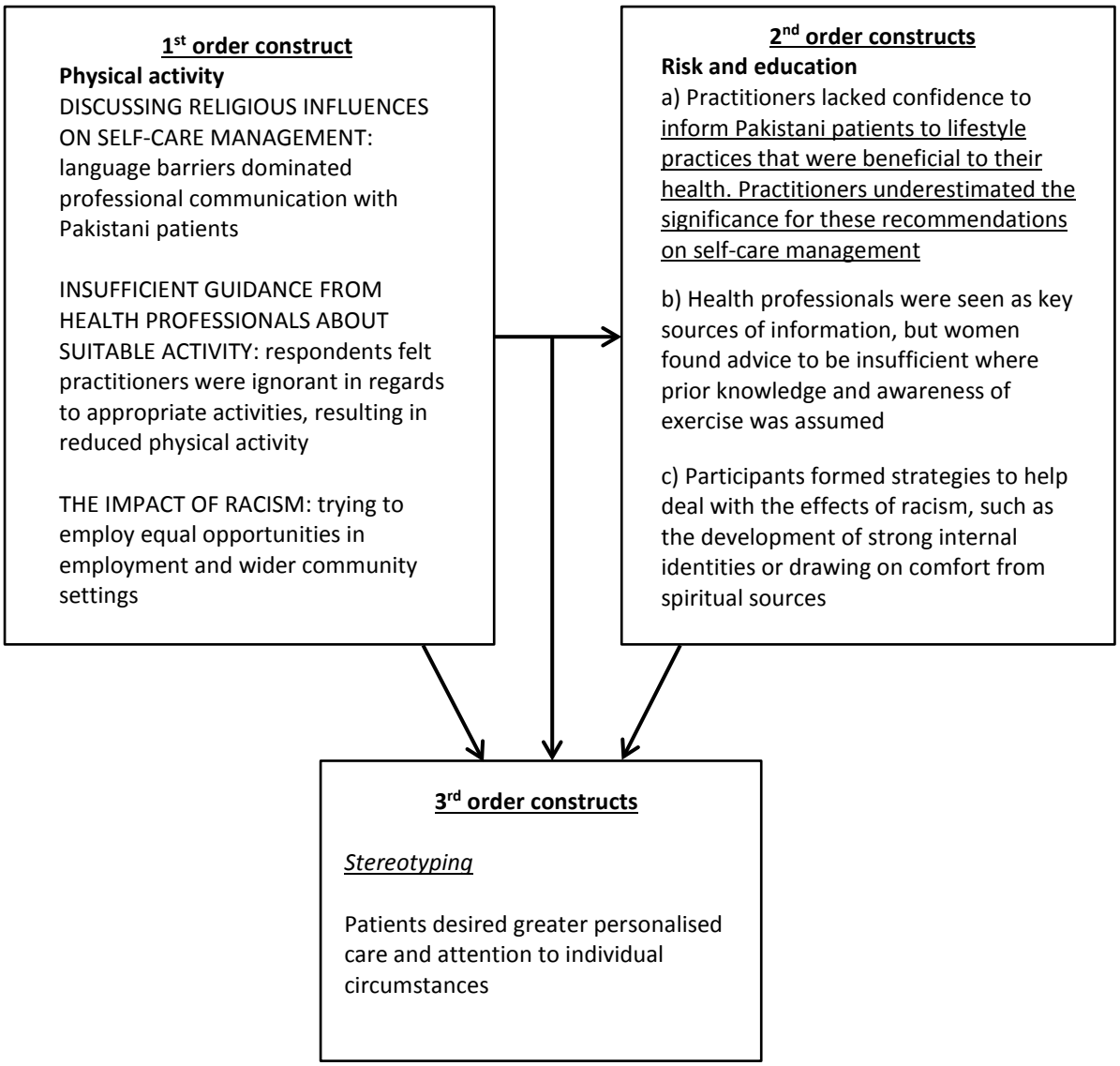

Figure 2. An example of 1st and 2nd order constructs used to develop 3rd order interpretation