

Implementing community-based health promotion in socio-economically disadvantaged areas: a qualitative study

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ABSTRACT

Background There is a gradient relationship between socio-economic status and health. We investigated the views and perceptions of health promotion service providers regarding factors that affect lack of engagement in public health initiatives by residents in socio-economically disadvantaged (SED) communities.

Methods We conducted semi-structured interviews with a purposive sample of key providers ($n = 15$) of community-based health promotion services to elicit their views about engagement-related factors and their experiences of the provision, delivery and impact of health promotion in SED areas. Interviews were analysed using thematic analysis.

Results Failure to (i) recognise within SED communities, socio-cultural norms of health-related behaviour and (ii) communicate to local residents an understanding of complex lifestyle influences appeared to affect adversely service engagement and contribute to the development of negative attitudes towards health promotion. Engagement is more likely when services are delivered within familiar settings, peer support is available, initiatives are organized within existing groups, external incentives are offered and there are options regarding times and locations. Collaborative working between providers and communities facilitates efficient, context-sensitive service delivery.

Conclusions Knowledge of a local community and its socio-environmental context alongside a collaborative, facilitative and tailored approach to delivery are required to ensure successful engagement of SED communities in health promotion.

Keywords communities, health promotion, socioeconomic factors

Background

Despite being potentially preventable by modification of behavioural risk factors such as tobacco use, physical inactivity and excessive alcohol consumption,^{1,2} non-communicable diseases (NCDs) were responsible for 39.86 million (71.5%) global deaths in 2015³ and their prevalence continues to increase.⁴ Prevention is particularly important for socio-economically disadvantaged (SED) communities as they have a higher risk of NCDs than higher socio-economic groups⁵ and also, they are more likely to engage in less healthy behaviours.⁶ Public health initiatives that support health promotion offer an important approach to NCD prevention by advocating adoption of healthy lifestyle behaviours.^{2,7}

However, many individuals living in SED communities do not engage with these services or initiatives; there is

a need to improve our understanding about factors that influence implementation in order to optimize service design and enhance engagement.⁸ The usefulness of ecological approaches to health promotion has been identified:⁹ structural constraints are recognized as social determinants of health but the capability of people to engage in health promoting activities is a key concept.¹⁰ The COM-B behaviour change model,¹¹ a theoretical framework, considers individuals' capabilities, opportunities and motivation. Capturing the experiences of providers of community-based health promotion services has the potential to contribute

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to an improved understanding about implementation and provide a unique ‘real-world’ perspective. Yet, little is known about their views. Thus, this study interviewed providers of community-based health promotion to investigate their views and perceptions regarding factors that affect lack of engagement in public health initiatives by residents in SED communities.

Methods

The study was approved by School of Medicine, Dentistry and Biomedical Sciences, (Queen’s University Belfast) Research Ethics Committee (Application no: 15.48; 10/12/2015).

Participant selection and setting

Belfast communities that were located in the top 25% most SED areas in Northern Ireland were identified using the Northern Ireland Multiple Deprivation measure.¹² We selected a purposive sample ($n = 14$) of lead delivery personnel from 10 voluntary and statutory providers of services that offered general health promotion (or targeted specific health behaviours) in these communities. A key informant from two further provider organizations were included via ‘snowballing’—15/16 key personnel provided informed consent to participate in a research interview (Table 1).

Interview schedule

The semi-structured interview schedule (Additional file 1) was crafted following a literature review of health promotion uptake, revised iteratively in the course of conducting and analysing interview data. Topics included: (1) current service provision, (2) aspects of service delivery, (3) service user characteristics and (4) factors perceived to influence delivery, engagement and uptake of services.

Data collection

Interviews lasted approximately 45 min and were conducted by a female PhD researcher with experience and training in qualitative interviewing, usually in an interviewee’s place of work in January 2016. The researcher had no contact with interviewees prior to interview.

Data analysis

Interviews were audio-recorded, transcribed verbatim and anonymized. Interviews were analysed using thematic analysis.¹³ Transcriptions were read and coded independently by two researchers (ERL, MEC) using an inductive approach.

The iteratively coded contents were reviewed by both researchers and then, via discussion, cross-referencing and comparison, the contents of each subsequent interview, firstly, and then, the 15 transcripts as an entire data set, were grouped into agreed categories and themes.¹³ Data were managed and stored using NVivo software (QSR International Pty Ltd. Version 11, 2015).

Results

The sample comprised 15 participants (nine women) from eight voluntary and seven statutory providers (Table 1). Service provision revolved around physical activity (PA), weight reduction, healthy eating, smoking cessation and mental wellbeing as well as information about opportunities for behaviour practice (e.g. PA), facilitation of social interaction and signposting to relevant support. Our analysis produced three themes (and subthemes): community context, partnership working and service components.

Community context

Social norms and structural barriers

Interviewees acknowledged that there was a multiplicity of complex and interrelated factors within the SED communities in which they worked. Behavioural lifestyle change was not a priority for communities and they tended to show a degree of apathy toward health promotion in the face of more pressing concerns.

‘... people who are most marginalized all the time ... it’s not that they don’t listen, they do listen, but it’s less of a priority for them.’¹

‘...there’s poverty amongst plenty of course which can have a negative effect because a lot of our communities have grown up with a culture of defeatism ...’⁵

Engagement by communities in preventive healthcare was poor and residents tended to rely on healthcare services when they experienced health problems: *‘... we’re not there in terms yet of a preventive culture...’⁷*

Poor health literacy and its relationship with self-efficacy in terms of effecting lifestyle changes was noted by interviewees who commented that, to make a positive impact in SED communities, health information needs to be available, accessible and tailored so that it is understood easily.

‘... health literacy, the knowing what to do, that is often what is lacking.’¹²

Cultural and contextual factors relating to Northern Ireland’s unique political and territorial issues were also perceived to influence service engagement. Often, it was necessary to duplicate the delivery of services in close geographical

Table 1 Characteristics of invited participants and their health promotion services.

Sector	Job role	Service focus	Setting
Voluntary (n = 8)	Providing practical support to community organisations	Diet, PA, smoking, mental health, alcohol, weight management	Leisure centres, community centres, healthy living centres pharmacies, community-hubs
	Delivering chronic illness self-management programmes	Diet, PA, smoking, mental health, alcohol, weight management	Community centres, hospital outpatient building, outdoors
	Delivering exercise-based rehabilitation programmes	PA, weight management	Leisure centres
	Delivering community development health projects	Diet, PA, smoking, mental health, alcohol, weight management, drugs	Community centres, outdoors
	Providing practical support to community organisations	Diet, PA, smoking, mental health, alcohol, weight management	Community centres, community-hubs, outdoors
	Delivering exercise-based rehabilitation programmes	PA, weight management	Leisure centres, community centres
	Delivering health promotion projects	Diet, PA, smoking, mental health, alcohol, weight management, drugs	Community centre
	Delivering physical activity programmes	PA	Leisure centres, community centres, schools, outdoors
Statutory (n = 7)	Commissioner of services	PA	Leisure centres
	Commissioner of services	PA	Leisure centres
	Providing practical support to walking groups	PA	Community centres, outdoors
	Delivering chronic illness rehabilitation programmes	Diet, PA, smoking, weight management	Community centres, healthy living centres
	Commissioning & supporting delivery of projects	Diet, PA, smoking, mental health, alcohol, weight management	Leisure centres, community centres, pharmacies, community-hubs, healthy living centres, schools
	Commissioning & supporting delivery of projects	Diet, PA, smoking, mental health, alcohol, weight management	Leisure centres, community centres, pharmacies, community-hubs, healthy living centres, schools
	Co-ordinating & delivering health promotion projects	Diet, PA, smoking, mental health, alcohol, weight management, drugs	Leisure centres, community centres
Private (n = 1)*	Delivering weight management programme	Weight management	Community centres, church halls, leisure centres

*Participant did not respond to invitation therefore was not interviewed.

PA: physical activity

proximity in order to ensure acceptable equality of access for different political-religious communities.

‘... people of one tradition don’t want to go to a [leisure or community] centre that’s perceived to be the other tradition.’⁴

Setting

Interviewees recognized the importance of delivering services in familiar settings, which reflected a community’s needs and preferences: *‘People want to go through the doors that they know and trust...’*⁷ Attendance was facilitated when venues

were informal, with a relaxed atmosphere: *‘If it’s a very medical building or if they feel they are going to be told off or lectured to ... you isolate people.’¹*

A gym was not viewed as an appropriate setting to promote PA to some community residents: novel opportunities in non-traditional settings (e.g. outdoors) had the potential to encourage interest and participation in healthy behaviours: *‘... a local history trail to keep them involved and keep them excited.’¹⁵* Generally, negative views about hospital-based settings were reported except by one interviewee: *‘It’s almost like a wee reassurance, “like I’m in the hospital”’.²*

The convenience and close proximity of services to people's homes was a perceived strength. Available public transport, convenient parking and choice of time and venue were perceived to be important in making services accessible. However, it was recognized that some people preferred to attend services located outside their community for personal reasons such as avoiding the embarrassment of being seen using these services, so it was important to be able to offer choice of venues.

*'Some folk like to move out of their own community . . . They don't want their neighbours or friends to know.'*⁵

Service users

The data suggested that decisions regarding attendance were influenced by an individual's personal interests. Knowledge about community activities and gender-linked interests and responsibilities was important. For example, concurrent football matches were associated with reduced male attendance. Flexibility in timing was reported to be key to facilitating service use by people with family responsibilities and to overcoming barriers imposed by responsibilities such as employment; evening sessions tended to be oversubscribed: *' . . . to target mothers [at home], you don't do things after school, you do it during school time . . . '*¹ Female engagement was more likely when services were provided in community centres, led by local women, with informal discussions and invited speakers. *'Women are very self-motivated to run lots of groups in the community centres . . . '*⁵

In recognition of financial barriers to participation, most services were delivered free of charge. However, this arrangement appeared to attract participants who lacked motivation to engage fully with some programmes; this mismatch was a source of frustration for service facilitators.

*'Sometimes, you just get people coming in 'cause it's free, with no real intention of committing to lifestyle change and training regularly, so, that's really frustrating.'*⁹

Partnership working

Community input

According to interviewees, successful health promotion was more likely when providers collaborated with a community in service development and delivery. Collaboration stimulated a sense of ownership and personal responsibility, and enabled collection of contextual information and matching needs and services.

*' . . . once you kind of get the community to buy into the positive potential of the work, they will come on board and start sharing their knowledge and their issues and how they're coping.'*⁵

Working as a bottom-up partnership with a local community by involving potential service users in, for example, programme planning and designing enjoyable activities that could be incorporated easily into daily life, was perceived to increase the likelihood of long-term engagement in healthy behaviours.

*'If you give somebody something that they enjoy and they like and they engage in designing that and developing it, they're more likely to do sustained participation.'*⁶

Links between service providers

Interviewees appreciated that different services comprised skills and experiences that, through collaborative working, could enhance community engagement. Generally, working relationships between organizations were perceived to be good and the importance of instigating and maintaining links was recognized, especially in the context of limited funding and provision of holistic services. Good collaboration enabled pooling of resources and better signposting to additional relevant opportunities.

*' . . . partnering a lot of community groups who are in community centres and partnering with other agencies [would] . . . deliver a collective approach.'*⁵

However, collaboration with general practitioners (GPs) appeared to be weak: few referrals were received from GPs.

*' . . . the GP sort of links that could do with being strengthened . . . '*¹¹

Also, interviewees reported that short-term strategies and changing criteria for funding generated uncertainty about ongoing service provision.

*' . . . challenges have always been the limited funding, the changing themes of the funders . . . '*⁵

Service components

User-provider interactions

The need to establish good rapport between service facilitators and users was recognized. According to interviewees, service facilitators required enthusiasm and interpersonal skills to foster successful relationships.

*' . . . it's finding those right people. They need to have certain qualities.'*¹⁴

Regular contact between service providers and users was perceived to provide support and encouragement that helped maintain motivation and positive lifestyle change.

*'The reasons that self-management works so well is that we keep a lot of contact with people in between times.'*²

However, interviewees reported that service users often perceived that health professionals failed to acknowledge the complex nature of barriers to positive behaviour change in interactions or in programme content. Professionals who failed to communicate an awareness of these barriers tended

to be received negatively, thereby diminishing the potential positive impact of their efforts and information.

*'It's not all about professional knowledge but understanding the context.'*¹

*'... some facilitators, unfortunately... can be very dismissive.'*⁵

Group-based health promotion

Group-based service delivery provided opportunities, particularly for those who were socially isolated, to develop friendships and gain social support for healthy lifestyle change. This was perceived as a key component of an effective service.

*'... the camaraderie that they build up and the peer support...'*²

*'... engage with people who are marginalized, or slipping through the net, or who are lonely...'*¹

Interviewees commented that seeking to embed their services in pre-existing groups helped to capture interest and improve uptake.

*'... I'll go to the group, meet them on their own turf...'*⁹

Incentives

Service users were perceived to welcome incentives to healthy behaviours. Using goal setting to get a *'... bit of competition going...'*⁸ was viewed as an incentive that increased PA and encouraged behaviour change through the need to set achievable goals, mindful of individual capabilities and circumstances.

*'...you don't want to be too ambitious... you're only setting people up to be discouraged and fail and that's not really the point of it.'*⁸

'Goodwill gestures' that provided tangible personal gain were recognized to encourage service engagement. For example, participation increased when a *'Free pedometer... or a high-vis jacket... or even soup and sandwiches'*⁵ were offered.

Discussion

Main findings

This study provides novel insights into the under-investigated perceptions of personnel who deliver health promotion services within SED communities. In particular, the successful design and delivery of community health promotion services and the level to which residents engage in these depends upon an understanding of the complex mix of interrelated factors that influence participation and the degree to which the 'norms' of a given community are recognized and incorporated into service planning.

Uptake and impact appear to be enhanced when services and their delivery are seen to be responsive, flexible and adaptable to the needs of a given SED community; and when there is collaborative working across different organizations

alongside a service co-design model that understands how social circumstances and context constrain efforts towards healthy behaviour change. Findings provide strong support for using a socio-ecological approach^{14,15} in planning health promotion services and new evidence for the relevance of the COM-B behaviour change model¹¹ as a theoretical framework, considering individuals' capabilities, opportunities and motivation, when delivering services.

What is already known on this topic?

It is recognized that health is influenced by a complex array of modifiable social factors, as reflected in the socio-ecological model of health.^{14,15} Similar to NICE guidelines,¹⁶ our findings highlight a need to recognize local context, social norms and community needs when designing and implementing health promotion initiatives and the importance of delivering services in familiar, inclusive community venues that match socio-cultural norms. The findings concur with previous evidence^{17,18} that residents of certain areas were unlikely to attend some locations due to socio-political issues.

Socio-economic deprivation is associated negatively with health promoting behaviours⁶ and, often, SED community groups experience competing priorities and additional barriers to accessing health promotion.^{19–21} The relationship between poor health literacy and negative health outcomes²² requires health information to be clear, relevant and appropriately pitched. Neighbourhood features, such as housing and access to services, can positively or negatively influence health.²³ In recognition of these issues, guidance states that a range of health promotion programmes should reflect the interests of a community in order to motivate people.²⁴ These multi-level, interacting components are addressed in the COM-B behaviour change model.¹¹

Our findings illustrate the benefits of interagency collaboration and community-agencies partnership regarding the need for community engagement and collective approaches, involving local communities, community and voluntary sector organizations and statutory health services. Janosky *et al.*²⁵ have reported previously how, in the USA, multi-sector coalition benefited service coordination and avoided service duplication. Involving a community in initiative planning provides insights into needs, also generates a sense of ownership and empowerment, and enhances participation.²⁶

Previous reports^{27,28} have identified the positive impact on service uptake when delivery personnel were perceived to possess contextual knowledge and understanding, to have interpersonal skills that facilitated meaningful relationships with service users and collaborated with them in setting achievable goals.^{29–31} Our findings concur that peer support

interventions targeting health promoting behaviours can produce beneficial outcomes.^{29,32–34} Group-based peer support is an important positive influence on making lifestyle changes,^{19,35,36} reducing isolation and enhancing psychological wellbeing.³⁷

What this study adds

Our study indicates that successful implementation of community-based health promotion and engagement will be impeded, with potentially long-lasting adverse effects, if service delivery personnel do not communicate that they have taken sufficient account of contextual factors and concerns. Thus, behaviour change interventions and programmes should consider local needs and tailor services accordingly.¹⁶ The findings highlight the need for providers to take cognizance of social norms. The suggestion that SED communities have little interest in primary prevention and consider that statutory acute healthcare will address any harmful consequences of behaviours may be attributable to social and structural factors including poor health literacy, lack of knowledge of services or limited availability of services.²³ Overall, our study highlights a significant ‘disconnect’ between health professionals and the SED communities they serve; service providers may need to reconsider their approach to service design, planning and delivery.

We found that implementing initiatives and programmes within existing community-based groups was considered to be an effective way to engage service users. Social familiarity, being with like-minded people and being comfortable in a setting has been found to be conducive to recruitment and intervention effectiveness.^{17,38} Further, our findings indicate that health promotion services that involve women from their community in leadership may help overcome the reported low female participation rates in PA programmes.^{39,40}

This study reveals that while delivery of services in convenient locations tended to increase participation,^{19,41} some residents prefer the anonymity of ‘out of area’ services, potentially due to the perceived stigma of attendance. Thus, collaboration between services in different geographical areas is essential: referral systems should facilitate an individual’s choice of location alongside geographic eligibility.

Our study highlights the need for further debate regarding payment versus ‘no cost’ for services. Financial cost has been reported as a barrier to participating in health promotion, especially in SED communities,^{19,35,41} but our interviewees reported that services delivered free of charge may attract people without ‘real’ motivation for behaviour change⁴² and reduce the service’s impact. Interviewees reported value in tangible ‘up front’ incentives, such as sandwiches, contrasting with recent reports of programmes that utilized

loyalty schemes to encourage healthy behaviours.⁴³ Strategies using incentives need to be considered carefully, recognizing that some may work only for particular population subgroups after an iterative-like tailoring process. Where service providers identify attendance without engagement in behaviour change, opportunities may be used to promote community development, addressing factors such as social isolation, to optimize health.

In the context of limited funding, it is recognized that collaboration between organizations is beneficial. Additionally, our results suggest that collaboration can lead to skill- and resource-sharing that enable delivery of more holistic health promotion as well as increasing service provision and extending reach into the community.

Strengths and limitations of this study

We interviewed a range of statutory and voluntary service stakeholders in health promotion, gaining experience-informed perspectives from front-line employees, which is crucial to understanding how to deliver impactful services when the need is great but multiple structural barriers exist and capacity is limited. Interviewees addressed a wide overview of issues, potentially allowing transferability of our findings to other urban settings. Interviews were conducted one-on-one, using a semi-structured interview schedule, providing opportunity for detailed answers and further exploration of topics. The interview questions were revised following three interviews and an iterative process enabled any emerging issues to inform questions. Data saturation was achieved. However, participants and/or independent stakeholders were not given opportunity to read a report of the findings to gain validation and the views of GPs, policy makers and service-users were not sought. The opinions expressed may not be representative of all community-based organizations or non-participants. Snowball sampling was utilized, so similarly minded individuals may have been invited.

Conclusions

This qualitative study provides new insights into the importance of establishing good connections between healthcare providers and the SED communities in which they deliver health promotion. Tailoring services to communities’ socio-cultural contexts and interests, and collaborative working between different services and with SED communities, is needed to develop programmes that are relevant locally. The social support derived from existing groups should be valued. Our findings illustrate the complexity and multiplicity of factors influencing people’s health behaviour and the

relevance of the socio-ecological model^{14,15} in planning health promotion services. Assuring individuals that their capabilities, opportunities and motivation for behaviour change¹¹ are recognized by service providers is necessary to optimize health promotion engagement and uptake.

Supplementary data

Supplementary data are available at the *Journal of Public Health* online.

Acknowledgements

We would like to thank the interviewees for their participation and generously giving up their time to take part in the study.

Declarations

Ethics approval and consent to participate

The study was approved by the School of Medicine, Dentistry and Biomedical Sciences, (Queen's University Belfast) Research Ethics Committee (Application no: 15.48) on 10th December 2015.

Consent for publication

Consent gained.

Availability of data and material

The data used and/or analysed during the current study are available from the corresponding author on reasonable request.

Funding

This work was supported by a PhD studentship funded by the UKCRC Centre of Excellence for Public Health (Northern Ireland). EL is currently supported by the Medical Research Council (MC_UU_12015/4). MD, MEC and MAT are co-funded by the UKCRC Centre of Excellence for Public Health (Northern Ireland), a UKCRC Public Health Research Centre of Excellence. The UKCRC Public Health Research Centres of Excellence are funded by British Heart Foundation, Cancer Research UK, Economic and Social Research Council, Medical Research Council, HSC Research and Development Division and the Wellcome Trust, under the auspices of the UK Clinical Research Collaboration.

Authors' contributions

ERL made a substantial contribution to the design of the study, conducted the interviews, analysed the data and drafted the manuscript. MEC made a substantial contribution to the design of the study and data analysis. MAT made a substantial contribution to the design of the study. MD made contribution to the data interpretation, and drafting of the manuscript. All authors have contributed to the revision of successive drafts of the paper and approved the final manuscript.

Conflict of interest

None declared.

List of abbreviations

SED, socio-economically disadvantaged; NCDs, non-communicable diseases; NI, Northern Ireland; PA, physical activity; GP, general practitioner; NICE, National Institute for Health and Care Excellence.

References

- 1 Bauer UE, Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21st century: Elimination of the leading preventable causes of premature death and disability in the USA. *Lancet* 2014;**384**(9937):45–52. doi: 10.1016/S0140-6736(14)60648-6
- 2 World Health Organisation. *Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013–2020*. Geneva: World Health Organisation, 2013. http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf?ua=1
- 3 Wang H, Naghavi M, Allen C *et al*. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the global burden of disease study 2015. *Lancet* 2016;**388**(10053):1459–544. doi: 10.1016/S0140-6736(16)31012-1
- 4 Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med* 2006;**3**(11):e442. doi: 10.1371/journal.pmed.0030442
- 5 Sommer I, Griebler U, Mahlknecht P *et al*. Socioeconomic inequalities in non-communicable diseases and their risk factors: An overview of systematic reviews. *BMC Public Health* 2015;**15**(1):914. doi: 10.1186/s12889-015-2227-y
- 6 Gidlow C, Johnston LH, Crone D *et al*. A systematic review of the relationship between socio-economic position and physical activity. *Health Educ J* 2006;**65**(4):338–67. doi: 10.1177/0017896906069378
- 7 World Health Organisation. Health promotion. [http://www.who.int/topics/health_promotion/en/] (1 February 2019, date last accessed).
- 8 Nieuwlaar R, Schwalm J, Khatib R, Yusuf S. Why are we failing to implement effective therapies in cardiovascular disease? *Eur Heart J* 2013;**34**(17):1262–9. doi: 10.1093/eurheartj/ehs481

- 9 Richard L, Gauvin L, Raine K. Ecological models revisited: their uses and evolution in health promotion over two decades. *Annu Rev Public Health* 2011;**32**:307–26. doi: 10.1146/annurev-publ-health-031210-101141
- 10 Abel T, Frohlich KL. Capitals and capabilities: linking structure and agency to reduce health inequalities. *Soc Sci Med* 2012;**74**:236–44. doi: 10.1016/j.socscimed.2011.10.028
- 11 Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science* 2011;**6**:42. doi: 10.1186/1748-5908-6-42
- 12 Northern Ireland Multiple Deprivation Measure 2010, May 2010. Northern Ireland Statistics and Research Agency. https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM_2010_Report_0.pdf
- 13 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psych* 2006;**3**(2):77–101. doi: 10.1191/1478088706qp063oa
- 14 McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Edu Quart* 1988;**15**:351–77. doi: 10.1177/109019818801500401
- 15 Stokols D. Translating socio-ecological theory into guidelines for community health promotion. *Am J Health Promot*. 1996;**10**:282–98. doi: 10.4278/0890-1171-10.4.282
- 16 National Institute for Health and Care Excellence: Behaviour change: individual approaches. 2014, [<https://www.nice.org.uk/guidance/ph49>]
- 17 Lawlor ER, Cupples ME, Donnelly M, Tully MA. Promoting physical activity among community groups of older women in socio-economically disadvantaged areas: randomised feasibility study. *Trials* 2019;**20**(234). doi: 10.1186/s13063-019-3312-9
- 18 Prior L, Scott D, Hunter R *et al*. Exploring lay views on physical activity and their implications for public health policy. A case study from East Belfast. *Soc Sci Med* 2014;**114**:73–80
- 19 Franco MR, Tong A, Howard K *et al*. Older people's perspectives on participation in physical activity: a systematic review and thematic synthesis of qualitative literature. *Br J Sports Med* 2015;**49**(19):1268–76
- 20 Murray J, Craigs CL, Hill KM *et al*. A systematic review of patient reported factors associated with uptake and completion of cardiovascular lifestyle behaviour change. *BMC Cardiovasc Disord* 2012;**12**(1):120. doi: 10.1186/1471-2261-12-120
- 21 Pogosova N, Saner H, Pedersen SS *et al*. Psychosocial aspects in cardiac rehabilitation: From theory to practice. A position paper from the cardiac rehabilitation section of the European Association of Cardiovascular Prevention and Rehabilitation of the European Society of Cardiology. *Eur J Prev Cardiol* 2015;**22**(10):1290–306. doi: 10.1177/2047487314543075
- 22 National Institute for Health and Care Excellence. Community engagement: Improving health and wellbeing and reducing health inequalities. 2016. [<https://www.nice.org.uk/guidance/ng44>]
- 23 Den Broeder L, Uiters E, Hofland A *et al*. Local professionals' perceptions of health assets in a low-SES Dutch neighbourhood: a qualitative study. *BMC Public Health* 2017;**18**(12). doi: 10.1186/s12889-017-4555-6
- 24 National Institute for Health and Care Excellence: MI - secondary prevention: Secondary prevention in primary and secondary care for patients following a myocardial infarction. 2013 [<https://www.nice.org.uk/guidance/cg172>].
- 25 Janosky JE, Armoutliev EM, Benipal A *et al*. Coalitions for impacting the health of a community: the Summit County, Ohio, experience. *Popul Health Manag* 2013;**16**(4):246–54
- 26 Cleland CL, Hunter RF, Tully MA *et al*. Identifying solutions to increase participation in physical activity interventions within a socio-economically disadvantaged community: a qualitative study. *Int J Behav Nutr Phys Act* 2014;**11**:68. doi: 10.1186/1479-5868-11-68
- 27 Burgoyne LN, Woods C, Coleman R, Perry JJ. Neighbourhood perceptions of physical activity: a qualitative study. *BMC Public Health* 2008;**8**(101). doi: 10.1186/1471-2458-8-101
- 28 Everson-Hock E, Johnson M, Jones R *et al*. Community-based dietary and physical activity interventions in low socioeconomic groups in the UK: a mixed methods systematic review. *Prev Med* 2013;**56**(5):265–72. doi: 10.1016/j.ypmed.2013.02.023
- 29 Greaves CJ, Sheppard KE, Abraham C *et al*. Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity interventions. *BMC Public Health*. 2011;**11**(119). doi: 10.1186/1471-2458-11-119
- 30 Handley M, MacGregor K, Schillinger D *et al*. Using action plans to help primary care patients adopt healthy behaviors: a descriptive study. *J Am Board Fam Med* 2006;**19**(3):224–31. doi: 10.3122/jabfm.19.3.224
- 31 Johannesson M, Östling R, Ranchill E. The effect of competition on physical activity: a randomized trial. *B E J Econom Anal Policy* 2010;**10**(1):1–29. doi: 10.2202/1935-1682.2555
- 32 Dale J, Williams S, Bowyer V. What is the effect of peer support on diabetes outcomes in adults? A systematic review. *Diabetic Med* 2012;**29**(11):1361–77. doi: 10.1111/j.1464-5491.2012.03749.x
- 33 Tay L, Tan K, Diener E, Gonzalez E. Social relations, health behaviors, and health outcomes: a survey and synthesis. *Appl Psychol Health Well Being* 2013;**5**(1):28–78. doi: 10.1111/aphw.12000
- 34 Murphy CA, Cupples ME, Percy A *et al*. Peer-mentoring for first-time mothers from areas of socio-economic disadvantage: a qualitative study within a randomised controlled trial. *BMC Health Serv Res* 2008;**8**(46). doi: 10.1186/1472-6963-8-46
- 35 Bukman AJ, Teuscher D, Feskens EJ *et al*. Perceptions on healthy eating, physical activity and lifestyle advice: opportunities for adapting lifestyle interventions to individuals with low socioeconomic status. *BMC Public Health* 2014;**14**(1):1036. doi: 10.1186/1471-2458-14-1036
- 36 Devereux-Fitzgerald A, Powell R, Dewhurst A, French DP. The acceptability of physical activity interventions to older adults: a systematic review and meta-synthesis. *Soc Sci Med* 2016;**158**:14–23. doi: 10.1016/j.socscimed.2016.04.006
- 37 Dickens AP, Richards SH, Greaves CJ, Campbell JL. Interventions targeting social isolation in older people: a systematic review. *BMC Public Health* 2011;**11**(1):647. doi: 10.1016/j.socscimed.2016.04.006
- 38 Evans JMM, Connelly J, Jepson R *et al*. A physical activity intervention in a bingo club: Significance of the setting. *Health Edu J* 2018;**77**(3):377–84. doi: 10.1177/0017896917741150

-
- 39 Colbert JD, Martin B, Haykowsky MJ *et al.* Cardiac rehabilitation referral, attendance and mortality in women. *Eur J Prev Cardiol* 2015;**22**(8):979–86. doi: [10.1177/2047487314545279](https://doi.org/10.1177/2047487314545279)
- 40 Colella TJ, Gravely S, Marzolini S *et al.* Sex bias in referral of women to outpatient cardiac rehabilitation? A meta-analysis. *Eur J Prev Cardiol* 2015;**22**(4):423–41. doi: [10.1177/2047487314520783](https://doi.org/10.1177/2047487314520783)
- 41 Biedenweg K, Meischke H, Bohl A *et al.* Understanding older adults' motivators and barriers to participating in organized programs supporting exercise behaviors. *J Prim Prev* 2014;**35**(1):1–11. doi: [10.1007/s10935-013-0331-2](https://doi.org/10.1007/s10935-013-0331-2)
- 42 Corrigan M, Cupples ME, Smith SM *et al.* The contribution of qualitative research in designing a complex intervention for secondary prevention of coronary heart disease in two different healthcare systems. *BMC Health Serv Res.* 2006;**6**(90). doi: [10.1186/1472-6963-6-90](https://doi.org/10.1186/1472-6963-6-90)
- 43 Hunter RF, Murray JM, Gough A *et al.* Effectiveness and cost-effectiveness of a loyalty scheme for physical activity behaviour change maintenance: results from a cluster randomised controlled trial. *Int J Behav Nutr Phys Act* 2018;**15**(1):127. doi: [10.1186/s12966-018-0758-1](https://doi.org/10.1186/s12966-018-0758-1)