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Training sports coaches to tackle tobacco: formative evaluation of the SmokeFree Sports campaign

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Smoking is one of the leading causes of preventable morbidity and death in England, and is an addiction largely taken up in youth. Given the need for early prevention strategies, this formative study evaluated sports coaches' perceptions of a preliminary SmokeFree Sports (SFS) campaign. The research was conducted in five youth clubs with eight coaches who attended a Level 1 Brief Intervention Training workshop. Semi-structured interviews were conducted, and a questionnaire assessed the impact of the Brief Intervention Training on coaches' self-efficacy to deliver smoke free messages at pre, post and follow-up. Interviews were transcribed verbatim and pen profiles were constructed to provide an overview of coaches' perspectives of SFS with regards to: a) Brief Intervention Training, b) SFS implementation and c) suggestions from improvements. One-way repeated measures ANOVA revealed a significant increase in coaches' self-efficacy towards knowledge and delivery of smoke free messages from pre to post Brief Intervention Training that was maintained at follow-up. This formative work suggests that there is potential in educating coaches and using sports to deliver health education around smoking. Recommendations to improve the Brief Intervention Training included making it more interactive and specific with respect to sport and particular age groups. SFS could also be trialled in structured setting and with other sports. These findings will be used to inform and tailor the design and development of a larger, definitive SFS intervention.

Keywords: SmokeFree Sports; coach education; health promotion; self-efficacy

Word count: 4028

Introduction

Cigarette smoking is one of the leading causes of preventable morbidity and death in England and is a risk factor for cardiovascular disease, chronic obstructive pulmonary disease and multiple cancers (Department of Health 2011a). In England, smoking was responsible for 82,000 deaths during the period of 2008-2010 (Public Health England 2013). The economic impact of smoking is estimated to cost the UK's National Health Service (NHS) £2.7 billion per year (ASH 2011), which has been estimated to be 5.5% of total healthcare costs (Allender et al. 2009).

Despite a marked decrease in the prevalence of smoking in recent decades, a quarter of children aged 11-15 have tried smoking at least once, and 5% smoke regularly (at least one cigarette per week) (Health and Social Care Information Centre [HSCIC] 2012). Almost two-thirds (65%) of current and ex-smokers started smoking before the age of 18 years (Office for National Statistics 2011). Early experimentation with cigarettes can have serious repercussions, as research shows that smoking a single cigarette in childhood is highly predictive of regular smoking in adolescence, and continuation of smoking for a longer period of time (Gervais et al. 2006; Khuder, Dayal, and Mutgi 1999; Redmond 2002).

The settings approach to health promotion adopts a socio-ecological perspective, which recognises that individuals are embedded within larger social systems and describe the interactive characteristics of individuals and environments that underlie health outcomes (Donaldson and Finch 2012; King 1998; Sallis, Owen and Fisher, 2008). This movement came out of the strategy Health for All in 1980, and was laid out in the 1986 Ottawa Charter for Health Promotion (WHO 2013). Sport settings including sports clubs, centres for example have been suggested to have much potential in which to embed health promotion (Almond, Almond and Saunders 2013; Donaldson and Finch, 2012; Kokko, Kannas and Villberg 2006; Kokko, Kannas and Villberg 2009; Skille 2010). Eime, Payne and Harvey (2008) also suggests that the inherent association between sport and health means that sport may provide an ideal opportunity to integrate aspects of health promotion into a child's environment.

Kokko (2013) states that there is a need to invest in health promotion within youth sport as it attracts a lot of children, benefits both public health and sport itself. Sports coaches have the potential to be positive role models, and they are in an ideal position to be effective in supporting young people's health through promotion, prevention and early intervention (Glang et al. 2010; Mazzer, Rickwood and Vangas 2012). This is because of the established and trusted relationships; consequently they have a great influence in regulating children and

young peoples' behaviours and attitudes (Anshel, 1991; Donovan et al. 2006; Horn et al. 2000; Rickwood et al. 2005). Conroy and Coatsworth (2006) suggest that coaches are an ideal mode of intervention for promoting health because they are viewed as experts, and that this role can carry considerable influence.

Topics of healthy eating (Kelly et al. 2010), alcohol prevention (King, Dowdall and Wagner 2010), mental health (Bapat, Jorm and Lawrence 2009; Mazzer, Rickwood and Vangas 2012), and injury protection (Glang et al. 2010; Saunders et al. 2010) have been the focus of health promotion efforts by sports coaches. Positive key findings include significant gains in health knowledge of coaches and significant increases in children's knowledge about a range of health issues (Bapat, Jorm and Lawrence 2009; Fuller et al. 2010; Glang et al. 2010; Mazzer, Rickwood and Vangas 2012; Saunders et al. 2010). The US Centers for Disease Control and Prevention (2007) has also advocated the inclusion of sports initiatives into community tobacco control programmes. The US state of Maine represents one locality which uses sport within a multi-faceted and comprehensive state-wide tobacco control programme – Tobacco Free Athletes (www.tobaccofreemaine.org). The strategy has been highly effective and Maine has an impressive record in reducing smoking prevalence, which declined in high school students by 64% during 1997-2007, and by 73% in middle school students (Dawson 2009).

The positive findings from the Tobacco Free Athletes' initiative led to work to develop a similar sports initiative; 'SmokeFree Sports' (SFS), within a large urban city in the North West of England. SFS was initially trialled as a multi-dimensional community-based pilot intervention to prevent smoking among 7-16 year olds. To date, no research has examined whether training coaches is a viable option for smoking education in UK children and young people. Further, little is known about how best to educate coaches to communicate smoke free messages. Therefore, the purpose of this formative study was to elicit subjective views and opinions of the sports coaches with regards to this initial phase of SFS campaign including; a) Brief Intervention Training, b) SFS implementation and c) suggestions for improvements. Interventions have largely overlooked the views of potential participants (Hesketh et al. 2005) even though, according to Potvin et al. (2003) the need to consult and engage intervention participants within the context of their community has been advocated for some time. Emphasis has been placed on formative work due to its importance when developing innovative approaches to health promotion (Nutbeam and Bauman 2006), and Boddy et al. (2012) state that it should be viewed as a critical step within intervention design.

Consequently, key themes and findings with regards to the Brief Intervention Training, SFS implementation and suggested improvements will be used to inform and tailor the design and development of a larger, definitive SFS intervention.

Methods

Participants and recruitment

Coaches within Liverpool City and North were invited to take part in a free Level 1 Brief Intervention Training workshop, delivered by Roy Castle FagEnds; a community based smoking cessation charity. The training workshop was advertised through local community sport organisations and networks. Eight professional coaches (4 male), from a number of sports including boxing, dance, football, water polo and multi-sports, attended the workshop in February 2011. The coaches had at least 2 years of coaching experience. The study received ethics approval from the Liverpool John Moores Research Ethics Committee. All eight coaches received a participant information sheet and provided written informed consent to participate in the research study.

Brief intervention training workshop

Roy Castle FagEnds delivered the three hour workshop aimed to provide coaches with a) key messages on smoking and its impact on health and sport performance (e.g., a smoker's heart beat is three times faster than that of a non-smoker), b) practical tools to encourage children and young people to adopt a healthier lifestyle (e.g. Carbon Monoxide monitor), and c) skills to undertake a brief intervention to encourage children and young people to quit (e.g., ask, advise, assess, assist & arrange). Coaches were instructed to use the knowledge gained during the workshop to convey smoke free messages during the 12 week campaign. Coaches also received a coaching manual, which included 10 key messages around the effects of smoking on health and sports performance as well as practical tips to promote the smoke free message in their sports or activity sessions. Coaches were incentivised to ask their club members or participants to sign a SFS pledge to stay smoke free.

Design and methods

Interviews (n=7, 1 interview included 2 participants) were used to explore the views and opinions of the coaches with regards to the SFS campaign. These took place after the 12-week coaching sessions in either local community sport settings or in a private room at the

university. A semi-structured interview schedule was adopted, covering all aspects of the SFS campaign including the Brief Intervention Training, coaching, and delivery of the messages. Opportunities were given at the end of each session for coaches to make comments about issues that had not been covered by the interview guide. Each interview lasted between 18-47 minutes, recorded using a Dictaphone and transcribed verbatim.

A questionnaire was used to assess the impact of the Brief Intervention Training on coaches' self-efficacy to deliver smoke free messages. The questionnaire consisted of items adapted from Lane, Hall and Lane's (2002) measure of self-efficacy, which was based on competencies identified by Sport Studies students as desirable for successful performance in statistics. The phrase 'how confident are you in your ability to [insert competency]' was used (Lane, Hall and Lane 2002) and is consistent with previous research (Bandura 1977).

Questions were developed by the research team following a consultation period with health professionals, who were experienced in coaching, behaviour change and substance use. The questions surrounded the skills required to deliver smoke free messages and were in accordance with the learning outcomes from the workshop. The items were then piloted with 3 sports coaches of similar experience and demographics to the participants, and amendments were made according to the feedback received, aiding the content and face validity of the questionnaire. The final questionnaire comprised of 14 items (8 delivery & 6 knowledge items, Table 1), on a 5-point Likert scale, anchored by *Not confident at all* (scored 0) to *Very confident* (scored 4). The questionnaire took approximately five minutes to complete and was administered to coaches immediately before (pre) and after (post) the three hour workshop. To examine the medium-long term impact of the training, the questionnaire was completed again three months after the training (follow-up).

Table 1. Examples of domain-specific coach self-efficacy items

Domain	Item
Knowledge	How confident are you in your ability to understand the principles of the SmokeFree Sports campaign?
Knowledge	How confident are you in your knowledge of the cycle of change to identify smoker's readiness to quit?
Delivery	How confident are you in your ability to dispel common myths about the benefits of smoking to children and young people?
Delivery	How confident are you in your ability to convey the effects of smoking on sports performance to children and young people?

Data preparation and analysis

To analyse the qualitative data a mixed analysis procedure was adopted including pen profiles and the use of verbatim quotes, which has been utilised in sport and social science research (Mackintosh et al. 2011; Ridgers, Knowles and Sayers 2012). Pen profiles provide an appropriate and efficient method for representing analysis outcomes, using diagrams, verbatim quotes and frequency data of key themes (Knowles 2001; Knowles et al. 2013). Frequency count and example verbatim quotes were added to the diagrams in order to expand the pen profiles and provide context.

The first author analysed the transcripts and presented the findings to the wider research team by means of co-operative triangulation. The research team critically questioned the analysis and interrogated the data. This process allowed authors to offer alternative interpretations of the data, and was repeated until a consensus had been reached by the group. Methodological rigor, credibility and transferability were achieved via verbatim transcription of data and triangular consensus procedures. Data were initially analysed through a deductive approach, using the semi-structured interview as a guide, emergent themes were explored further using an inductive process. Data are presented separately for the Brief Intervention Training (Figure 1), SFS implementation (Figure 2) and SFS highlights and improvements (Figure 3). Prior to data analysis the self-efficacy questionnaires were checked and collated and descriptive statistics were generated for all variables in the study. One-way repeated measures ANOVA tested for differences between pre, post and follow-up. Statistical significance was set at $p < 0.05$, and all analyses were conducted using SPSS 17.0 for Windows.

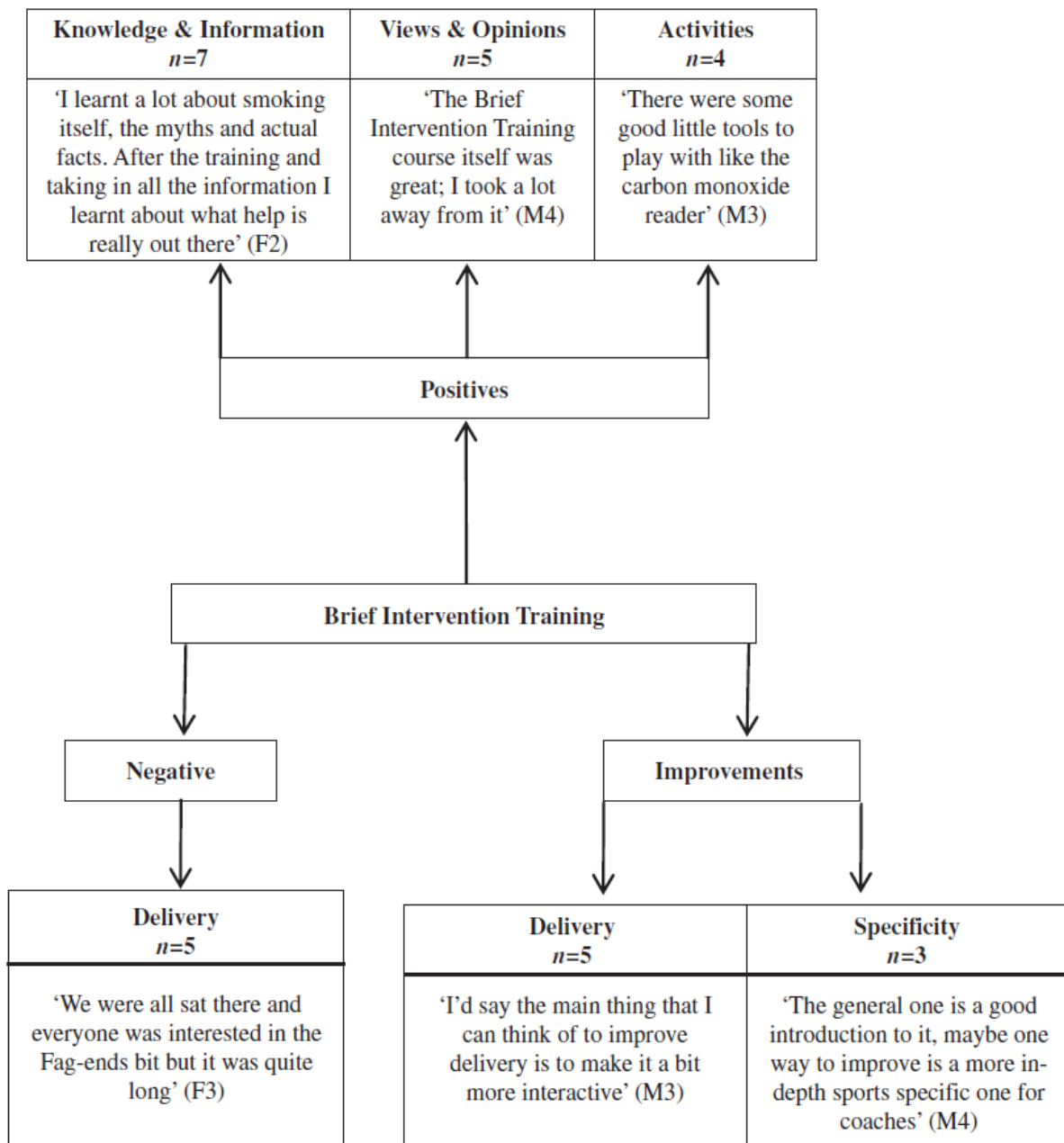


Figure 1. Coaches’ positives, negative and suggested improvements with regards to the brief intervention training.

Results

The interview data are categorised and presented in Figures 1-3.

Brief intervention training

Coaches (*n*=5) described the training workshop as ‘*interesting,*’ and, ‘*useful,*’ in that it was informative and increased their knowledge. The content of a cigarette was the most significant piece of information that the coaches learnt;

'I didn't know the amount of stuff that was put into cigarettes, I mean it was phenomenal, the only thing that wasn't in it was cement, I mean there's everything else in them. Like 90%+ of it was disgusting, I just thought you might as well put a firework in your mouth' (M2).

Highlights of the workshop involved testing out the carbon monoxide reader, the group sessions and tasks with other coaches; *'We talked about delivering the message in groups, as opposed to it being imposed on you, which I think is the right way to do it'* (M3).

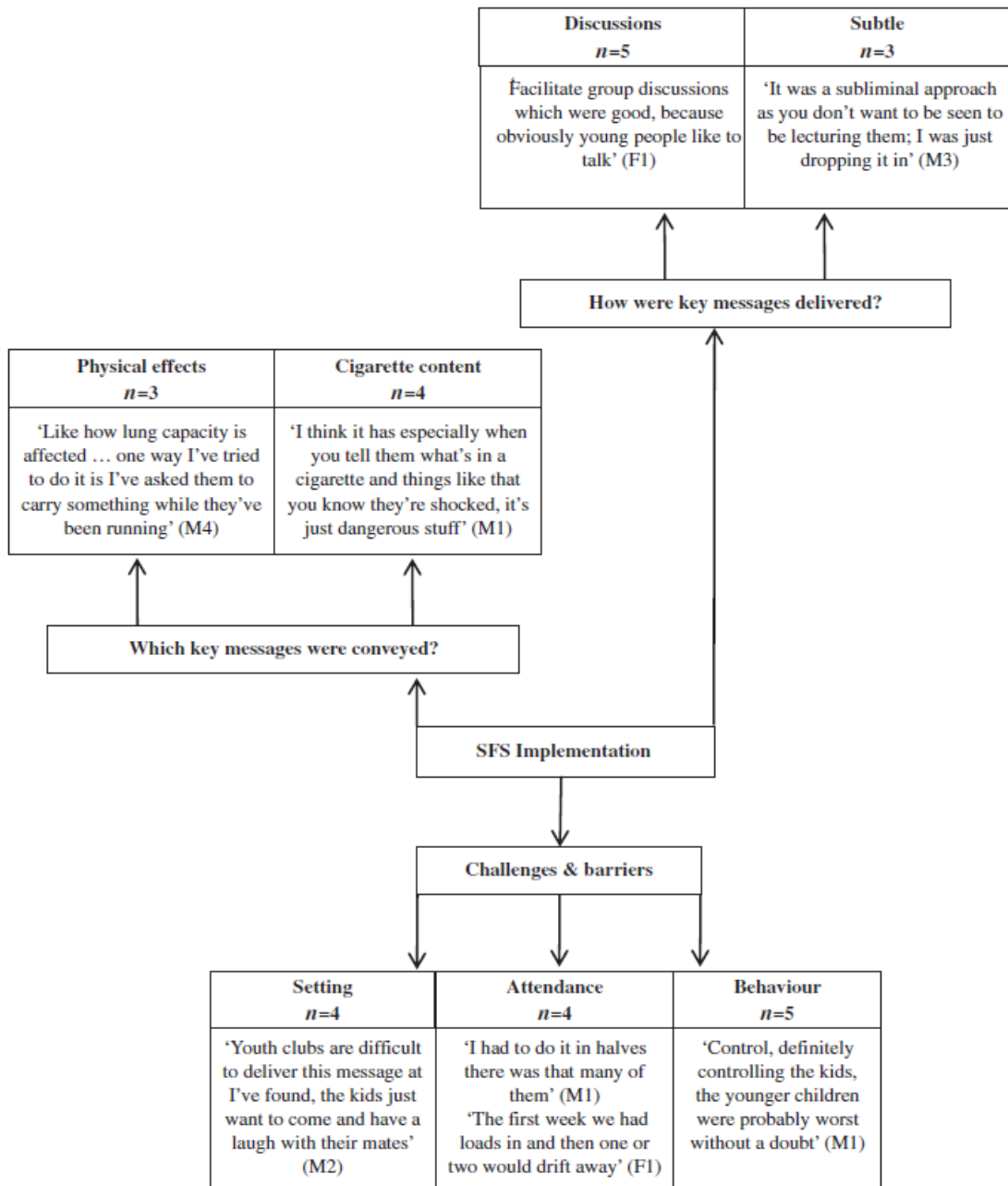


Figure 2. Coaches' implementation of SFS with regards to message delivery and challenges.

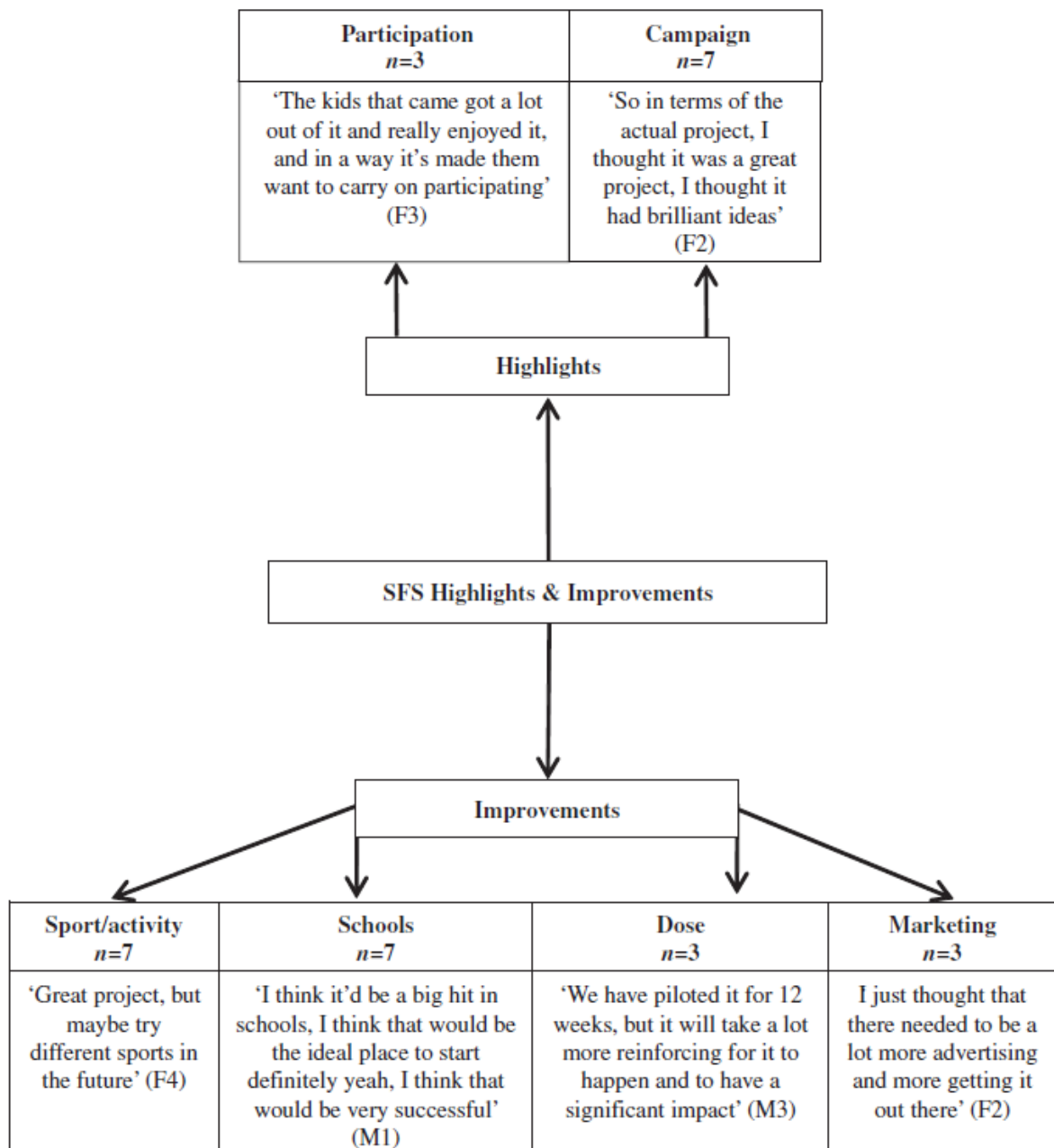


Figure 3. Coaches’ highlights of the campaign and suggested improvements for the future.

Negative issues raised by the coaches consisted of the style of delivery (n=5), including timing and the information presented. One coach stated that, ‘*it was a lot to take in, there was so much information it was a bit overwhelming*’ (F4), and another commented, ‘*I remember getting bored there was just too much talking*’ (M1). Therefore, a main theme to emerge around improvements involved delivery, with coaches (n=5) suggesting that they would have liked more interaction and an element of learning through doing, ‘*maybe*

something more physical, that's my background' (F1), and, 'I'd say the main thing that I can think of is to make it a bit more interactive' (M2). Another recommended improvement included increasing the specificity of the training with respect to sport and particular age groups (n=3). For example one coach stated, 'The general one is a good introduction, maybe a more in-depth one for coaches who are working directly with kids who are interested in specific sports or whether it's a specific age group' (M3).

Seven of the coaches (3 males) completed pre, post and 3 month follow-up self-efficacy questionnaires. One-way repeated measures ANOVA's were conducted to compare total self-efficacy, delivery self-efficacy and knowledge self-efficacy. The means and standard deviations are presented below in Table 2. There was a significant effect for time with total self-efficacy, Wilks' Lambda = .07, $F(2, 4) = 26.43$, $p = .005$, multivariate partial eta squared = .93. There was also a significant effect for time with delivery self-efficacy Wilks' Lambda = .08, $F(2, 4) = 22.04$, $p = .007$, multivariate partial eta squared = .92, and knowledge self-efficacy Wilks' Lambda = .07, $F(2, 4) = 26.84$, $p = .005$, multivariate partial eta squared = .93. Post-hoc comparisons using the Bonferroni test indicated that the mean scores for pre were significantly different from post and follow-up, there was no significant difference between post and follow-up at the three time points.

Table 2. Mean (\pm SD) total, delivery and knowledge self-efficacy scores by time (pre, post & follow-up).

	Pre Brief Intervention Training	Post Brief Intervention Training	3-month follow-up
Total self-efficacy	25.67 \pm 7.99	43.33 \pm 7.63	43.33 \pm 5.57
Knowledge self-efficacy	11.17 \pm 3.45	19.17 \pm 2.79	18.67 \pm 1.97
Delivery self-efficacy	14.50 \pm 4.68	24.17 \pm 5.15	24.67 \pm 3.67

SFS implementation

The key messages that were communicated involved the contents of a cigarette, 'The stuff about the chemicals and the amount of things that are in cigarettes, like rat poison and stuff like that, it is a real eye opener' (M4). Other messages comprised of the physical effects of

smoking (for example, on the heart & lungs), and the effects of smoking on fitness and performance. The coaches came up with numerous methods of transmitting the SFS messages, for example, through discussion, conversation and subtly conveying it during sessions, *'it was a subliminal approach, you don't want to be seen to be lecturing them, I was just dropping it in'* (M3).

However, various challenges and barriers to implementing SFS were highlighted, as coaches (n=5) described some of the children and young people's behaviour as *'wild,'* and *'crazy.'* Other themes to surface involved attendance, with either too many or too few attending the sessions, *'at one youth club there wasn't that many kids there to get the message across'* (F3).

SFS highlights and improvements

Having a large group of children and young people attending the sessions, interacting and engaging was a common highlight for the coaches. They mentioned that some of the children had continued participating in the sports after the campaign, *'From doing the youth clubs we've had quite a few coming, there's one or two getting presented with medals tonight'* (M1). Most of the coaches (n=7) made positive comments about SFS campaign, describing it as *'worthwhile,'* and one commented, *'straight away I thought it was really positive'* (F1).

However, the majority of coaches (n=7) proposed that SFS may be more successful in schools, for example during assemblies, PE lessons, lunchtime and after-school clubs. A whole host of sports/activities (both team & individual) were suggested as opportunities to spread the SFS message, with the most common being football. In addition, they stressed the importance of continuing the project, feeling that 12 weeks was *'a bit short really, I think it needs to be a longer project'* (M2). Furthermore, it was suggested that increased promotion and advertising of the campaign was needed for it to be more successful (n=3) the coaches recommended utilising TV, radio, posters and word of mouth.

Discussion

The main aims of this study were to elicit the sports coaches' views and opinions of SFS in relation to the Brief Intervention Training, SFS implementation, as well as their highlights and suggested improvements of the campaign. This builds upon previous research which has utilised sport to embed health promotion. To our knowledge SFS is the first study in the UK to explore coaches' perceptions towards a campaign to promote tobacco free messages

through sport and physical activity. This formative data will be used to inform and tailor the design and development of the coach education programme within a larger, definitive SFS intervention.

Training sports coaches has previously been highlighted as an important target for health promotion (Bapat, Jorm and Lawrence 2009; Saunders et al. 2010). It has however been consistently reported that coaches may not have the skills and knowledge required to help (Bapat, Jorm and Lawrence 2009; King, Dowdall and Wagner 2010; Saunders et al. 2010). Therefore, there was a need to examine whether training coaches is a viable option for smoking education. Challenges highlighted by coaches supporting young people's mental health in Mazzer, Rickwood and Vangas's (2012) study, included a lack of training and resources. Coaches from the current study stated that the Brief Intervention Training was informative, useful and enhanced their knowledge and self-efficacy to deliver the SFS campaign. They described the training as '*interesting*' and key messages they delivered were learnt through the workshop (e.g., cigarette content), suggesting that the Brief Intervention Training was a solid way to educate coaches about tobacco. This is in line with the findings of Pierce et al. (2010) who offered brief training to sports coaches, which resulted in positive outcomes of improving the coaches' ability to recognise and increasing confidence in assisting someone with a mental health problem. In addition, Glang et al. (2010) found that coaches whom received online training in sports concussion had significant and medium-large overall gains in knowledge, self-efficacy and intentions to take action, compared to coaches in the control condition. This online training consisted of 3 short modules, lasting 15-20 minutes, suggesting that relatively short training can have a measurable impact upon coaches. However, this study was based on a small sample size and limited by a homogeneous sample.

Furthermore, within Corcoran and Feltz's (1993) formal evaluation of the Chemical Health Education and Coaching (CHEC) programme, the experimental group of high school athletic coaches were exposed to 3 x 1 hour training sessions. The sessions focused upon the importance of coaches becoming knowledgeable about chemical use and abuse problems and chemical health issues that face their athletes. It was found that coaches who took part in the CHEC programme significantly improved their scores on chemical health knowledge and increased their levels of confidence, compared to those in the control group. This confirms the importance of increasing coaches' confidence and self-efficacy to fully implement a health promotion intervention. These findings are consistent with the current study which

revealed that following the 3-hour workshop, coaches' became increasingly knowledgeable and their self-efficacy also significantly increased. This demonstrates that the coaches who have gained knowledge in a given area also developed a sense of self-efficacy in that area (Bandura 1986).

The SFS coaches also mentioned a number of negatives from the training workshop; including that there was too much information and that they did not like the lecture style of delivery. Consistent with this Bligh (2000) commented that one of the most common mistakes is to use the lecture method at all. Furthermore, in a review of nearly 100 studies Bligh (1972) found lectures are ineffective for stimulating higher order thinking, inspiring interest, and teaching behavioural skills. It has been suggested that lectures are ineffective because attention of students is typically maintained for about 10-15 minutes, after which learning drops off rapidly (Biggs and Tang 2007). Furthermore, in the coach education literature, formal education situations and didactic lectures have been found to enhance knowledge, but cannot encompass all of the experiential learning required to embed learning (Mallet et al. 2009; Provvienza and Johnston 2009). Research suggests that an interactive teaching format involving learner participation and co-operative problem solving results in higher learning gains, better conceptual understanding and attitudes, compared to traditional lecture style (Knight and Wood 2005; Pugsley and Clayton 2003). In a recent study, Nelson et al. (2013) interviewed 90 coaches to source their views about how the provision of coach education might better facilitate their learning and development of practice. The coaches suggested that courses should be delivered through pedagogical approaches that actively involve the course learners (e.g., group learning, practical experiences and mentoring), which corresponds with the SFS findings.

Within the current study the coaches delivered the SFS messages through discussion and by subtly dropping them into the coaching session. This is in comparison to Horn et al.'s (2000) study which found most coaches reported that intervention efforts toward smokeless tobacco were verbal, and that most actions taken by coaches in response to athletes' use were didactic, verbal instruction, or verbal warning. Although delivery self-efficacy scores increased, SFS coaches did not appear to be able to deliver the message through games, drills and practice. Therefore, future training needs to take include more practical experiences (Nelson, Cushion and Potrac 2013). Furthermore, Best et al. (1988) reviewed literature on the prevention of cigarette smoking among school children. It was concluded that programme content commonly incorporated information on the short and long term health consequences

and social consequences of smoking (Best et al. 1988). This compares with the current research findings in which coaches' key messages involved the contents of a cigarette and the physical effects of smoking (e.g., heart, lungs, fitness & recovery).

Overall, the SFS coaches were positive about the campaign, however the major challenges involved the children's poor behaviour and lack of attendance, which they suggested may be down to the youth club environment. Future coach education programmes for community delivery in youth clubs may need to include training on youth club environments and behaviour management. The most commonly proposed improvement for future work involved taking SFS into schools (assemblies, PE lessons, lunchtime & after-school clubs). This particular setting was suggested as the full spectrum of the population could be reached as school is mandatory, and because of the structure and rules within school (Fairclough and Stratton, 2005). Thomas, McLellan and Perera (2013) also suggests that the main perceived advantage of school-based interventions are that the focus on education fits naturally with the daily activities of schools. Furthermore, Sussman et al. (1999) suggested that adolescent quit rates are highest when tobacco cessation programmes are school based.

A major strength of the study is the use of mixed methods, as the qualitative data added further insight into the quantitative findings. Furthermore, the qualitative results provided a detailed understanding of the implementation and delivery of SFS, and how particular factors influenced its execution. There are also a number of limitations of this study; (1) the eight sports coaches were from a limited number of sports (dance, boxing, water polo & football) within the North West of England. Therefore, while the findings may be representative of these coaches, it may be problematic to generalise the results beyond this population. However, as the coaches were from a variety of sports, this supports the viability of the coach education programme; (2) though every effort was made to standardise the questionnaire administration and encourage the coaches to respond honestly, the possibility of socially desirable and therefore biased responses cannot be ruled out; (3) a lack of control-comparison group means causality attributed to the training workshop cannot be confirmed.

This formative research has highlighted numerous recommendations and implications for future SFS campaigns. The interviews revealed consistent themes with regards to the research questions; a) Brief Intervention Training, b) SFS implementation and c) suggested improvements. Future Brief Intervention Training workshops need to be less lecture-based, and instead the coaches highlighted that they would prefer more interaction. The coaches suggested that the SFS campaign should be trialled in more structured settings, such as

schools and that the children need more variety and choice of activities/sports in which to promote SFS. It would also be interesting to following up this research, and the findings with the children and young people (Foweather et al., in press), to explore the impact of this intervention on their future lifestyle choices. Furthermore, coaches and Brief Intervention Training appears to be a viable option for smoking prevention, and that Brief Intervention Training offers promise in educating coaches to communicate smoke free messages.

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