



Incentives for breastfeeding and for smoking cessation in pregnancy: An exploration of types and meanings



Nicola Crossland ^{a,*}, Gill Thomson ^a, Heather Morgan ^b, Stephan U. Dombrowski ^c, Pat Hoddinott ^d, on behalf of the 'BIBS' study team

^a Maternal and Infant Nutrition & Nurture Unit (MAINN), School of Health, University of Central Lancashire, Preston PR1 2HE, United Kingdom

^b Health Services Research Unit, University of Aberdeen, Aberdeen AB25 2ZD, United Kingdom

^c Division of Psychology, School of Natural Sciences, University of Stirling, Stirling FK9 4LA, United Kingdom

^d Nursing, Midwifery and Allied Health Professional Research Unit, University of Stirling, FK9 4LA, United Kingdom

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ABSTRACT

Financial or tangible incentives are a strategy for improving health behaviours. The mechanisms of action of incentives are complex and debated. Using a multidisciplinary integrated mixed methods study, with service-user collaboration throughout, we developed a typology of incentives and their meanings for initiating and sustaining smoking cessation in pregnancy and breastfeeding. The ultimate aim was to inform incentive intervention design by providing insights into incentive acceptability and mechanisms of action.

Systematic evidence syntheses of incentive intervention studies for smoking cessation in pregnancy or breastfeeding identified incentive characteristics, which were developed into initial categories. Little published qualitative data on user perspectives and acceptability was available. Qualitative interviews and focus groups conducted in three UK regions with a diverse socio-demographic sample of 88 women and significant others from the target population, 53 service providers, 24 experts/decision makers, and conference attendees identified new potential incentives and providers, with and without experience of incentives.

Identified incentives (published and emergent) were classified into eight categories: cash and shopping vouchers, maternal wellbeing, baby and pregnancy-related, behaviour-related, health-related, general utility, awards and certificates, and experiences. A typology was refined iteratively through concurrent data collection and thematic analysis to explore participants' understandings of 'incentives' and to compare and contrast meanings across types. Our typology can be understood in three dimensions: the degree of restriction, the extent to which each is hedonic and/or utilitarian, and whether each has solely monetary value versus monetary with added social value.

The layers of autonomy, meanings and the social value of incentive types influence their acceptability and interact with structural, social, and personal factors. Dimensions of incentive meaning that go beyond the simple incentive description should inform incentive programme design and are likely to influence outcomes.

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1. Introduction

Evidence is accumulating for the effectiveness of incentives given to individuals to change health behaviours particularly for smoking cessation and uptake of vaccinations (Giles et al., 2014; Marteau et al., 2009; Jochelson, 2007). Research has mainly focused on motivation as

a mechanism, suggesting that performance of a behaviour is the result of a desire to obtain an advocated incentive. Informed by Self-Determination Theory (Deci and Ryan, 1985) there has been debate about the potential of incentives to shift the reason for behavioural performance from internal to external motivation and thereby undermine autonomy (Ryan et al., 1983). This corresponds with evidence suggesting that behaviour ceases to be performed when incentives are removed (Jochelson, 2007). Others suggest that the presentation and interpretation of the incentive, rather than the incentive itself, determines motivational quality (Hagger et al., 2014),

* Corresponding author.

E-mail address: ncrossland@uclan.ac.uk (N. Crossland).

underlining the importance of the overall intervention context and the meanings people apply in their everyday lives.

Using incentives within health behaviour change interventions is complex, as demonstrated in a framework by Adams et al. (2013). Incentives are often delivered alongside other intervention components rather than in isolation (Johnston and Sniehotta, 2010), so interactions are likely. Most incentive-based interventions only display short-term effects, indicating a need to better understand their mechanisms of action and the social contexts in which they occur to improve design (Stephens, 2014). Thus, having a clear understanding of the social meanings of incentive interventions, as well as other behaviour change techniques, is paramount. The impact of incentives within the environmental and social contexts of an individual has received little research attention. Incentive-based interventions which negotiate and incorporate an individual's personal motives and values may be more likely to lead to maintenance of behaviour change (Johnston and Sniehotta, 2010). Just as incentives may be expected to interact with structural, social, and personal factors, so different types of incentives may be expected to interact differently with these factors – and to differ in their reach and effectiveness.

We conducted the multidisciplinary mixed methods BIBS (Benefits of Incentives for Breastfeeding and Smoking cessation in pregnancy) study to inform the design of acceptable and feasible incentive interventions for improving smoking cessation in pregnancy or breastfeeding outcomes (Morgan et al., in press). Smoking in pregnancy and not breastfeeding have significant health, social and economic consequences (Dietz et al., 2010; Eidelman and Schanler, 2012), cluster together in families and social networks, and are typically associated with socioeconomic deprivation (Buck and Frosini, 2012; McAndrew et al., 2012). The BIBS study included systematic reviews of incentive interventions for both behaviours. A meta-analysis of four studies (332 women) found that shopping vouchers for biochemically validated smoking cessation in pregnancy were effective (compared to non-contingent incentives for trial participation); the relative risk of cessation was 2.77 (95% CI 1.69–4.24). Variation in design and quality of the 17 identified studies using other types of incentives precluded inclusion in the meta-analysis (Morgan et al., in press). For the breastfeeding review, 18 patient level reports found insufficient evidence to conclude on the effectiveness of any incentive type (Morgan et al., in press). There is currently no evidence on incentives for either behaviour comparing engagement, attrition or outcomes of different types of incentives with each other (Morgan et al., in press). The aim of this paper was to explore the meaning, values and types of incentives for health behaviours to inform understanding about how they might work.

2. Methods

2.1. Study design

The BIBS study aimed to understand the mechanisms of action of incentives for smoking cessation in pregnancy and breastfeeding, develop a typology, and identify promising, acceptable and feasible interventions to inform trial design. It included systematic reviews, qualitative research, surveys and a discrete choice experiment (Morgan et al., in press). This paper reports data from two systematic reviews of incentives for breastfeeding and smoking cessation in pregnancy and overlapping primary qualitative research to investigate the meanings attached to different types of incentives. Collaboration with two mother-and-baby service user groups located in areas with high smoking rates and low breastfeeding rates ensured ongoing representation of the target populations.

2.2. Evidence syntheses

Detailed searches were carried out in Medline, Medline-in-Process, Embase, CINAHL, PsycINFO, Web of Science, CENTRAL, Cochrane Database of Systematic Reviews, DARE, HTA, MIDIRS, Applied Social Sciences Index and Abstracts, and the Trials Register of Promoting Health Interventions and are described elsewhere (Morgan et al., in press). Studies were included if they described an incentive intervention. An 'incentive' was defined as a financial (positive or negative) or non-financial tangible incentive or reward, where tangible means free or reduced cost items that have a monetary or exchange value. This definition excludes intangible incentives such as supportive or motivational relationships with professionals or peers. The populations of interest were women who were pregnant or had given birth within six months at the time of the intervention, and/or those who were family members/partners of these women. The outcomes of interest were smoking cessation, prolonged abstinence; exclusive or any breastfeeding. Data describing the characteristics of the incentive were extracted independently by two reviewers. The detailed methods and analysis for the evidence syntheses are described elsewhere (Morgan et al., in press). The protocol for these systematic reviews was registered on PROSPERO 2012:CRD42012001980.

2.3. Qualitative interviews: recruitment and data collection

Qualitative research was carried out in three UK regions, in healthcare, community and third sector settings chosen to ensure a socio-demographically diverse sample and the inclusion of harder-

Table 1
Study participants.

| Participants | Number interviewed | Totals and format |
|---|----------------------------|---|
| Co-applicant mother-and-baby groups | <i>n</i> = 6 | Participants N = 12 |
| Aberdeenshire | <i>n</i> = 6 | Focus groups ^a <i>n</i> = 3 |
| Blackpool | | Face-to-face interviews <i>n</i> = 2 |
| Pregnant women and recent parents^a | <i>n</i> = 38 ^b | Participants N = 88 |
| Pregnant women | <i>n</i> = 45 | Focus groups ^a <i>n</i> = 8 |
| Postnatal women | <i>n</i> = 5 | Face-to-face interviews <i>n</i> = 39 |
| Partners | | Telephone interviews <i>n</i> = 6 |
| Providers | <i>n</i> = 11 | Participants N = 53 |
| Midwifery | <i>n</i> = 1 | Focus groups ^a <i>n</i> = 10 |
| Nursing | <i>n</i> = 12 | Face-to-face interviews <i>n</i> = 13 |
| Health visiting | <i>n</i> = 5 | Telephone interviews <i>n</i> = 6 |
| Doctors: paediatricians, obstetricians, GPs | <i>n</i> = 3 | |
| Public health | <i>n</i> = 11 | |
| Smoking cessation specialists/staff | <i>n</i> = 2 | |
| Voluntary sector/children's centre staff | <i>n</i> = 7 | |
| Pharmacists | <i>n</i> = 1 | |
| Incentive scheme administrator | | |
| Experts and decision makers | <i>n</i> = 24 | Participants N = 24 |
| | | Focus groups ^a <i>n</i> = 4 |
| | | Face-to-face interviews <i>n</i> = 3 |
| | | Telephone interviews <i>n</i> = 7 |
| Public Health, Maternal and Infant Health Conferences | <i>n</i> = 3 | Participants N = -63 |
| Participants included policy, decision-makers, experts and some practitioners | | Recorded group discussions at conferences |

^a A total of 16 focus groups were conducted. At three focus groups with women/ recent parents a provider was present and three focus groups were a mixture of providers and experts. Two women attended two different focus groups; as did two experts (they are counted once only).

^b Two pregnant women were involved in a follow-up postnatal interview (one of whom had an older child at the time of the first interview).

to-reach, disadvantaged participants who are more likely to smoke and to not breastfeed. In one region, breastfeeding and smoking cessation health service incentive programmes had been implemented. In the second region, there were no health service incentive programmes. In the third region, the Cessation in Pregnancy Incentive Trial (CPIT) of shopping vouchers contingent on biochemically validated smoking cessation was underway (Tappin et al., 2012) and qualitative data was independently collected from women and providers. Purposive and snowball sampling techniques were used to recruit i) pregnant women (from the first trimester of pregnancy) and mothers of infants up to six months old, and their partners/significant others; ii) providers of care including midwives, health visitors, obstetricians, paediatricians, general practitioners, public health specialists, pharmacists, voluntary sector, children and family centre staff; and iii) UK experts/decision makers such as government policy makers for maternal and child health, public health, research ethics and governance personnel, expert advisers and voluntary sector personnel.

Interviews (16 focus groups; 55 face-to-face; 19 telephone) were conducted with 88 pregnant women, recent mothers and family members; 53 service providers; 24 experts or decision makers and approximately 63 conference attendees (Tables 1 and 2). From the CPIT study (Tappin et al., 2012), a sample of 20 women across the intervention and control groups and age groups (<25 years and 25 + years old), were interviewed. Professional views were gathered in 10 one-to-one interviews and two focus groups ($n = 23$).

Interviews and focus groups for the BIBS study were conducted by three researchers in two UK regions between June 2012 and August 2013, and were undertaken concurrently with analysis. The topic guide was developed from evidence syntheses with service-user input and refined as the study progressed. The CPIT topic guide was developed independently and focused on the shopping voucher incentives offered in the trial (Morgan et al., in press). Open questions explored participants' understandings of 'incentives', the meanings associated with various types of incentive and their acceptability. Eight vignettes of incentive trials were developed from studies included in the evidence syntheses (Morgan et al., in press), and used as a tool to prompt discussion. When used, they were introduced later in interviews and focus groups to minimise framing effects. Interviews were open-ended, audio-recorded and transcribed verbatim and ranged from ~15 to 100 min duration. Qualitative data also included researcher

reflexive diaries from unrecorded interviews with mother and baby groups.

2.4. Data analysis

Data analysis was informed by the Framework method which allows the summarising of data into thematic matrices to look for patterns or explanations (Ritchie and Spencer, 1994). Initial categories of incentive types were developed from the data extracted from the systematic reviews through team discussion. The research

Table 3
Incentive characteristics of included studies for smoking cessation and breastfeeding.

| Incentive type | Examples | Study ^a |
|--|--|--|
| Vouchers and/or cash | Cash, shopping vouchers range US\$5 < \$250 | Donatelle et al., 2000; Heil et al., 2008; Higgins et al., 2004; Mantzari et al., 2012; Gadomski et al., 2011; Cinciripini et al., 2010; Lillington et al., 1995; Edwards et al., 2009; Nichter et al., 2007; Ripley-Moffitt et al., 2008; Radley et al., 2013; Finch and Daniel, 2002; Wolfberg et al., 2004; Hill, 1987. |
| 'Gifts', 'gift voucher' or 'lottery prize' | | Walsh et al., 1997; Albrecht et al., 1998; Lillington et al., 1995; Edwards et al., 2009; Cluss et al., 2011; McBride et al., 2004; Ripley-Moffitt et al., 2008; Dungy et al., 1992; Cohen and Mrtek, 1994; Reeves Tuttle and Dewey, 1995; Wright et al., 2012 |
| Baby items | Nappies, bottles, wipes, powder, baby bibs/ clothes, sipper cups, car seat, stroller, infant health kit, toys | Gulliver et al., 2004; Edwards et al., 2009; Lillington et al., 1995; Nichter et al., 2007; Sciacca et al., 1995a, 1995b; Reeves Tuttle and Dewey, 1995; Zimmerman, 1999; Volpe and Bear, 2000 |
| Maternal gifts | Toothbrushes, chewing gum; chocolate, massage, hair/beauty vouchers, flowers, bubble bath, photograph, exercise sessions | Lowe et al., 1997; Morgan et al., 2005; Ussher et al., 2008; Pbert et al., 2004; Gulliver et al., 2004; Sciacca et al., 1995a, 1995b; Zimmerman, 1999; Reeves Tuttle and Dewey, 1995; Volpe and Bear, 2000; Thomson et al., 2012 |
| Social experience | Day trip, cinema, football tickets, meal/drink out | Albrecht et al., 1998; Gulliver et al., 2004; Sciacca et al., 1995a, 1995b; Thomson et al., 2012 |
| Behaviour related items (excludes prescriptions e.g. nicotine replacement) | Breast pump, breast pads, cream, expressing kit | Bliss et al., 1997; Hayes et al., 2008; Dungy et al., 1992; Rasmussen et al., 2011; Chamberlain et al., 2006; Cohen and Mrtek, 1994; Bai et al., 2000; Sciacca et al., 1995a, 1995b; Zimmerman, 1999 |
| Food | Food packages, healthy snacks | Finch and Daniel, 2002; Chiasson et al., 2011; Thomson et al., 2012 |
| Household services | Cleaning | Gulliver et al., 2004; Pugh and Milligan, 1998 |
| Awards and certificates | Congratulations card 'Quit certificate' | Morgan et al., 2005 |

Table 2
Summary of characteristics of women and partner participants.

| | Women/Partners | Not recorded |
|--|--|--------------|
| Ethnicity | 78 (88.6%) White 9 (10.2%) BME | 1 (1.2%) |
| Marital Status | 68 (77.3%) Married 18 (20.4%) Divorced/Single | 2 (2.3%) |
| Employment Status | 43 (48.9%) Employed 40 (45.4%) Unemployed | 5 (5.7%) |
| Smoking Status | 26 (29.5%) Never smoked 24 (27.3%) Currently smoking 37 (42.0%) Previously quit | 1 (1.2%) |
| Previous Infant Feeding Behaviours ($N = 58$) ^a | 51 (87.9%) Previous experience of breastfeeding 4 (6.9%) Formula only | 3 (5.2%) |
| Current Infant Feeding Intentions ($N = 18$) ^a | 11 (61.1%) planned to breastfeed 4 (22.2%) planned to mixed feed 3 (16.7%) planned to formula feed | |
| Firsthand experience of incentives | 4 (4.5%) breastfeeding 22 (25%) smoking cessation 4 (4.5%) other behaviours (voluntary sector) 57 (64.8%) no experience of incentives | 1 (1.2%) |

^a Data collected from BIBS study women only. BME, Black and Minority Ethnic.

^a Some studies provided more than one type of incentive.

team listened to and read the first eight participant interviews/transcripts, following which a single tree structure coding index was agreed. NVIVO 10 software was used to organise, code and retrieve data. Researchers undertook detailed analysis with regular discussion several times a week between sites to develop interpretive themes, ensure consistency and to search for disconfirming perspectives. Qualitative interview transcripts from the CPIT trial (Tappin et al., 2012) were included towards the end of the analysis of data from the other two regions, to minimise bias. The independent CPIT researchers checked the qualitative analysis of CPIT data for accuracy (Morgan et al., in press). A further iteration of thematic analysis was used to develop the typology categories and dimensions. Where supporting quotations are presented below, these are assigned a code (for example FG5, I, mother) denoting the participant ID number and a letter or letters indicating whether the participant took part in a focus group (FG), interactive discussion (IA), telephone interview (T), or face-to-face interview (no code). The presence or absence of an 'I' indicates whether or not the participant had been involved in an incentive programme.

Researcher reflexivity was critically considered in research team discussions throughout the design, data collection and analysis stages. The multidisciplinary team included male and female researchers, with and without children, and with varying experiences of smoking, breast, formula milk and mixed personal experience of delivering, receiving or researching incentives for health behaviours.

2.5. Ethics

Full National Research Ethics Service (NRES) and local ethics approval and Research and Development permissions were obtained (North of Scotland Research Ethics Committee (NOSRES, reference number: 12/NS/0041), University ethics (BUSH064), and Research and Development, NHS Grampian. Ethical approval for incorporating the qualitative transcripts from the CPIT trial into the BIBS study was obtained from the West of Scotland REC2.

3. Results

3.1. Incentive characteristics identified from the evidence synthesis

We identified 21 studies (33 reports) providing incentives to pregnant women for smoking cessation and 18 studies (19 reports) on incentives for breastfeeding (Table 3). Five studies (Mantzari et al., 2012; Nichter et al., 2007; Radley et al., 2013; Ripley-Moffitt et al., 2008; Thomson et al., 2012) included some qualitative data on participant perspectives on the types of incentives. Little data was reported on acceptability and meanings of incentives. One qualitative study (Thomson et al., 2012) reported that participants found incentives delivered weekly by breastfeeding peer supporters to be reinforcing, validating and act as connectors to additional support. Otherwise, qualitative data focused on generating typologies classifying women's behaviour and susceptibility to change in relation to incentives for smoking cessation; for example one study described six user groups: 'mothers to be', 'novice quitters', 'breadline survivors', 'enthusiastic amateurs', 'opportunists', and 'impulse shoppers' (Radley et al., 2013).

3.2. Typology

Participants discussed various different items and services (prompted via vignettes and emergent during interviews) which might constitute incentives to themselves or others, and their meanings. The typology that emerged through evidence synthesis and qualitative data analysis can be considered as having three

dimensions: (i) the degree of restriction, ranging from unrestricted to highly restricted; (ii) the extent to which an incentive is utilitarian and/or hedonic; and (iii) the value, which may be financial only, or have both financial and social value. These dimensions are not necessarily independent, and hedonic or social value are subjective and determined by the recipient. For example, we consider that the degree of restriction can affect both the perceived hedonic value and whether it has added social value attached to it, as illustrated by our data on shopping vouchers (discussed below).

Unrestricted incentives are those where the recipient has free choice of item or service, moderately restricted incentives provide a limited choice, and restricted incentives are pre-selected. Our interpretation is that less restricted or unrestricted incentives provide women with choice and autonomy, and connote trust. The hedonic and/or utilitarian dimension describes the extent to which an incentive provides enjoyment rather than, or in addition to, providing a practical benefit. This had implications in terms of both how acceptable and how appealing participants found types of incentives. All of the incentive categories in our typology have some financial or exchange value to meet our study definition, but some appeared to have an additional social value which held meaning for participants. This was also reflected in the language used by participants, where incentives were referred to in some instances as 'gifts', 'rewards', 'treats', while in others, terms such as 'bribe', 'payment' or 'prescription' were used, implying relationships with more powerful or controlling providers. In the findings, where both providers and women related similar views, we have used the term 'participants', referring to 'women' or 'providers' if a particular view was represented specifically by one group. There was considerable overlap in the views of women and providers, but women more commonly raised notions of 'recognition' and enjoyment. Women with firsthand experience of incentive schemes were more in favour than those who had not.

The items and services identified in the systematic reviews and raised by participants were categorised according to their overt or more covert purpose and dimensions. We now discuss each type in detail below.

3.3. Cash and shopping vouchers

Shopping vouchers lie towards the unrestricted end of the restriction spectrum; cash is entirely unrestricted. Participants appeared more accepting of voucher incentives for smoking cessation versus breastfeeding. Various types of shopping vouchers were discussed. Some vouchers, like those used in the CPIT study (Tappin et al., 2012), are redeemable in a range of retail outlets and are thus largely unrestricted (though not redeemable for cigarettes or alcohol); these were viewed by many participants as equivalent to cash. The relative lack of restriction was both the reason for their appeal and a cause for concern. Participants worried that recipients may 'squander' cash or buy inappropriate items: 'if it was cash or anything they'd just end up smoking it'. However for the most part, minimal restriction was valued because 'the same thing is not going to be useful for everybody'. Women described various items they had chosen or would choose to buy with incentive vouchers or cash, such as baby items, household goods, clothing and jewellery. Unrestricted incentives such as shopping vouchers allow women to tailor the incentive to maximise their own motivation with the option to 'save up' for an expensive item – 'Yeah I was thinking: pram. That's a pram'. Our interpretation is that this facilitates important strategies necessary for sustaining behaviour change such as goal setting, planning and delaying gratification.

Vouchers for small local businesses have a greater degree of restriction and were seen to have limited applicability; for example, one participant described one such incentive scheme for

breastfeeding:

'They were all just really expensive companies that you wouldn't ordinarily use; like top-class hair salons It's only worthwhile to those that are very wealthy.' (FG9, I, experts).

Cash and shopping vouchers can function as both hedonic and utilitarian incentives. The *'immediate and fun'* nature of shopping vouchers was considered important to compensate for the perceived loss of enjoyment arising from behaviour change – what people would be *'prepared to get in return for not smoking'*. They were seen as a *'reward'* which enhanced feelings of wellbeing:

I was over the moon with it. I was. I was really happy with it and just receiving my wee £100 one there, I was really quite chuffed (33, I, pregnant woman).

However, in addition to views of shopping vouchers as a *'bonus'*, some women saw shopping vouchers as potentially *'helpful'* for people who are *'struggling'* financially.

3.4. Maternal wellbeing incentives

These incentives comprised non-utilitarian gifts or services for the woman's own personal benefit, such as beauty products, beauty treatments, massage, or magazines. This category is highly restricted, as items were typically pre-selected. But for some participants, restriction actually rendered the incentive more *'manageable'*.

Women noted that *'everyone talks to you about a baby. It's baby this, baby that'* and that their own wellbeing was often overlooked by those around them:

You get so much stuff that's for baby that quite often the mother's forgotten about so it'd be nice to just – even if it's just a £5 voucher to go and get something from Boots like bubble bath, bath salts or something nice. That would be, for me, more of an incentive than anything. (FG6, mothers).

Thus, the appeal of this incentive category seems to be their hedonic value, due to their potential to enhance a woman's emotional wellbeing – *'I think it has to be to make you feel good'* – which it turn could increase her capacity to cope with the challenges of new behaviours. Mothers recounted experiences of stress in the postnatal period, and reflected that gifts aimed at promoting personal wellbeing, such as *'some nice bath salts or something'*, could prompt women to *'stop and think, "actually, I haven't really been doing relaxing for a while"'* and thus encourage them to *'just take care of yourself for half an hour'*.

Women felt that the effort they put into behaviour change deserved recognition and validation: *'Yeah, I think it has to be for you because you're the one that's doing it, no one else is'*. One woman who had been part of an incentive programme for breastfeeding remarked on the *'really well thought out nice gifts'*. It appears that this participant inferred some thoughtful deliberation behind the choice of incentives used, and consequently according them significance beyond their financial value.

3.5. Baby and pregnancy-related incentives

These incentives specifically relate to pregnancy or the baby, and include items with a daily recurring need e.g. nappies, other items such as maternity clothes and bibs, and one-off, more expensive baby items like car seats, where the value for some

would be re-sale or exchange. Such incentives are typically utilitarian and smaller everyday items like nappies have a low exchange value. Some women felt it important that incentives be necessities and economical:

'Like a pack of nappies or something that is used basically every day but doesn't cost the earth because, obviously, if there's budgets and stuff' (T10, pregnant mother).

3.6. Behaviour-related incentives

These were largely discussed in relation to breastfeeding, and included breast pumps, breastfeeding bras, other breastfeeding clothing, and baby carriers. For smoking cessation, some women viewed free nicotine replacement therapy devices and electronic cigarettes as behaviour-related incentives. This type of incentive was considered to have a direct functional role in achieving or modifying the target behaviour and this was often key to their acceptability:

I would agree with that [breast pump] rather than them getting handed money for breastfeeding, giving them something that's going to be helpful to them rather than say like, "Here's £50 to breastfeed your kid" (24, pregnant mother).

The utility of behaviour-related incentives were considered to help by removing the barriers to behaviour change. For example, specialised bedside cots were suggested by some providers as a *'beneficial'* item which could incentivise through facilitating night-time breastfeeding. Likewise, breastfeeding clothing could help women to overcome discomfort or embarrassment with public breastfeeding:

If you have got clothing you are comfortable in, and can cover your entire baby if you want to, it might make people get over that, "oh people are looking at me" (FG1, mothers).

As with the baby-related and maternal wellbeing incentives, this category is typically highly restricted. For some providers, a behaviour-related incentive *'says you have to buy a breastfeeding bra...then I think we are controlling that woman'*. Similar concerns were raised by providers that breast pump provision would imply that these are necessary for women to breastfeed. However, women (particularly younger women and those from socially disadvantaged areas) and providers frequently mentioned the utility and financial value of breast pumps, as important elements in their appeal:

I definitely think it's more of an incentive for breastfeeding because if you're breastfeeding you get a pump that you might not be able to afford, that's great. (1, mother)

3.7. Health-related incentives

These were incentives associated with health benefits, such as vouchers for fruit and vegetables or access to leisure facilities. This category is utilitarian and restricted, and align with a view that the health service wishes to control a range of lifestyle behaviours, reducing individual autonomy, and perhaps relatedly, tended to be considered to be demotivating:

Then again, a lot of people might go “what? I am not quitting cigarettes for a punnet of strawberries and a banana” (5, pregnant woman).

As with some of the behaviour-related incentives discussed, their acceptability lay with their utility, and a belief among some participants that any incentives provided by health services for health behaviours should themselves be health-promoting.

3.8. Household services

These included help with household tasks and childcare. Women frequently mentioned ‘time to oneself’ as a motivating factor for continuing to smoke, and breastfeeding was often described as time-consuming relative to bottle-feeding; some participants thought that household services would compensate for the ‘me time’ lost from behaviour change. Some providers felt that help with housework might prevent some women from feeling overwhelmed and discontinuing breastfeeding:

I think sometimes they give up because breastfeeding is all on them whereas if they decided to switch to bottle-feed somebody else could do it and they could get on with other things. (T60, infant feeding coordinator).

However negative reactions to this type of incentive were far more commonly expressed, particularly amongst women. Several women felt they would be ‘offended’ by the offer of household help, as it would imply their own housekeeping was inadequate: “*are you saying I’ve got a dirty house?*” Perhaps for this reason, or other social pressures such as being seen to be ‘not coping’, women expressed an obligation to take care of household chores themselves. Some women found this type of incentive ‘intrusive’, particularly during the postnatal period: ‘*to have someone else come in again I just personally don’t like it.*’ Thus, this category of incentives can be seen to have a social cost.

Household help was largely viewed as utilitarian, and women typically thought that it did not generate the enjoyment or pleasure associated with shopping vouchers or personal wellbeing incentives: ‘*I think it has to be to make you feel good. Having your ironing done isn’t going to make me feel good.*’ Crèche facilities as an incentive also produced mixed views, with some feeling that ‘*it would be good to get just an hour to yourself*’ while others expressed anxiety about leaving their young baby with others – ‘*you’re just clock watching all the time.*’

3.9. General utility

Some providers mentioned food and drink, particularly in the context of incentivising women to attend group interventions: ‘*we had a much, much higher turnout when we offered lunch than we did when we didn’t.*’ The value of refreshments as an incentive to increase attendance and engagement in group activities was confirmed through observations of interactions at one of our co-applicant mother-and-baby groups. Similarly, petrol vouchers were cited as incentives to encourage attendance at groups. These types of incentives were restricted and highly practical, but the sharing of food and drink appeared to add commitment, social and esteem value for participants.

3.10. Awards and certificates

Certificates to honour breastfeeding milestones were spontaneously raised by our mother-and-baby group co-applicants and

discussed by some providers who reflected on experiences where ‘*these certificates were coveted and appreciated by the women.*’ Conversely, some providers considered certificates to be ‘*patronising*’, and ‘*wouldn’t be helpful*’ particularly within affluent or more educated population groups. However, others argued that even if certificates were negatively perceived, the effects would be minimal. These incentives have no practical utility, minimal monetary value in terms of production costs and no exchange value (except perhaps a frame); their appeal seems to be predominantly due to their social and esteem value.

3.11. Experiences

Most of the tangible incentives described above have an experiential aspect, but some participants pinpointed an experience ‘*like an activity event or a day with your kids or something like that.*’ An experience or activity that extends beyond the individual was particularly valued. Such activities are likely to be pre-selected or allow minimal choice, are hedonic and provide opportunities for strengthening social bonds. Such experiences may be beyond the financial and planning resources of some families, but are commonly considered an important part of being a parent and cementing family wellbeing.

4. Discussion

Using a mixed methods analysis of incentives for smoking cessation in pregnancy or breastfeeding, we describe a typology of eight incentive categories and their meanings understood in terms of three dimensions: the degree of restriction, the extent to which each is hedonic and/or utilitarian, and whether each has solely monetary value versus monetary with added social value. Studies of incentive interventions for these behaviours report simple incentive descriptions and monetary values, seldom considering their social context, or the meanings associated with different types.

As far as we are aware, this is the first study to investigate participants’ perspectives on a wide range of incentives, beyond a single study perspective, and to draw on in-depth qualitative data from a broad range of service users, healthcare providers and experts. The methodological strengths of the study are its broad, robust integrated mixed methods and multidisciplinary approach, with extensive service user involvement. Our methodological approach of integrating systematic review findings concurrently with qualitative data collection, which allowed the use of study vignettes as a methodological tool (Hoddinott et al., 2010), is also unique. The sample included participants who had personal experience of an incentive programme as well as those who did not, and diverse social groups including socially disadvantaged women and partners. This gave us contextualised, experiential and theoretical perspectives on a wide range of different incentive types. We also recruited hard-to-reach women using snowball sampling; however the hardest to reach are those with few social connections who are not accessing services and these may be missing voices in our study. Data collection occurred over an extended period and was conducted by five researchers working on two different studies. This may have introduced some variation in how interviews and focus groups were conducted; however, it may also have led to greater depth and richness of the qualitative data. Typologies typically have grey areas, and the boundaries between the dimensions we describe are not clear cut. Nevertheless, our typology can provide a framework to aid in the choice and design of incentive interventions.

There has been criticism that incentives to change behaviour can undermine individual autonomy, by nudging people to make

decisions and behave against their free will (Ashcroft, 2011). However, layers of autonomy emerged from our data. The dislike of household help incentives illustrates women's desire for self-direction and control of their lives and behaviours in the perinatal period, with intrusion and judgement by others unwelcome, confirming earlier data (Hoddinott et al., 2010). The degree to which incentives are restricted may have implications for women's intrinsic motivation. Self-Determination Theory characterises autonomy as a key component of intrinsic motivation and states that intrinsic motivation to perform an activity is undermined by external tangible rewards (Deci and Ryan, 1985). In our study, the autonomy allowed by less restricted incentives was an important reason why some women valued them. However, less restricted incentives require greater planning and cognitive processing, which can be effortful for some people (Hagger and Luszczynska, 2014).

'Hedonic' incentives were felt to increase feelings of wellbeing, thus supporting women's motivation and encouraging perseverance with the challenges of behaviour change. This is consistent with findings that maternal and family wellbeing are important drivers in women's decisions around health behaviours in the perinatal period (Hoddinott et al., 2010). Pleasure is commonly problematized in public health discourses, with pleasure seen as a key reason why individuals partake in risky or unhealthy behaviours and therefore considered an obstacle to health, while health authorities may be depicted as repressive killjoys (Coveney and Bunton, 2003). The utility of some categories of incentives (behaviour-, pregnancy or baby-, and health-related) was key to their acceptability for some participants. Our data uncovered some unease around purely hedonic incentives, perhaps reflecting popular notions of pleasure as in opposition to health, but more often participants welcomed them, particularly women who had been recipients of enjoyable incentives. The use of hedonic incentives may ameliorate perceptions that health interventions impose unwanted deprivation on recipients.

Heyman and Ariely's (2004) concept of 'two markets' proposes that when there is no financial gain attached to a reward it can be seen to operate within a social market, where effort is furthered by altruism, rather than a monetary market where effort typically relates to financial value. One interpretation of our findings is that incentives for health behaviours can operate in both a monetary market, such as in the CPIT study (Tappin et al., 2012) where pregnant smokers who successfully quit received £400 and the financial value was important, and a social market, such as where gifts focussing on maternal wellbeing were valued for their communication of achievement and recognition of the effort required for behaviour change. This develops earlier qualitative research about the value of incentives as social connectors which help to create meaningful relationships between women and providers and establish a basis for the provision of social and instrumental support (Thomson et al., 2012). Incentives can also promote connections within women's existing social networks, and such interventions show promise (Morgan et al., in press). Social context is important for smoking (Graham et al., 2012) and infant feeding (Brown et al., 2011) with partners, family and community playing influential roles in women's decision making and capacity for behaviour change. Hedonic incentives beyond the individual such as friend and family activities can enhance wellbeing, and could help women enlist the help of significant others.

Evidence on the effectiveness of incentives for smoking cessation in pregnancy and breastfeeding is limited (Morgan et al., in press). To date, diverse incentives for these behaviours have been used, but our findings show that different types are not interchangeable. The only meta-analysis relates to unrestricted incentives (vouchers) for smoking cessation, and these show

promise. The effects of added hedonic or social value have not been tested (Morgan et al., in press). Our findings suggest that incentives may be more effective if they offer autonomy, pleasure and convey esteem. However further research is required to investigate the head to head effectiveness and cost-effectiveness of different types of incentives, and differences in reach, attrition or impact on health inequalities. This evidence should inform whether and how incentives are embedded within intervention programmes and how they are delivered. Additionally, it is important to consider the negative and positive unintended consequences of incentive programmes, which we report elsewhere (Thomson et al., 2014). Adams and colleagues' framework describing financial incentive interventions for health behaviours includes domains describing elements on incentive delivery such as the frequency, schedule, immediacy, and certainty (Adams et al., 2013). In addition, our data reveal the importance of considering how the types and associated meanings of incentives 'fit' with these variables, for example, whether the type of incentive is compatible with a variable schedule, or whether the timing of delivery can enhance the perceived social and/or hedonic value of the incentive.

5. Conclusions

Well-planned incentives delivered in the context of multifaceted intervention programmes which take into account the social context of people's everyday lives have the potential to promote healthy behaviours and influence health outcomes. Diverse items or services can serve as incentives for smoking cessation in pregnancy or breastfeeding, and their meanings understood in terms of three dimensions: the degree of restriction, the extent to which each is hedonic and/or utilitarian, and monetary value versus monetary with added social value. These characteristics influence their meaning to the recipient and in turn interact with structural, social, and personal factors. Understanding these meanings is critical to the design of effective incentives and their integration into intervention programmes.

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