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Co-design of a Community-based Financial Incentive Scheme for Smoking Cessation Services in Ireland: A Modified Nominal Group Technique

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Abstract

Background

Despite the overall decline in smoking prevalence, socioeconomic disparities in smoking quit rates are widening. Financial incentives such as cash or cash-like rewards provided conditional on performance of healthy behaviours, are effective tools to enhance smoking cessation, yet are complex and often designed without community input or theoretical rationale. Hence, we aimed to co-design a theoretically driven and contextually-relevant financial incentive scheme for implementation, with key stakeholder groups including community members and health professionals, in Irish primary care and community services.

Methods

A mixed-methods approach was utilised with a modified Nominal Group Technique, underpinned by Adams et al.'s (2014) 9-domain incentive framework, over three one-day workshops (n = 59 participants) to elicit ideas and achieve consensus on incentive design. Descriptive statistics were used to identify the highly-ranked ideas, while reflexive thematic analysis was employed to examine the decision-making process focusing on key considerations across various domains of the proposed incentive scheme.

Results

The incentive design was as follows: 1) Total amount: €400 (Median, IQR: €200–500); 2) Form: voucher; 3) Certainty: definite reward; 4) Target population: adults living in deprived areas who smoke and are in receipt of free primary care services; 5) Target behaviour: validated smoking cessation and clinic attendance; 6,7) Schedule and Frequency: incrementally increasing amount aligned with current services review timepoints; 8) Immediacy: as soon as possible within a week; 9) Provider: smoking cessation advisors. Participants' key considerations in reaching consensus on each incentive domain were represented by five themes including: acceptability, potential of gaming, operational and administrative demands, fit with existing services workflows, maintaining organisational image, and public scrutiny.

Conclusion

This is the first study to co-design a stakeholder-informed, and theory-aligned incentive-based scheme to support smoking cessation for people living in deprived areas. A pilot is now underway to test real-life implementation feasibility on smoking cessation outcomes.

Background

The tobacco epidemic persists as a serious threat to population health and a major driver of inequalities worldwide[1]. In Ireland, despite an overall decline in smoking prevalence, smoking remains the leading preventable cause of ill-health and premature death, with recent estimates suggesting it accounts for ~ 4500 deaths annually, an estimated 4.9 million total loss in life years and a healthcare cost burden of €20.2 billion to the Irish healthcare system[2, 3]. Smoking prevalence, however, has remained static since 2019 at 17–18%, with a disproportionately

lower decline in prevalence and quit rates among lower socioeconomic status (SES) groups[2, 4]. Similarly, global patterns repeatedly indicate that the lower SES populations bear the greatest burden[5–7]. Nationally, smoking inequalities are growing, particularly among the least educated and for individuals living in the most deprived areas.[8] For example, in 2025 current smoking prevalence was 21% among individuals with lower educational attainment, compared to only 11% for those with higher levels of education[4]. Furthermore, smoking and SES smoking-related inequalities tend to perpetuate a vicious cycle of overall health and socioeconomic inequalities such as financial strain[9, 10], mortality gap between SES groups[11, 12], and poor health outcomes[13, 14].

In an effort to reduce inequalities, proposals to support smoking cessation have included a range of innovative approaches, such as the use of financial incentives (FI)[2, 15–17]. FI, defined as cash or cash-like rewards or penalties provided contingent on performance of healthy behaviours, are increasingly recognised as effective tools in promoting smoking cessation across diverse populations[18–20]. A Cochrane review of 39 trials (18303 participants) has found high-certainty evidence that individuals offered FI were 52% more likely to quit smoking at six months or longer follow-up compared to control groups (pooled risk ratio of 1.52, 95%, CI 1.33 to 1.74)[20]. In particular, evidence suggests that FI interventions might be more effective and cost-effective when targeted at populations of lower SES[21, 22]. Additionally, FI are considered effective for individuals facing financial strain or those who require external motivation to support their quit attempts; either through offering tangible monetary benefits or by serving as a positive reinforcement that helps build confidence and self-esteem[21].

Nonetheless, FI interventions have been largely subject to criticism, due to issues of acceptability, design heterogeneity and context-sensitivity, with little clarity around what constitutes an appropriate, efficient and effective FI structure[19, 23–26]. Adams et al.[25] recommend the use of a comprehensive framework to design effective incentive configurations. This framework provides key domains as follows: direction (positive gain or avoidance of loss), form (Cash, vouchers, etc.), magnitude (total value), certainty (certain or [variable] chance incentives), target (e.g., attendance at programmes and/or quitting), frequency (proportion of occurrences incentivised), immediacy, schedule (e.g. fixed incentives or increasing incentives over time) and recipient[25].

Participatory research approaches, including co-design, have long been advocated as valuable in addressing potential contextual issues in intervention design and implementation, where the meaningful integration of relevant stakeholders' views (including health professionals and community members) shape service design and delivery [27, 28]. Stakeholders can be defined as *"individuals, organizations or communities that have a direct interest in the process and outcomes of a project, research or policy endeavor"*[29, 30]. Such methods are therefore thought to produce robust knowledge acquired by systematic inquiry and through the mutual understanding of key perspectives, including those affected by the intervention, that is relevant, acceptable and sustainable[28, 31]. They also pose as valuable tools to strengthen co-creation approaches by providing the platform to address existing health inequities and promote positive change[32]. These methods, however, are infrequently informed by relevant theory or frameworks to guide intervention development processes[33–35] with theoretical underpinnings often implicit or inconsistently applied limiting replicability.

To overcome these limitations and enhance implementation processes, we aimed to utilise a blended approach, where participatory research principles supported by theory-guided specific questions are applied to inform intervention design. To our knowledge, this is the first study that aimed to co-design a FI intervention for smoking cessation in alignment with theoretical considerations by addressing the overarching question: What would an

appropriate and contextually-relevant FI intervention for smoking cessation look like in terms of structure, amount and delivery?

Methods

This study is reported using the ACCURATE Consensus Reporting Document (ACCORD) guidelines[36] to ensure methodological transparency, reporting consistency and enhance reproducibility (See Additional file 1).

Patient and public involvement:

Patients and public representatives contributed during the planning phase of the wider COMPASS project[37], shaping the participatory research approach to answer this study's aim and refining study materials.

Context

The smoking cessation services provide nationwide evidence-based services in 152 primary care settings including free support for up to one year, consisting of behavioural counselling and access to cessation medications as free nicotine replacement therapy when appropriate[38]. Sláintecare Healthy Communities Programme Areas[39, 40] (SHCPAs) target 24 designated disadvantaged areas based on high deprivation rates across 16 local authorities, where high levels of ill-health and health inequalities are evident.

In these areas, intensive, community-based support with dedicated smoking cessation services and integrated health initiatives has significantly expanded[41, 42]. Low-income residents can avail of general medical cards (GMCs), which are typically means-tested, meaning they are entitled to free general practice and primary care services[43]. The qualifying threshold is low and therefore GMCs eligibility generally serves as a proxy indicator of socioeconomic disadvantage.

Study Design

A modified nominal group technique (mNGT) was used to facilitate three consensus workshops to co-design the FI scheme for implementation from September to October 2024. NGT offers a systematic, yet highly adaptable procedure to generate ideas and rank priorities from groups of individuals who have insights into the topic of inquiry, triangulating both quantitative and qualitative data[44]. A standard approach is typically undertaken in one session to answer one broad theme or question[45, 46], comprised of four key stages: idea generation, round robin, refining ideas and ranking of idea by voting.[44, 47] However, given the complexity of FI design, a modified approach was considered necessary to align with the utilised theoretical framework, encompassing nine sub-questions supporting our overarching study aim.

Participants and recruitment

Purposive and snowball sampling techniques were used to recruit participants aiming to gain transdisciplinary representation from clinical, research, policymakers and community member groups with relevant insights on the topic. Specifically, community members were recruited through the Local Authority Development Officers of three

pilot areas – two urban and one rural, and were reimbursed for their time using gift vouchers. Additionally, the research team, in collaboration with Health Service Executive Tobacco Free Ireland (HSE TFI) office, leveraged existing networks to invite additional stakeholder groups including health professionals and service providers with the majority providing services in pilot areas. Community member participation was not restricted to those who currently or previously smoked.

Data collection

Participants' demographic and medical history data were collected in addition to questionnaires. The questionnaire comprised of two main sections: the individual response section and the ideas ranking section. Questions reflected the nine elements of financial incentive structure as per Adams' et al nine-domain conceptual framework[25] (See Additional file 2). Participants received their questionnaire on arrival, to allow sufficient familiarisation time prior to workshop commencement, with onsite support for participants with literacy challenges. Each workshop lasted approximately 5–6 hours, and were facilitated by either FD or BD, who have extensive expertise in public health research and/or leading community and stakeholder engagement activities. When BD was in the facilitator's role, FD participated as a member of the NGT panel, but his responses were not considered as part of the results. Similarly, responses from repeat HSE TFI participants were recorded across the three workshops, but only those from the first workshop were included in the analysis. Discussions held during the group's decision-making processes, were audio-recorded and field notes/observations were also documented by RL and CD as appropriate.

The standard NGT methods have been reported extensively elsewhere[44]. Table 1 outlines the stepwise process used in the technique, as originally presented by Gallagher *et al*.[44] and our deviations and rationale for same. Briefly, we adapted the NGT to enable the examination of nine domain-specific sub-questions at each of the three workshops one question at a time. To accommodate the anticipated rich nature of the data, an on-site method triangulation was also undertaken through diverse data collection methods, including flipcharts, questionnaires, field notes and voice recordings of each group[48]. Lastly, an online follow-up discussion post-analysis with participants from all sites was sought for sense-checking and final adjustments of the intervention design.

Table 1
An outline of the modifications (highlighted in bold) made to the standard NGT procedure.

Phase	mNGT
Step 1: Introduction and explanation of the procedure	Introductions, NGT objectives and working together guidelines. Summary of the nine questions presented by the facilitator via a PowerPoint presentation in plain English.
Step 2: Silent generation of ideas in writing	**Each of the nine questions were presented one at a time in succession, accompanied by an explanation, with adequate time allocated for participants to respond.**
Step 3: Listing of ideas on flip chart	Each participant was asked to voice their ideas in round-table manner for each of the nine questions.
Step 4: Discussion of ideas on flip chart	Participants shared their rationale for each idea they had shared. Additionally, on completion of each list per domain, time was given to the participants to have open discussions on all generated ideas.
Step 5: Ranking to select the "top-five "ideas	**Participants ranked ideas listed on the flipchart on a scale from 1 to 5 on their ranking sheets, the most highly ranked idea receiving 5 points.**
Step 6–7: Voting on "top-five" idea; Break	**Participants were asked to voice out their top two ideas. No list was produced. Instead, ideas were tallied on the flipchart and shortlisted. During the break, a prioritised consensus list was produced.**
Step 8–9 Active discussion of the votes; Re-evaluation of rankings	Active and moderated discussion about the nature and content of all listed items were carried out. Participants discussed feelings and insights about items included or excluded and were allowed to reflect/ modify their highly ranked answers.
Step 10: Conclusion of the nominal group - Consensus	**The final list of the highly ranked "top-five per participant" items were presented to the participants, one question at a time. Participants were asked whether they collectively agree on the top-rated idea per domain. Disagreements prompted further in-depth discussions where scoring of each idea was considered until consensus was reached.**

Data Analysis

Data analysis was undertaken following completion of all data collection across the three workshops. Consensus processes during the meetings continued until majority consensus (> 50%) was achieved. By adopting this approach, in-session results validation at the end of each workshop was inherently ensured[49]. Demographic data were analysed descriptively while quantitative data related to the gathered ideas and their final rankings was analysed using Excel V.2018 according to a recommended procedure, with participants' idea scores being divided by the sum of all scores given per domain, yielding the relative importance given to each idea per domain[44].

Discussions were transcribed verbatim initially using aTrain[50], a trained transcription software using machine learning for accuracy, then cross-checked by BD and RL to enable idea and results validation. Transcripts were inductively analysed using reflexive thematic analysis (Braun and Clarke, 2022) [51–53] by RL. The analysis was conducted at both semantic and latent levels, aiming to provide a clear display of participants' explicit and diverse views surrounding the intervention constituents and its implementation processes whilst capturing the rich and more nuanced understanding of the underlying reasonings behind the resultant consensus decisions, collectively shaping the multifaceted nature of decision making. Post initial analysis, coding and themes development processes were discussed with CD and BD to promote a

critical dialogue enhancing reflexivity and deepening interpretation[53]. See Additional file 3 for information on researcher reflexivity and more details on the process.

Findings

Participants Characteristics

A total of 59 participants took part in the study across the three sites; A (n = 26), B (n = 16) and C (n = 17). Most of whom were aged between 35 and 64 years old (n = 43), females (n = 36) and white Irish (n = 50). Of the total sample, 28 were community members, and 25 were healthcare or service providers including three organisational representatives. The majority of participants (n = 41) either currently or previously smoked conventional cigarettes. A total of 22 participants had been diagnosed with a long-term medical condition, with almost half of those having multimorbidity (more than two long term conditions at one time). Table 2 presents participants' site and detailed characteristics.

Phase	mNGT

Table 2
Participants' characteristics

Site (No. of participants)	Site A, Urban (n = 26)	Site B, Urban (n = 16)	Site C, Rural (n = 17)	Total (n = 59)
Age, *n (%)*				
18–24	1	0	2	3 (5.3%)
25–34	4	2	1	7 (12.3%)
35–44	9	3	4	16 (28.1%)
45–54	6	2	6	14 (24.6%)
55–64	6	5	2	13 (22.8%)
65+	0	3	1	4 (7.0%)
Sex, n (%)				
Male	11	7	5	23 (39.7%)
Female	15	8	12	35 (60.3%)
Ethnicity, n (%)				
Irish White	25	12	13	50 (84.7%)
Irish Traveller	0	0	2	2 (3.4%)
Other [a]	1	4	2	7 (11.9%)
Role, n (%)				
Community member	10	11	7	28 (47.5%)
Healthcare/Service provider	13	3	9	25 (42.4%)
Other	3	2	1	6 (10.2%)
Never smoker [b], n (%)				
Yes	5	5	8	18 (30.5%)
No	21	11	9	41 (69.5%)
Diagnosed long-term condition [c], n (%)				
yes	9	9	4	22 (39.3%)

a: including other white, East−Asian and South−Asians

b: pertains to never being daily, occasional tobacco or e−cigarette smoker

c: Conditions include: Diabetes, hypertension or kidney, cardiovascular, respiratory, gastrointestinal, neurological, joint and bone diseases, mental health illness, cancer or long−lasting impairment or difficulty

Phase	mNGT			
	Site (No. of participants)	**Site A, Urban (n = 26)**	**Site B, Urban (n = 16)**	**Site C, Rural (n = 17)**	**Total (n = 59)**
	Age, *n (%)*				
	No	13	5	12	30 (53.6%)
	prefer not to say	2	1	1	4 (7.1%)
	If yes, n (%)				
	One condition	4	3	3	10 (45.5%)
	Two or more	5	5	0	10 (45.5%)
	Prefer not to say	0	1	1	2 (9.1%)
	a: including other white, East–Asian and South–Asians				
	b: pertains to never being daily, occasional tobacco or e–cigarette smoker				
	c: Conditions include: Diabetes, hypertension or kidney, cardiovascular, respiratory, gastrointestinal, neurological, joint and bone diseases, mental health illness, cancer or long–lasting impairment or difficulty				

Consensus

During initial phases, all three groups were asked to answer the questions on the nine domains of FI design and were subsequently invited to share those with the wider group. Participants were allowed to skip their turn, share more than one idea per question or refrain from answering altogether. More than 69 ideas were generated for all nine domains across the three workshops with 43–58 participants sharing their ideas per domain. Consensus data, measured by frequency of participant's votes, across the three workshops were analysed to generate the final list of highly ranked ideas. Table 3 presents the collective views of participants (See Additional file 4 for full list of generated ideas and ranking)

Phase	mNGT

Table 3
First three top-rated ideas per domain across the three workshops

Domain	Magnitude (€)			
Rank	**Idea**	**Sum of scores**	**Frequency of votes**	**RI (%)**
Total amount				
1	400	60	14	17.9
2	200	36	13	10.7
3	500	34	8	10.1
Form				
1	(Physical/digital) voucher	87	18	35.8
2	Limited-use voucher	66	15	27.2
3	Money Transfer	34	13	14.0
Certainty [a]				
1	Certain reward	101	21	54.0
2	Combination of a certain reward and chance	39	9	20.9
3	Certain chance e.g., Prize draw	28	9	15.0
Target Behaviour				
1	Validated quit	52	11	27.1
2	Validated quit at certain timepoints	43	9	22.4
3	Validated quit and clinic attendance	38	8	19.8
Frequency and schedule				
1	Fixed timepoints in line with services	45	11	27.4
2	Incremental increase at certain timepoints in line with the service	31	8	26.1
3	Lump sum payment in the end	28	7	17.1
Immediacy				
1	Immediately (as soon as possible)	109	22	66.1
2	Within a week	24	6	14.5
3	Other	17	4	10.3
Target population				
1	Targeted (Socioeconomic Status)	77	16	33.8
2	All smokers	51	13	22.4

Phase	mNGT				
	Domain	**Magnitude (€)**			
	Rank	**Idea**	**Sum of scores**	**Frequency of votes**	**RI (%)**
	Total amount				
	3	Means-tested	43	11	18.9
	Service Provider				
	1	Stop Smoking Advisors	83	18	40.3
	2	HSE (TFI Programme Office)	73	16	35.4
	3	Healthcare professionals	29	9	14.1

Sum of Scores

total sum of all scores given for an idea on a scale of five to one across all participants

Frequency of votes

number of participants voted per idea

RI (Relative importance)

(Score of each individual idea/ total sum of all scores given for all ideas per domain) * 100

[a] Terminology used adopted from Adams et al's framework as follows. *Certain*: guaranteed FI upon achieving the behaviour. *Certain Chance*: guaranteed entry into a lottery but winning is not assured. *Uncertain Chance*: neither entry nor winning is guaranteed; only participation depends on meeting eligibility.

Qualitative findings

The post-ranking discussions were further used to inform finalisation of the FI design. Themes from these discussions are outlined below. Categories of each theme are presented followed by the number of units relevant to each category in brackets. Participants are identified by role, where CM denotes community members, HP healthcare professionals, and SP service providers.

An Equitable system: idealism versus realism.

Discussions surrounding each domain of the financial incentive intervention highlighted the complexity of decision-making processes as well as the profound social and ethical weight of the entire endeavour, particularly considering resources at hand, evidence-base and population needs. Overall, under this overarching theme, the tension between a range of idealised scenarios to the realities of the implementation environment are presented. Analysis revealed five key themes[1] across 159 units of analysis 1) Shaping form, assigning value; 2) When standardisation meets (an ever-changing) reality; 3) Commitment to quit: validation and pitfalls; 4) For all or for some? 5) The implementation dilemma: accommodating expectations. Figure 1 shows the thematic map showing the five main themes, subthemes and categories where necessary, with Additional file 5 presenting same with full data excerpts.

1. Shaping form, assigning value

This theme depicts the difficulty determining the amount or value as well as the various forms of incentives to be administered considering their relative significance and their feasibility. Some participants argued that non-monetary incentives [5] e.g., a trophy or graduation ceremony "*so that it lasts forever"* (CM) as a constant reminder of their achievement are more meaningful, while the majority inclined towards those of monetary value [20]. On the value of

the incentive, several participants recognised the importance of offering an incentive that is *"enticing enough* (HP) and *"worth their while"* (CM) to drive an individual's motivation towards a quit attempt [13]. When considering factors such as relative costs borne by the service user during service access, or those foregone savings borne by the healthcare system should people manage to quit, as well as the current evidence-base, it was soon realised that what could be valuable to one would not necessarily be to another, nor feasible given contextual factors.

"I think the money could be very tokenistic. If I say 50 or 150 or 200 or 300, it could be like a middle-class approach to a working-class problem… I'm sort of honing in around that 400 mark. But cost impact, you could probably scale it up to 4000, easy enough." SP, Site C.

When it came to the form or the shape of the incentive, it became apparent, perhaps, unsurprisingly, that there were concerns about logistical and the practical aspects of implementation. These included tax implications, administration/utilisation procedural complexity, associated fees and potential impact on a more personalised approach, particularly surrounding the degree of choice that purchasing a certain incentive type, could offer a user [27]. For example, forms like prepaid cards and cash were not favoured due to their cumbersome administration, tax implications or the notion that "*If you get cash, it just gets swallowed!"*(CM). A voucher system was most favoured mainly due to its less complex nature of implementation, administration and tracking, as well as its relative broad applicability for local stores.

"(On electronic money transfer as a method of FI delivery) For the reason that it would involve tax implications. Whereas a voucher; you are allowed to have a voucher for a certain amount without changing or declaring it as an income" HP, Site C.

2. When standardisation meets (an ever-changing) reality

Two main concepts were discussed in relation to incentive administration: a one-size-fits all model versus a person-centred approach. Although participants highlighted service users' diverse needs and capabilities to quit and the importance of a flexible system, especially when dealing with groups across different sites and who are most in need of support [6], they also recognised that it would be practically impossible to operate a fluid system without a clear framework in place [11].

"I understand why it's important to stick to structure, but I suppose my concern with that is it will appeal to and it will work more with certain persons and those who, maybe, don't have the supports around them to the same degree; which are the people we're trying to get to support." SP, Site A.

As Ireland's Stop Smoking clinics already operate a standardised, evidence-based service, participants mainly proposed a structured approach for several reasons, including its ability to leverage well-established systems, permit standardisation across sites, enable clear messaging to service users and efficient communication across implementation parties as well as ensure orderly management of an already complex intervention – thereby helping prevent potential disputes.

"We've got one IT system and just like administrating something like this... even from a communications point of view (for example, someone could say) I'm living in Longford, so I'm getting €500 to quit. I'm living in Dublin; I'm only getting 300. Or, I'm getting (incentives at) different time points. It would be a nightmare!" SP, Site C

3. Commitment to quit: validation and pitfalls

On the target behaviour to incentivise, this theme presents discussions primarily focusing on how to define or measure commitment to quit, and validation methods and concerns around potential gaming of the system. Participants generally held a strong stance towards incentivising a form of witnessed and maintained effort to quit as to *"do the leg work and then you get it!"* (CM) with a *"no punishment"* (SP) approach in case of relapse [18].

"You'd have to get yourself back to where you were and then carry on. Yeah; to catch up on yourself!" CM, Site A.

Phase	mNGT
	The format of such effort or commitment, however, was subject of considerable deliberation among participants. For example, while several participants recognised the importance of rewarding service attendance or setting a quit date, potential system misuse and overwhelming of services, as well as limited defensibility to the public, significantly rendered rewarding these behaviours impractical. Hence, a robust and objective measure of a quit attempt would be required [20]. "I feel very strongly on this. I actually feel that people should only get rewarded for a validated quit, so I think that administering this with any kind of subjectivity will be impossible and I think what would happen is one service might provide it in one way or another and that could end up backfiring. I think if people know if they come in with the intention that I'm going to get paid to quit and that's it; the message is very clear, people have the same goal. If you start moving the bar; I think that we could undermine the whole thing." SP, Site A. Although few participants expressed that *"there is a certain amount of trust expected from our clients"* (SP), a major driver behind having a method of quit validation, often stemmed from concerns surrounding gaming the intervention, as well as the need to uphold a consistent parameter of behaviour validation promoting a sense of fairness and accountability among service users. "(On importance of a test) I think you might be trusting a person to come along and say they are quit…only for them to come out and then smoke!" CM, Site A. It was recognised however, that caveats surrounding the use of the Carbon Monoxide (CO) breath test (Breathalyzer) used to validate smoking cessation existed, with gaming still a possibility. Also, it may not accurately reflect abstinence in specific groups such as those with specific health conditions or physiological variations [9]. "I had a patient – COPD, came into clinic, I could, know her chest was terrible! So, I did- she hadn't smoked or anything, I did her CO testing, and it was actually 15!" HP, Site C. Although a few participants proposed alternative testing methods mainly Cotinine testing [6], these were quickly dismissed mainly over the concern that it would disrupt the well-established provider-user relationship dynamics and be contrary to the longstanding principles of the services, which have consistently centred around providing an optimum opportunity for users to achieve better health. "It changes the tone of the interaction that's happening... you [service user] can hoodwink many different ways, if somebody's trying to catch you out. But then, so what? If somebody's coming to your clinic, they get free money; but it's not a significant amount of money - unless it starts with four grand! So, if we go down *to "I actually want to do a random test to you"* that brings us into that sort of drug testing space. And it does have connotations about what the actual service is about. Giving people the optimum opportunity to overcome a product that is optimized for human consumption and it's highly addictive. Um, I would not like to see mistrust weaving in!" SP, Site C. **4. For all or for some?** This theme concerns a rather heavily contemplated domain; the target population of the incentive, where under this theme some participants were conflicted between the ideal *"open to anyone"* (CM) service as to promote inclusivity and to avoid creating unnecessary divide between different populations in society versus a more targeted and realistically-feasible approach. In spite of such sentiment, real-world constraints [9], for example, the limited budget and resources at hand, necessitated for an eligibility criterion that is clear, easily applicable and defensible to stakeholders to be set. "The least preference would be all smokers, not because I wouldn't like to give every kind of help to every kind of smoker but just politically (and) financially trying to articulate that would be tricky!" SP, Site B. On inclusion criteria, participants mainly reflected upon priority groups such as individuals of socioeconomic need, those with existing medical conditions, or those in the maternal healthcare continuum [22]. It was soon acknowledged that disadvantaged areas are more likely to bear the most burden and encompass all previously-mentioned groups.

"But essentially that's everyone in Sláintecare, because anyone in Sláintecare could be pregnant, could have a mental health condition, could have chronic disease" HP, Site B.

Soon after, another dilemma raised by the participants was the applicability of such criteria in day-to-day operations as relying exclusively on geographical boundaries to determine enrolment will likely pose potential challenges. Several participants were torn between potentially stigmatising a group of people or excluding those more in need if implementing an objective threshold or parameter. Eventually, discussions revealed various caveats including the fact that even within deprived areas "*there are hot pockets of stark deprivation and just down the road there are affluent areas.*" (SP) thus the need for an objective parameter appeared necessary.

"I also put medical card or GP card, because we have some people who are quite advantaged living in those areas. And historically, [when we] had free NRT for just those in Sláintecare areas, it was quite difficult to kind of determine where's the boundary and the border and all of that. And you don't want to leave it up to the advisors to have to make that decision. So, you need something very definite that's easy to administer and that's you're either in or you're out and it's a pilot, you know what I mean?" SP, Site C.

5. The implementation dilemma: accommodating expectations

Under this theme, participants discussed operational roles and demands with considerations to existing services capacity as well as parameters of intervention success in light of stakeholders and public perceptions [28]. For example, two main areas of responsibilities were communications surrounding the incentive and its actual administration. As the majority agreed that information dissemination is best conducted through the Health Service Executive as "*it's seen as a trusted source*" and *"with the appropriate branding and the appropriate key message" (SP),* several pondered over the most efficient method of incentive issuance.

"The incentive piece, I was certain from a staff management perspective, I wouldn't be happy with the team being responsible for holding on to vouchers and money and the pressures that would put on people at a local level. So, we have to think where we'd even store it - in a secure environment…. So, my thinking would be of it being centralised, you know, in our admin teams." SP, Site C.

Eventually, a collaborative approach between both service providers and the HSE were seen the most suitable. A few providers subsequently voiced their concerns surrounding managing expectations when it comes to immediate incentive delivery, as to align with the intervention demands and evidence-best practice.

"Because I suppose we (Stop Smoking Advisors) face too much at hand. But we make an attempt to do it (deliver the incentive) on the day." SP, Site A.

Overall, a major consideration governing almost every decision was defensibility, whether to the public or different stakeholder groups. As participants were concerned that incentivising smoking cessation, which is known to be controversial, could further attract public scrutiny, it was important to tread carefully and produce a *"bomb-proof"* (SP) intervention whether in terms of amount, target population or behaviour or simply utilising tailored and minimal advertising. At the same time, few underscored the value in balancing perceived risks with the implementation of a theoretically-sound and agreeable intervention.

"I think we care; I know we have to sell this to the public because it may be under scrutiny … but I would just tread carefully in terms of always being pigeonholed into that direction because of the consequences" SP, Site A.

Shaping the FI Intervention design

As a result of the mNGT workshops, an initial structure of the FI scheme entailed providing €400 over a 12-month programme in the form of a digital or physical voucher, delivered as a definite reward to adult smokers living in deprived areas, contingent on biochemically validated quitting and clinic attendance, with incremental payments aligned to the existing service schedule, issued on the day or as soon as possible, and administered by smoking cessation advisors.

Phase	mNGT
	The final FI design was further refined during a follow-up online discussion with stakeholders, with minimal deviations from the workshop results, primarily due to logistical considerations identified during the planning and implementation phases. While the original design was set to distribute the total €400 amount in incremental increases, this was changed to €20 being issued at fixed amounts for the first three weeks, with incremental increases thereafter. The final Intervention is as follows: Weeks 1-3: €20, week 4: €40, week 12: €60, week 26: €100, week 52: €140. In terms of the voucher, the choice was on *On4all* Gift card[54]; available in both digital and physical formats, redeemable at multiple retail outlets. On immediacy, issuing incentives on the same date proved logistically challenging. Therefore, clients were set to receive their incentive within a maximum of one week following a confirmed quit. On the target population, following discussions, it was agreed to use the GMC as an objective criterion for identifying eligible adult clients based on socioeconomic status within SHCPAs. Finally, in terms of relapse mechanisms, clients on the service who relapse at any stage may re-join and remain eligible for financial incentives. Upon re-joining, however, they resume incentives receipt on a successful quit from the point at which they previously relapsed. Due to budget constraints, clients are permitted one re-entry to the FI scheme though they may continue to access other QUIT support services as usual. Figure 2 shows a leaflet used to promote the scheme post-implementation as the "Stop Smoking Gift Voucher Incentive Scheme". (See Additional file 6)

Discussion

We have outlined the first co-designed, theory-based FI scheme for smoking cessation in deprived communities. Our study participants proposed the most appropriate FI design for local implementation as follows: a total amount of €400, over a 12-month period delivered in an incrementally increasing schedule at validated quit milestones, confirmed by CO testing with payments provided immediately or as soon as possible following verification for adults meeting a low-income threshold from deprived areas. Key considerations governed the final structure including: public and stakeholders' acceptability, principles of equity, appropriate incentive valuation and scope of and mechanisms against gaming as well as best fit with existing systems.

This study also outlines a methodology that helps bridge the evidence-to-practice gap ensuring a scheme is most likely to have a good fit within existing services and relevant to those involved[55, 56]. Overtly, FI interventions may seem simple to design and/or execute yet they are inherently complex shaped by multifaceted, diverse and contextual factors- making such method a valuable tool to address these challenges. Although, it has been argued that it is unrealistic to expect co-design processes to produce ideal solutions to complex problems within a short timeframe[57], our combined approach, utilising theory to frame the discussions, allowed for incorporation of participants' ideas into FI design. This has successfully informed the implementation of an ongoing multi-site pilot FI scheme "Stop Smoking Gift Voucher Incentive Scheme"[58] which is currently being evaluated as part of the wider study, COMPASS[37]. Overall, we believe our design closely aligns with existing evidence-base[18, 20, 21, 24] and is contextually appropriate model for Ireland's smoking cessation services and well-established national programmes of similar systems[59].

Studies have shown that an "appropriate" FI intervention for smoking cessation is often governed by key inter-dependent aspects: acceptability, which is regularly linked to amount issued and target population, effectiveness and cost-effectiveness[23, 26, 60, 61]. It is also important to note that evidence suggests that the perceived value of a specific incentive amount could vary significantly across settings and target populations[18, 62–64]. For example, Notley et al.'s systematic review[62] of 48 RCTs examined incentives ranging from $45 to $1185 (excluding zero self-deposits), and found that low-to-moderate incentives (under $500) often achieved sustained abstinence beyond the reward schedule of six months or more. Interestingly there was no significant difference in long-term quit rates between smaller (<$100) and larger (>$700) incentives. Although their analysis yielded no significant association between total incentive value and cessation outcomes, this is a crude analysis, and non-significant results may be due to local contexts or cultural significance of FI amounts. This in fact may underscore the importance of co-design methods in formulating FI reward structures to better account for context (e.g., income level, cultural norms, target population)

Phase	mNGT
	[21, 62, 64, 65]. In both Irish and UK contexts, similar reward sizes appear to be both impactful and scalable[22, 59]. Our participants voiced their acceptance of both the proposed amount as well as the overall structure of the scheme based on several factors aligning with previous literature[21, 23, 26, 60, 61, 64]. Results showed that the amount needed to be sufficiently large to motivate cessation, yet not so substantial as to invite misuse or attract adverse public scrutiny, as well as remain within budget, and integrated with associated administrative operations consistent with existing services workflows. On public attitudes to FI for smoking cessation, Cosgrave et al.[66] conducted a cross-sectional survey of 1000 participants and found that among the 47% of respondents supporting the use of FI, the majority (60.6%) believed the maximum amount given should be under €250 (median €100), although there was a very wide range (€1-€7000). Therefore, our findings are within the expected range and likely to be publicly acceptable, particularly to those affected by smoking, while remaining cost-effective in the national context[22]. The timely delivery of FI is critical. For logistical reasons, it was considered that receiving a voucher within a week would be realistic. FI received within days to weeks following a validated quit are proven to reinforce abstinence and sustaining motivation[19, 67]. The relative immediacy of FI has been frequently shown to influence outcomes of incentive-based programmes; the more immediate rewards have larger effect sizes, whereas a delay could compromise the influence of even high-magnitude incentives on behaviour[19, 62, 63, 67, 68]. The theory of hyperbolic discounting, where individuals tend to disproportionally prefer smaller, immediate rewards over largely delayed ones, with the rate of discounting decreasing over time, may explain these findings[19, 69]. Despite this, many FI interventions conducted involve significant delays between target behaviour and incentive delivery.[24, 67] Almost all our participants agreed that an incentive should be received immediately or as soon as possible (within a week of validation). The HSE's Stop Smoking services are structured, with set quit verification timepoints at 4, 12, 26 and 52 weeks[38]. Participants agreed that the most administratively sound and potentially effective reinforcer was to tie the rewards with such milestones. Additionally, the majority of our participants, generally, preferred a validated quit to be incentivised over other behaviours e.g., attendance only. This is also in line with recommendations of biochemical validation over self-reporting of quit status, noting that the latter tends to overestimate quit rates, particularly when financial rewards are involved[62]. Moreover, theory suggests that incentives might work according to operant conditioning (rewards tied to desired behaviour)[63] with evidence emphasising that incentives are more effective not only when tied to specific milestones, but specifically when delivered as part of a contingency-based framework, meaning incentives are conditional upon verified maintenance of some sort[19, 21, 70]. Others argue that engagement-based incentives are easier than those contingent on verified cessation, with positive impact on promoting attendance particularly among individuals who struggle to achieve or maintain abstinence[71]. Nonetheless, prior literature indicates that incorporating validation methods can enhance behaviour change and is associated with positive outcomes[19, 21, 72], by supporting self-efficacy, adherence and promoting accountability, reducing relapse risk and reinforcing perceived fairness and incentive value[64, 71]. Additionally, these methods help limit gaming behaviours, thereby improving acceptability and consequently facilitating wide-scale adoption. Our participants voted SHCPAs[39] as most appropriate for scheme implementation where socioeconomically-disadvantaged groups are prevalent, shouldering high burden of smoking, ill-health and inequality[2, 8, 22]. Though universal approaches to implementation are often more acceptable to the general public, using a targeted FI- approach toward lower income groups is argued to promote health equity[26, 73], which further ensured by the condition of possessing a GMC in our study. Cosgrave's et al.'[66], however, found that the support for universal FI interventions and for targeting to people of lower income was similar with those with the greatest need, i.e., younger individuals with lower education who smoke, were more supportive of a targeted approach, in line with our findings.

Phase	mNGT

STRENGHTS AND LIMITATIONS

While the NGT is typically applied with a small number of participants to address a single broad question, our mNGT approach demonstrated the method's flexibility, as we conducted three independent workshops with 59 participants, addressing nine specific and relevant sub-questions underpinned by theory rather than one generic question. This introduced a novel and feasible approach, that successfully informed implementation efforts of the pilot scheme. Additionally, the NGT inherently allows for both methodological and data source triangulation[44, 48]. In our study, qualitative data was collected via discussions and field notes per individual workshops while we examined the phenomenon at hand, coalescing the insights of different types of individual groups from multiple sites across all workshops. That enabled us to capture multiple perspectives and formulate a comprehensive understanding of those as well as validate the collected data, both in-session and across all workshops.

However, the study was not without limitations. Given our specific context, the results may have limited generalisability to other systems or settings. Yet, we believe the overarching concepts of the key considerations raised by our participants surrounding FI design are largely relevant to various implementation efforts and many elements are adaptable to other delivery systems -e.g., scheduling of incentives to link in with existing structures. While our workshops included a substantial number of community members at the start of each workshop, the lengthy nature of the procedure meant that many left before the final consensus phase. However, this was largely mitigated by the fact that most participants had recorded their consensus results on the physical forms which were incorporated into the analysis. All previously ranked ideas and votes were also considered across the three workshops and in-session, although some perspectives may have been missed. Additionally, due to the poor quality of the recordings from one workshop, certain contributions might not have been fully captured in the transcripts. However, since the majority of the research team were on site, our observations and notes should mitigate this.

Conclusion

We demonstrated that combining participatory research with theory using mNGT, enabled the design and implementation of a one-year FI scheme, with escalating rewards, tied to verified abstinence milestones and the current smoking cessation scheme timeframes. Our community identified multi-faceted considerations when reaching consensuses on each domain of the FI structure including: acceptability, potential of gaming, operational and administrative demands, maintaining organisational image, fit with existing services workflows, and public scrutiny.

Abbreviations

SES
socioeconomic status
FI
Financial incentive
NGT
Nominal group technique
mNGT
Modified nominal group technique
HSE
Health Service Executive
HSE TFI
Health Service Executive Tobacco Free Ireland
SHCPAs
Sláintecare Healthy Communities Programme Areas
GMC
General medical card
CO
Carbon monoxide
COPD

Chronic Obstructive Pulmonary Disease
SP
Service provider
CM
Community member
HP
Healthcare professional

Declarations

Ethics approval and consent to participate

The study received ethical approval from the Reference Research Ethics Committee (RREC) for HSE Dublin and Midlands and HSE centre (Reference number: RRECB1123FD) and all participants have provided their informed consent to participate.

Clinical trial number

Not Applicable

Consent for publication

Not applicable

Availability of data and materials

All data generated or analysed during this study are included in this published article and its supplementary information files. Additional datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors contributions

RL drafted the manuscript, carried out formal data analysis and interpretation of findings. BD and CD supported data analysis processes. BD, CD, RL and FD led data collection processes. FD provided methodological input and overall supervision. FD, PK and DS provided substantial and critical revisions to the manuscript. All authors contributed to the conceptualisation of this study, reviewed and approved the final manuscript.

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References

1. World Health O. WHO global report on trends in prevalence of tobacco use 2000–2030 [Internet]. Geneva: World Health Organization; 2024. Available from: https://iris.who.int/handle/10665/375711
2. Health Service Excutive. Tobacco Free Ireland Programme - The State of Tobacco Control in Ireland: 2nd Report [Internet]. 2022. Available from: https://www.hse.ie/eng/about/who/tobaccocontrol/research/

3. Valentelyte G, Sheridan A, Kavanagh P, Doyle F, Sorensen J. Health and societal burden of tobacco smoking in Ireland: A life table modelling study. Public Health. 2025;247:105880.
4. Government of Ireland. Healthy Ireland Survey Summary Report 2025 [Internet]. Dublin: [cited 2025 Nov 18]. Available from: https://www.gov.ie/en/healthy-ireland/publications/healthy-ireland-survey-2025
5. Huang MZ, Liu TY, Zhang ZM, Song F, Chen T. Trends in the distribution of socioeconomic inequalities in smoking and cessation: evidence among adults aged 18 ~ 59 from China Family Panel Studies data. Int J Equity Health. 2023;22(1):86.
6. Garrett BE, Martell BN, Caraballo RS, King BA. Socioeconomic Differences in Cigarette Smoking Among Sociodemographic Groups. Prev Chronic Dis. 2019;16:180553.
7. Teshima A, Laverty A, Filippidis F. Burden of current and past smoking across 28 Europeancountries in 2017: A cross-sectional analysis. Tob Induc Dis. 2022;20(June):1–11.
8. Valentelyte G. Socioeconomic Variation in Tobacco Smoking Among the Adult Population in Ireland. 2024;Available from: https://doi.org/10.1093/ntr/ntae245
9. Waters A, Kendzor D, Roys M, Stewart S, Copeland A. Financial strain mediates the relationship betweensocioeconomic status and smoking. Tob Prev Cessation [Internet] 2019 [cited 2025 Dec 1];5(January). Available from: http://www.journalssystem.com/tpc/Financial-Strain-Mediates-the-Relationship-between-Socioeconomic-Status-and-Smoking,102258,0,2.html
10. Action on smoking and Health (ASH) UK. Smoking and poverty [Internet]. Internet: 2022 [cited 2025 Jan 12]. Available from: https://ash.org.uk/uploads/Smoking-and-Poverty-Briefing.pdf
11. Gregoraci G, Van Lenthe FJ, Artnik B, Bopp M, Deboosere P, Kovács K, et al. Contribution of smoking to socioeconomic inequalities in mortality: a study of 14 European countries, 1990–2004. Tob Control. 2017;26(3):260–8.
12. Jha P, Peto R, Zatonski W, Boreham J, Jarvis MJ, Lopez AD. Social inequalities in male mortality, and in male mortality from smoking: indirect estimation from national death rates in England and Wales, Poland, and North America. Lancet. 2006;368(9533):367–70.
13. Marmot M. Smoking and inequalities. Lancet. 2006;368(9533):341–2.
14. Zuokemefa A, Sharma S. Investigating correlates of chronic multimorbidity prevalence in Ireland: Evidence from Irish health survey 2015 and 2019. Public Health. 2025;249:106009.
15. Department of Health G of I. Stop Smoking: Guideline Number: 28. Updated January 19, 2022. [Internet]. 2024. Available from: https://www.gov.ie/en/publication/4828b-stop-smoking/
16. Higgins ST, Davis DR, Kurti AN. Financial Incentives for Reducing Smoking and Promoting Other Health-Related Behavior Change in Vulnerable Populations. Policy Insights Behav Brain Sci. 2017;4(1):33–40.
17. Smith CE, Hill SE, Amos A. Impact of population tobacco control interventions on socioeconomic inequalities in smoking: a systematic review and appraisal of future research directions. Tob Control. 2021;30(e2):e87–95.
18. Giles EL, Robalino S, McColl E, Sniehotta FF, Adams J. The Effectiveness of Financial Incentives for Health Behaviour Change: Systematic Review and Meta-Analysis. PLoS ONE. 2014;9(3):e90347.
19. Vlaev I, King D, Darzi A, Dolan P. Changing health behaviors using financial incentives: a review from behavioral economics. BMC Public Health. 2019;19(1):1059.
20. Notley C, Gentry S, Livingstone-Banks J, Bauld L, Perera R, Conde M et al. Incentives for smoking cessation. Cochrane Database of Systematic Reviews [Internet] 2025 [cited 2025 Nov 1];2025(5). Available from: http://doi.wiley.com/10.1002/14651858.CD004307.pub7
21. Rikke Siersbaek PKJ, Ford S, Burke. Sarah Parker. Financial incentives for stopping smoking: how and why do they work? [Internet]. Health Service Excuitve; 2023. Available from: https://www.hse.ie/eng/about/who/tobaccocontrol/
22. Valentelyte G, Sheridan A, Kavanagh P, Doyle F, Sorensen J. Financial incentives to stop smoking: Potential financial consequences of different reward schedules. Tob Prev Cessat. 2024;10(July):1–10.
23. Giles EL, Robalino S, Sniehotta FF, Adams J, McColl E. Acceptability of financial incentives for encouraging uptake of healthy behaviours: A critical review using systematic methods. Prev Med. 2015;73:145–58.

24. Miranda JJ, Pesantes MA, Lazo-Porras M, Portocarrero J, Diez-Canseco F, Carrillo-Larco RM, et al. Design of financial incentive interventions to improve lifestyle behaviors and health outcomes: A systematic review. Wellcome Open Res. 2021;6:163.
25. Adams J, Giles EL, McColl E, Sniehotta FF. Carrots, sticks and health behaviours: a framework for documenting the complexity of financial incentive interventions to change health behaviours. Health Psychol Rev. 2014;8(3):286–95.
26. Hoskins K, Ulrich CM, Shinnick J, Buttenheim AM. Acceptability of financial incentives for health-related behavior change: An updated systematic review. Prev Med. 2019;126:105762.
27. Jagosh J, Bush PL, Salsberg J, Macaulay AC, Greenhalgh T, Wong G, et al. A realist evaluation of community-based participatory research: partnership synergy, trust building and related ripple effects. BMC Public Health. 2015;15(1):725.
28. Seward N, Hanlon C, Hinrichs-Kraples S, Lund C, Murdoch J, Taylor Salisbury T, et al. A guide to systems-level, participatory, theory-informed implementation research in global health. BMJ Glob Health. 2021;6(12):e005365.
29. Arnahoutova K, De Geest S, Mielke J, Boaz A, Schoemans H, Valenta S. Exploring Stakeholder Involvement in Intervention Implementation Studies: Systematic Evidence Synthesis With an Evidence Gap Map Approach. Eval Health Prof 2025;01632787251352837.
30. Deverka PA, Lavallee DC, Desai PJ, Esmail LC, Ramsey SD, Veenstra DL, et al. Stakeholder participation in comparative effectiveness research: defining a framework for effective engagement. J Compar Effect Res. 2012;1(2):181–94.
31. Macaulay AC, Commanda LE, Freeman WL, Gibson N, McCabe ML, Robbins CM, et al. Participatory research maximises community and lay involvement. BMJ. 1999;319(7212):774–8.
32. Morales-Garzón S, Parker LA, Hernández-Aguado I, González-Moro Tolosana M, Pastor-Valero M, Chilet-Rosell E. Addressing Health Disparities through Community Participation: A Scoping Review of Co-Creation in Public Health. Healthc (Basel). 2023;11(7):1034.
33. Harb SI, Tao L, Peláez S, Boruff J, Rice DB, Shrier I. Methodological options of the nominal group technique for survey item elicitation in health research: A scoping review. J Clin Epidemiol. 2021;139:140–8.
34. Messiha K, Chinapaw MJM, Ket HCFF, An Q, Anand-Kumar V, Longworth GR, et al. Systematic Review of Contemporary Theories Used for Co-creation, Co-design and Co-production in Public Health. J Public Health. 2023;45(3):723–37.
35. Grindell C, Coates E, Croot L, O'Cathain A. The use of co-production, co-design and co-creation to mobilise knowledge in the management of health conditions: a systematic review. BMC Health Serv Res. 2022;22(1):877.
36. Gattrell WT, Logullo P, Van Zuuren EJ, Price A, Hughes EL, Blazey P, et al. ACCORD (ACcurate COnsensus Reporting Document): A reporting guideline for consensus methods in biomedicine developed via a modified Delphi. PLoS Med. 2024;21(1):e1004326.
37. COMmunity PArticipation to set direction on design and implementation of financial incentives in. Stop Smoking services in Ireland: COMPASS [Internet]. COMPASS Project [cited 2025 Aug 11];Available from: https://compass-study.eu/
38. Blake M. HSE Tobacco Free Ireland Programme [Internet]. 2025;Available from: https://iiop.ie/content/stop-smoking-medicines-hse-stop-smoking-services
39. Department of Health. Sláintecare Healthy Communities Progress Report 2022 [Internet]. 2023 [cited 2025 Sep 11];Available from:
40. Health Service Excutive Ireland. HSE Sláintecare Healthy Communities 2023 Overview [Internet]. Internet. 2023. Available from: https://www.hse.ie/eng/services/publications/health-and-wellbeing/hse-slaintecare-healthy-communities-2023-overview.pdf
41. Health Service Excutive Ireland. The HSE Health and Wellbeing Annual Report 2024 [Internet]. Internet: 2024 [cited 2025 Nov 20]. Available from: https://hsehealthandwellbeingnews.com/hse-health-and-wellbeing-annual-report-2024/
42. Health Service Excutive. Sláintecare Healthy Communities [Internet]. Internet: 2025 [cited 2025 Jan 12]. Available from: https://www.gov.ie/en/healthy-ireland/publications/sl%C3%A1intecare-healthy-communities/
43. Health Service Excutive. Medical Cards: How much you can earn and still qualify for a medical card [Internet]. [cited 2025 Dec 11];Available from:

https://www2.hse.ie/services/schemes-allowances/medical-cards/applying/how-much-you-can-earn/

44. Gallagher M, Hares T, Spencer J, Bradshaw C, Webb I. The Nominal Group Technique: A Research Tool for General Practice? Fam Pract. 1993;10(1):76–81.
45. Wall G, Pearce C, Gustafsson L, Isbel S. Designing an occupation-based group intervention for adult inpatient rehabilitation: Partnering with clinicians and patients using a nominal group technique design. Aus Occup Therapy J. 2024;71(5):674–85.
46. Kearney N, Connolly D, Bahramian K, Guinan E. Strategies to improve participation in exercise programmes during chemotherapy: a modified nominal group technique. J Cancer Surviv [Internet]. 2025 [cited 2026 Jan 24];Available from: https://link.springer.com/10.1007/s11764-025-01771-y
47. Harvey N, Holmes CA. Nominal group technique: An effective method for obtaining group consensus. Int J Nurs Pract. 2012;18(2):188–94.
48. Carter N, Bryant-Lukosius D, DiCenso A, Blythe J, Neville AJ. The Use of Triangulation in Qualitative Research. Oncol Nurs Forum. 2014;41(5):545–7.
49. Vargas C, Zorbas C, Longworth GR, Ugalde A, Needham C, Sunil A et al. Exploring co-design: a systematic review of concepts, processes, models, and frameworks used in public health research. J Public Health 2025;fdaf084.
50. Haberl A, Fleiß J, Kowald D, Thalmann S. Take the aTrain. Introducing an interface for the Accessible Transcription of Interviews. J Behav Experimental Finance. 2024;41:100891.
51. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Res Psychol. 2006;3(2):77–101.
52. Braun V, Clarke V. A critical review of the reporting of reflexive thematic analysis in *Health Promotion International*. Health Promot Int. 2024;39(3):daae049.
53. Braun V, Clarke V. Thematic analysis: a practical guide. Los Angeles London New Delhi Singapore Washington DC Melbourne: SAGE; 2022.
54. One4All Gift Card [Internet]. [cited 2025 Dec 11];Available from: https://www.one4all.ie/gift-cards-online.html?gad_source=1&gad_campaignid=22355621180&gclid=CjwKCAiA_dDIBhB6EiwAvzc1cHng_YIW2QIqSJhNczA9ztVrta7CZ6CaGq5d_SlKk2cNALVH4VuEbxoC9vcQAvD_BwE
55. Kelly Y, O'Rourke N, Hegarty J, Gannon J, Flynn R, Keyes LM. The co-design of a digitally supported intervention for selecting implementation tools and actions for standards (SITAS). BMC Health Serv Res. 2024;24(1):1582.
56. Andrews JO, Newman SD, Heath J, Williams LB, Tingen MS. Community-Based Participatory Research and Smoking Cessation Interventions: A Review of the Evidence. Nurs Clin North Am. 2012;47(1):81–96.
57. Larkin M, Boden ZVR, Newton E. On the Brink of Genuinely Collaborative Care: Experience-Based Co-Design in Mental Health. Qual Health Res. 2015;25(11):1463–76.
58. Health Service Excutive, Tobacco Free Ireland. Stop Smoking Gift Voucher Incentive Scheme Leaflet [Internet]. 2025 [cited 2025 Aug 11];Available from: https://www.hse.ie/eng/about/who/tobaccocontrol/resources/stop-smoking-gift-voucher-incentive-scheme-leaflet.pdf
59. Tappin D, Sinclair L, Kee F, McFadden M, Robinson-Smith L, Mitchell A, et al. Effect of financial voucher incentives provided with UK stop smoking services on the cessation of smoking in pregnant women (CPIT III): pragmatic, multicentre, single blinded, phase 3, randomised controlled trial. BMJ. 2022;379:e071522.
60. Giles EL, Sniehotta FF, McColl E, Adams J. Acceptability of financial incentives for health behaviour change to public health policymakers: a qualitative study. BMC Public Health. 2016;16(1):989.
61. Giles EL, Sniehotta FF, McColl E, Adams J. Acceptability of financial incentives and penalties for encouraging uptake of healthy behaviours: focus groups. BMC Public Health. 2015;15(1):58.
62. Notley C, Gentry S, Livingstone-Banks J, Bauld L, Perera R, Conde M et al. Incentives for smoking cessation. Cochrane Database of Systematic Reviews [Internet] 2025 [cited 2025 Nov 9];2025(5). Available from: http://doi.wiley.com/10.1002/14651858.CD004307.pub7
63. Gneezy U, Meier S, Rey-Biel P. When and Why Incentives (Don't) Work to Modify Behavior. J Economic Perspect. 2011;25(4):191–210.

64. Reham A, Lasheen B, Doyle C, Downey D, Stanistreet S, Allwright L, Bauld, et al. Facilitators of and Barriers to Implementation of Financial Incentive Interventions for Health Behaviour Change: A Systematic Review. Implementation Science [manuscript submitted for publication]; 2025.
65. Gneezy U, Rustichini A. Pay Enough or Don't Pay at All*. Quart J Econ. 2000;115(3):791–810.
66. Cosgrave E, Sheridan A, Murphy E, Blake M, Siersbaek R, Parker S, et al. Public attitudes to implementing financial incentives in stopsmoking services in Ireland. Tob Prev Cessat. 2023;9(April):1–5.
67. Meredith S, Jarvis B, Raiff B, Rojewski A, Cassidy R, Erb P et al. The ABCs of incentive-based treatment in health care: a behavior analytic framework to inform research and practice. PRBM 2014;103.
68. Higgins ST, Heil SH, Lussier JP. Clinical Implications of Reinforcement as a Determinant of Substance Use Disorders. Annu Rev Psychol. 2004;55(1):431–61.
69. Miglin R, Kable JW, Bowers ME, Ashare RL. Withdrawal-Related Changes in Delay Discounting Predict Short-Term Smoking Abstinence. Nicotine Tob Res. 2017;19(6):694–702.
70. Mantzari E, Vogt F, Shemilt I, Wei Y, Higgins JPT, Marteau TM. Personal financial incentives for changing habitual health-related behaviors: A systematic review and meta-analysis. Prev Med. 2015;75:75–85.
71. Van Der Spek L, Breunis LJ, Scheffers-van Schayck T, Bauld L, Ista E, Been JV. Financial incentives for smoking cessation among (expectant) parents: a systematic review of facilitators and barriers to implementation. Tob Control 2025;tc-2024-059198.
72. Iguchi MY, Lamb RJ, Belding MA, Platt JJ, Husband SD, Morral AR. Contingent reinforcement of group participation versus abstinence in a methadone maintenance program. Exp Clin Psychopharmacol. 1996;4(3):315–21.
73. Smith CE, Hill SE, Amos A. Impact of population tobacco control interventions on socioeconomic inequalities in smoking: a systematic review and appraisal of future research directions. Tob Control. 2021;30(e2):e87–95.

Figures

Phase	mNGT

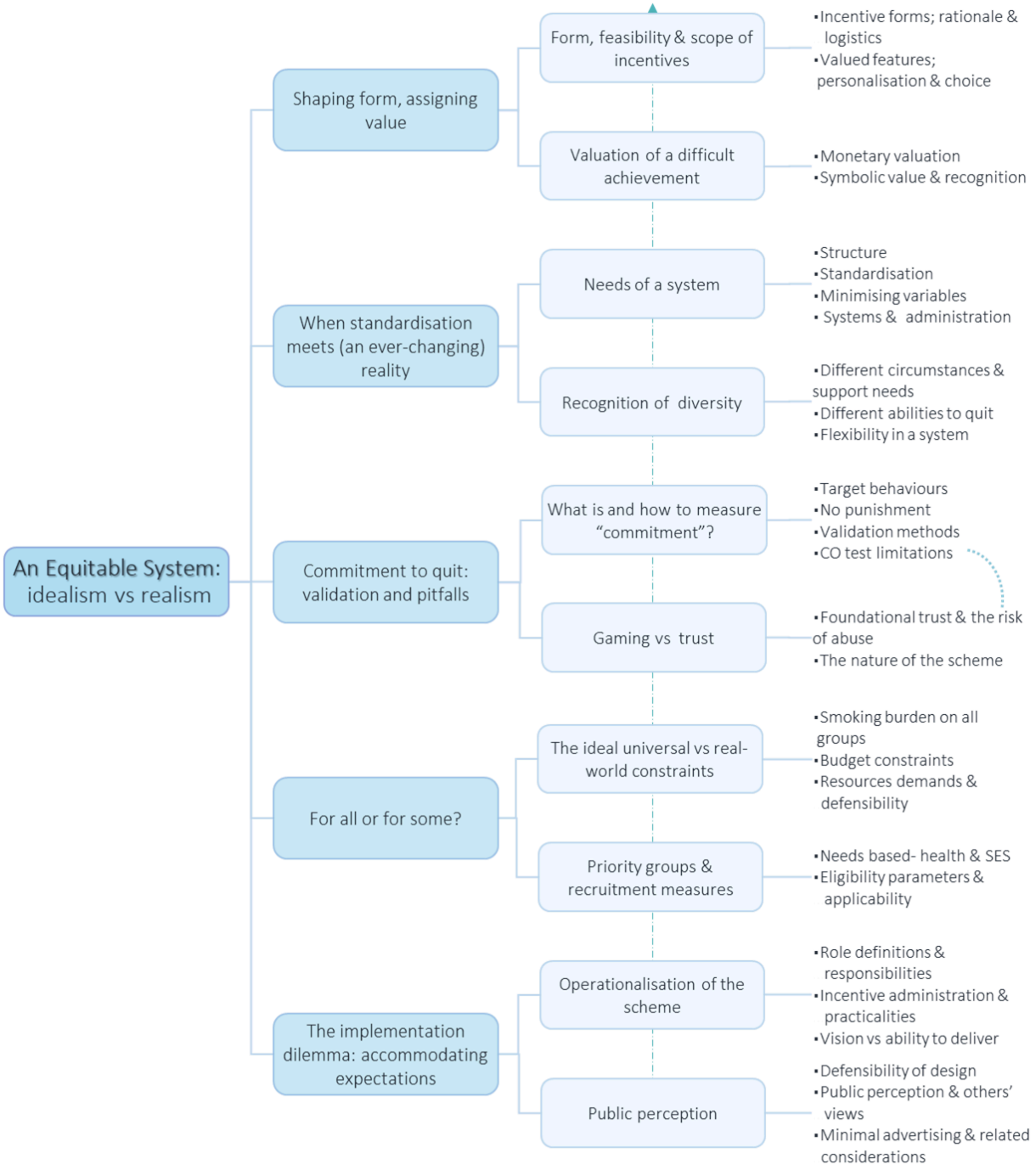


Figure 1

Thematic map showing five main themes: 1) Shaping form, assigning value; 2) When standardisation meets (an ever-changing) reality; 3) Commitment to quit: validation and pitfalls; 4) For all or for some? 5) The implementation dilemma: accommodating expectations

Phase	mNGT

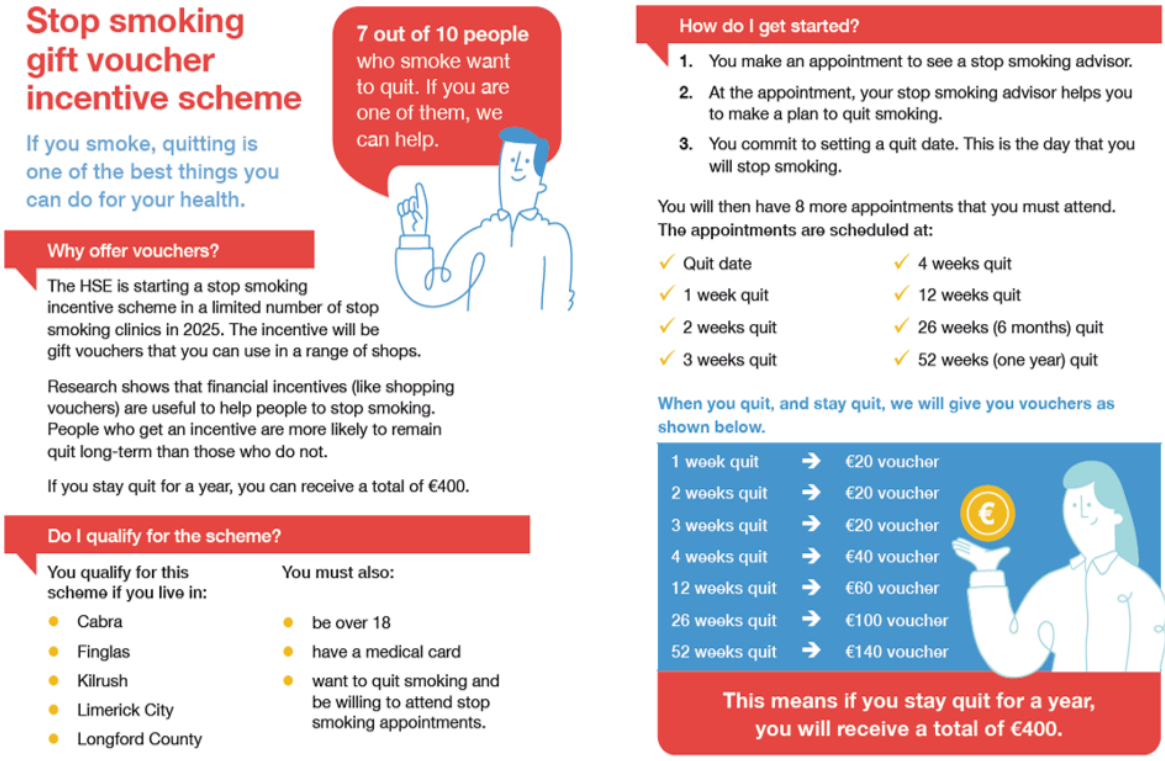


Figure 2

The Irish stop smoking gift voucher incentive scheme leaflet provided by the HSE TFI office.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Additionalfiles16.docx