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The Goose is (half) Cooked: A Consideration of the Mechanisms and Interpersonal Context is  
Needed to Elucidate the Effects of Personal Financial Incentives on Health Behaviour

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Commentary on Lynagh, M. C., Sanson-Fisher, R. W., & Bonevski, B. (2013). What's good for the goose is good for the gander. Guiding principles for the use of financial incentives in health-behaviour change. *International Journal of Behavioural Medicine*, 20, 114-120.

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### Abstract

While we agree that personal financial incentives (PFIs) may have some utility in public health interventions to motivate people in the uptake and persistence of health behaviour, we disagree with some of the sentiments outlined by Lynagh and colleagues [Lynagh, M. C., Sanson-Fisher, R. W., & Bonevski, B. (2013). What's good for the goose is good for the gander. Guiding principles for the use of financial incentives in health-behaviour change. *International Journal of Behavioural Medicine*, 20, 114-120]. Specifically, we feel that the article gives a much stronger impression that PFIs will likely lead to long-term behaviour change once the incentive has been removed than is warranted by current research. This claim has not received strong empirical support nor is it grounded in psychological theory on the role of incentives and motivation. We also feel that the presentation of some of the tenets of self-determination theory by the authors is misleading. Based on self-determination theory, we propose that PFIs, without sufficient consideration of the mechanisms by which external incentives affect motivation and the interpersonal context in which they are presented, are unlikely to lead to persistence in health behaviour once the incentive is removed. We argue that interventions that adopt PFIs as a strategy to promote health-behaviour change, should incorporate strategies in the interpersonal context to minimize the undermining effect of the incentives on intrinsic motivation. Interventions should present incentives as informational regarding individuals' competence rather than as purely contingent on behavioural engagement and emphasise self-determined reasons for pursuing the behaviour.

Keywords: intrinsic motivation; rewards; incentives; health behaviour; self-determination theory; cognitive evaluation theory; internalization

The Goose is (half) Cooked: A Consideration of the Mechanisms and Interpersonal Context  
is Needed to Elucidate the Effects of Personal Financial Incentives on Health Behaviour

Financial incentives to change behaviour have intuitive appeal, particularly given that incentives are relatively ubiquitous in everyday life to motivate people to act in areas like the workplace, retail, education, and health [1]. The review by Lynagh and colleagues provides a useful synthesis of current evidence on the role of personal financial incentives (PFIs) in the context of promoting health behaviour. We would like to commend the authors for the scope and ambition of their article. We feel that the review provides an advance on current knowledge regarding the use of PFIs as a motivational technique to change behaviour, provides some useful guidelines on how they might be used in interventions, and raises important questions that need to be addressed in future research. We did, however, identify some points with which we disagreed. We feel that the authors do not provide a complete account of the mechanisms by which PFIs influence behaviour. In particular we feel that there is a need for clarification on the extent to which incentives can foster long-term motivation after the incentive has been removed, and the need to acknowledge the important additional components that are necessary to ensure that incentives are not counter-productive and undermine intrinsic motivation for health behaviour.

Taking our perspective from self-determination theory, specifically, its subtheories cognitive evaluation theory (CET) [2] and organismic integration theory (OIT) [3, 4], we suggest that evidence for the long-term effects of PFIs on health behaviour once the incentive has been removed is inconclusive at best. There is considerable research in other domains indicating that incentives presented as contingent on behavioural engagement undermine intrinsic motivation and do not lead to long term behavioural persistence once the incentive is discontinued [5]. In addition, we propose that the authors' account of the undermining effect of rewards on intrinsic motivation fails to take into account the functional significance of

incentives and their effects on motivation and behaviour. We make reference to the body of evidence from CET indicating that incentives do not undermine intrinsic motivation if the function of the reward is information about competence rather than the control over behaviour [6-8]. Finally, we also feel that it is important to highlight the mechanisms, outlined in OIT, by which certain behaviours and external contingencies, like incentives and PFIs, can, in certain circumstances, become *internalized* by the individual such that they are experienced as more self-determined. This makes it imperative that health-behaviour interventions also highlight self-determined reasons for engaging in the behaviour itself rather than focusing exclusively on the incentive.

### **Evidence for Long-Term Effects of Incentives on Health Behaviour**

We agree with Lynagh et al.'s [9] contention that "there is little evidence for the long-term sustainability of effects once the incentive is withdrawn" (p. 115). This conclusion has also been corroborated by in reviews of incentives in health behaviour [10, 11]. However, we feel that their subsequent discussion, citing the research of Volpp et al. [12] and Higgins et al. [13], diminishes this statement and provides a misleading view of the value of PFIs in promoting health behaviour once the incentive has ceased. While Volpp et al.'s [12] randomized controlled trial of PFIs for smoking cessation found significant differences in smoking cessation after the incentive had been removed, the study has three issues that limit its impact. First, there is little detail of the content of the other components of the intervention. This has been identified as a substantial problem in the literature on health behaviour interventions and there has been a call for more precision and detail in the reporting of interventions [14]. In this case there is insufficient detail to indicate whether the additional components, such as the provision of details of smoking cessation services, may have affected results and perhaps interacted with the incentives. Second, the researchers also paid participants to attend interviews and send them behavioural data, which could have

confounded the results. Finally, the researchers acknowledge that the small sample size at follow-up after the incentive had ceased influenced the extent to which they could draw definitive conclusions from their data: “since the relapse rates in both the incentive and control groups differ from those in the literature, and in view of the relatively small number of participants in our study who quit smoking, we cannot be confident that the relapse rates do in fact differ from those previously reported” (p. 708). Similarly, the research reported by Higgins et al. [13] also suffers from the limitation of small sample sizes and the inclusion of additional information alongside the financial incentives. In addition, as Lynagh et al. correctly point out, a similar trial from the same group revealed null findings [15], leading the authors to conclude that “further investigation with a larger sample appears necessary to estimate more clearly the magnitude of the effect after the discontinuation of incentives” (p. 1016). Finally, Lynagh and colleagues overlook other recent evidence [e.g., 16] which indicates that financial rewards undermine autonomous motivation and are negatively associated with maintenance of healthy behaviour changes (related to physical activity and diet). In summary, there is a lack of robust evidence to support financial incentives to promote adherence to health-related behaviour after the incentive has been removed and we feel that this message should be flagged more clearly. While Lynagh et al. have refrained from unequivocally endorsing the role of incentives in motivating adherence once the incentive had been discontinued, we feel that the section headed 'Effectiveness of Incentives' gives the reader the impression that incentives may have this function which, we feel, is misleading.

It is also important to note that there is evidence in other fields that financial incentives do not necessarily promote long term adherence once the incentive has been discontinued [1, 5, 17]. It is therefore important from the perspective of intervention design in health contexts that the motivational role of incentives is not overstated. This is important as

it will have serious implications for the cost of interventions that focus on financial incentives. The authors suggest that “from a health economics perspective and given the significant health burden associated with unhealthy lifestyles, it is also reasonable to ask—is it not better to pay now than pay later?” (p. 117). This is an intuitively-appealing notion. If financial incentives lead individuals to change their health behaviours so as to significantly reduce their risk of chronic illness, and the cost of those incentives outweighs the cost of the treatment of those conditions, then Lynagh et al.’s comment holds true. However, the cost of incentive-based interventions is frequently computed on the basis that the incentive will be discontinued once the desired behaviour change has occurred. However, if the cessation of the incentive leads to substantial behavioural relapse, as predicted by CET, and the long-term success of the intervention is dependent upon provision of the incentive in perpetuity, then it is unlikely that incentives, as a basis for interventions in a health context, are going to be cost effective.

### **Incentives, Functional Significance, and Internalization**

Lynagh et al.’s [9] presentation of the tenets of self-determination theory in their review omits crucial detail and, therefore, does not accurately characterize its predictions when it comes to the effects of PFIs on health behaviour. The role of incentives on intrinsic motivation and behaviour is a primary focus of CET, a sub-theory of self-determination theory, that concerns itself with the role that interpersonal events have on intrinsic motivation. Critically, while Lynagh et al. correctly characterize the undermining effect of incentives on intrinsic motivation, they do not take into account the *informational* and *controlling* functions of incentives, important tenets of the theory central to the question whether incentives will magnify or diminish intrinsic motivation, and whether behaviour will continue or cease once the reward is removed. Important work by Ryan [6, 18, 19] in the development of CET demonstrated that it is not the incentive per se that determines whether

intrinsic motivation is undermined by incentives like money, instead it's the way the incentive is perceived or interpreted by the recipient.

To illustrate, if an individual receives a reward or incentive to engage in a health behaviour, and the link between engaging in or persisting with the behaviour and the incentive contingency is made clear, he or she is likely to associate the incentive with the behaviour, and view the origin or *locus of causality* for that behaviour to be the incentive. This contingency shifts their perception of the control of the behaviour from internal and down to the self to external and contingent on the incentive. In this case the incentive is motivating, but extrinsically so, such that the individual will persist with the behaviour only as long as the controlling contingency, the incentive, is present. If removed, the perceived cause of the behaviour is no longer present, and CET predicts that behaviour will desist. However, the theory predicts that when incentives like money are presented in such a way as not to appear the origin of the behaviour, but, rather, merely an 'indicator' of the individual's competence and success with the behaviour, intrinsic motivation will not be undermined. In this case the perceived origin of the behaviour is not the incentive but the inherent value placed on the behaviour, the locus of causality is internal to the individual, and CET predicts that behaviour will persist in absence of the incentive. This was demonstrated in early experimental studies by Ryan [6, 18] and supported by a considerable body of subsequent research [see 19 for a review]. The tenets of CET provide an important means to explain why incentives like PFIs in health contexts may continue to motivate and bring about long-term behaviour change after they have been removed or may undermine motivation and lead to behavioural desistence. We feel these are important omissions from Lynagh et al.'s [9] analysis and would have provided a much more comprehensive and nuanced explanation of the role incentives play in motivating health-behaviour change.

In addition, the authors suggest that the form of motivation, intrinsic or extrinsic, is not relevant for some behaviours. They claim that it is important to determine “whether certain population groups will or can ever be internally [sic] motivated to engage in health promoting behaviour. We suspect not. There may also be situations where simple, immediate or short-term behaviour, such as uptake of immunizations, results in a direct improvement to health outcomes for which the form of motivation (intrinsic vs. extrinsic) is inconsequential” (p. 116). We believe that this statement and accompanying example neglect to appreciate the pervasive effect that the different forms of motivation proposed in CET have in multiple behavioural contexts, and, therefore, the potential for motivation to be shaped by these incentives. There is evidence from field and laboratory studies to suggest that intrinsic motivation has a significant effect on the determination of behavioural initiation and uptake even for short-term behavioural decisions [20-24]. Furthermore, although individuals do vary in terms of the extent to which they interpret ambiguous situations as intrinsically motivating, there is evidence to suggest that all individuals have the propensity to experience behaviours as intrinsically motivating and actively seek to experience intrinsic motivation [21, 25]. The pervasiveness of these types of motivation in health contexts was illustrated recently in a study of naturally-occurring motives to engage in future health-related behavioural decisions for physical activity. The study found that people can and do make the distinction between, and identify with, intrinsic and extrinsic reasons for acting [26].

The example of immunization provided by the authors is an interesting case. We agree that the actual act of getting immunized is unlikely to be intrinsically motivated, in the purest sense of the term – it is not particularly pleasant and is unlikely to lead to the concomitant outcomes expected to accompany intrinsically-motivated behaviour such as enjoyment and interest. However, we would argue that individuals could still experience immunization as ‘self-determined’ in that they could seek to get immunized for reasons that

are part of their core set of intrinsically-held values. According to OIT, individuals can ‘take in’ or *internalize* externally-referenced contingencies, and *integrate* them as important behaviours that service intrinsically-held goals and outcomes. Such behaviours are not, strictly, *intrinsically motivated*, but are not differentiated from intrinsically-motivated behaviour in terms of outcomes such as persistence as they service goals that are central to individuals ‘true’ sense of self and are consistent with one’s core values. Therefore, individuals could cite internalized motives for immunization such as to protect their family or work colleagues or to be able to work more productively. Overall, evidence from research from self-determination theory indicates that self-determined forms of motivation are important in most behavioural domains, health included. The interpretation of the functional significance of incentives, and the extent to which the behaviour has been internalized, will also have a profound effect on behavioural engagement and persistence if the incentive is removed.

## **Conclusion**

In conclusion, we found Lynagh et al.’s [9] work on incentives in health contexts thought-provoking and important, particularly their call for greater scrutiny of highly-publicized incentive-based intervention initiatives which have not been systematically evaluated. We did, however, take issue with their claim regarding the extent of the evidence of the role of incentives in motivating adherence to health behaviour once the incentive had been removed; the characterization of the role that incentives play in undermining intrinsic motivation from the perspective of self-determination theory; and the need to account for the functional significance of incentives and the extent to which they have been internalized and integrated, if a comprehensive and accurate picture of the role they play in motivating behaviour in health-related interventions is to be gleaned. Importantly, we highlight the need to examine whether an incentive serves an informational or controlling function, depending

on the interpersonal context, to determine whether the incentive will lead to behavioural persistence if it is discontinued. Taking this into consideration, we concur with Lynagh et al.'s contention that "incentive schemes targeting more 'complex' behaviours should be used in combination with other supportive strategies such as patient education, skills training and social support" (p. 117). This recommendation has also been made by others [e.g., 27, 28]; incentive schemes cannot operate in isolation of individual, social and environmental factors that determine human behaviour.

We conclude that interventions using PFIs in health contexts should seek to include content that focuses on highlighting self-determined reasons for acting. If financial incentives are used they should be used for meeting targets rather than to control the behaviour and care should be taken that they include sufficient content to ensure that the incentives are presented as 'informational' with respect to individuals' progress and competence on the target behaviour rather than presented as 'controlling' and contingent on engagement in, or completion of, the behaviour.

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