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Message framing effects in exercise promotions: confounded by linguistic complexity?

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Studies of framing effects on health-related intentions and behaviour have been conducted in numerous areas, with contradictory results. These inconsistent results can be partially explained by the differential nature of the behaviours concerned, and by the degree to which people engage in detailed processing of the messages, but there is clearly more to learn about framing effects. This study compared the effectiveness of the communication approaches inherent in the four-cell framing model towards adopting a health-enhancing behaviour (exercise). However we found an atheoretical interaction effect caused by the linguistic complexity of the messages.

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MESSAGE FRAMING EFFECTS IN EXERCISE PROMOTION: CONFOUNDED BY LINGUISTIC COMPLEXITY?

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Abstract

Studies of framing effects on health-related intentions and behaviour have been conducted in numerous areas, with contradictory results. These inconsistent results can be partially explained by the differential nature of the behaviours concerned, and by the degree to which people engage in detailed processing of the messages, but there is clearly more to learn about framing effects. This study compared the effectiveness of the communication approaches inherent in the four-cell framing model towards adopting a health-enhancing behaviour (exercise). However we found an atheoretical interaction effect caused by the linguistic complexity of the messages.

Introduction

Message framing has been widely examined in the marketing literature – as well as in the health behaviour literature – in relation to, for example: the impact of framing on buying behaviour (Ganzach and Karsahi, 1995; Ganzach, Weber and Or, 1997; Puto, 1987); pre- and post-consumption evaluations (Levin and Gaeth, 1988); feelings and cognitions about advertisements (Homes and Yoon, 1992); the relationship between framing and issue involvement (Maheswaran and Meyers-Levy, 1990); the interaction between message framing effects and need for cognition (Zhnag and Buda, 1999); and perceptions of the price-perceived risk relationship (Grewal, Gotlieb and Marmorstein, 1994).

The term ‘framing’ has been interpreted to mean different things in various studies, with the main distinction being between ‘different consequences’ and ‘different behaviours.’ Different consequences framing refers to the framing of information about the consequences in such a way that the *same behaviour* is presented as having either positive or negative consequences (Rothman *et al.*, 1993). Different consequences (of the same behaviour) framing has been used in studies on surgical preferences (McNeil *et al.*, 1982; McNeil, Pauker, and Tversky, 1988; Witte, 1994). For example: “if a cancerous growth is detected, 19 out of 20 growths will be the less deadly nonmelanoma cancer” (positive frame) versus “If a cancerous growth is detected, 1 out of 20 growths will be the more deadly melanoma cancer” (negative frame).

Alternatively, information can be framed such that different behaviours are described as having the same consequences. This type of framing is most commonly used in studies of actual (rather than hypothetical) health behaviour decisions. Same consequences framing requires that the positive and negative frames depict the same consequences in terms of either performing or not performing a behaviour (Rothman *et al.*, 1993). For example: “if you have a skin cancer examination, a cancerous growth can be detected before it becomes life threatening” (positive frame) versus “if you do not have a skin cancer examination, a cancerous growth cannot be detected before it becomes life threatening” (negative frame).

The majority of framing studies in the health behaviour area use ‘same consequences’ framing (i.e., the benefits gained, or losses avoided, from performing the behaviour versus the benefits lost, or losses incurred, by not performing the behaviour). This framing lends itself to voluntary health behaviours, such as cancer screening, and thus is the *modus operandi* for research on communications to increase the prevalence of breast self-examination (BSE), testicular self-examination (TSE), and similar behaviours. Same consequences framing presents dichotomous outcomes - “if you do (don’t do) X; Y will (won’t) happen.” This is operationally very different, however, to the original Kahneman and Tversky studies (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981), which were based on a decision between two behaviours rather than a decision to do or not do a single behaviour.

A number of authors have debated the value of a four-cell framing model (Brendl, Higgins and Lemm, 1995; Higgins *et al.*, 1994; Higgins and Tykocinski, 1992; Rothman and Salovey, 1997) where the two dimensions are attain versus not attain; and desirable versus undesirable. Using this approach, the outcome of a specified behaviour could be to:

- a) obtain a desirable outcome;
- b) not obtain an undesirable outcome;
- c) obtain an undesirable outcome; or
- d) not obtain a desirable outcome.

Within this framework, both (a) and (b) are outcomes of engaging in the behaviour -where the behaviour is a positive one - and are defined as 'gain-framed messages,' or *positive* framing. An example of this would be "if you exercise regularly you will stay fit" (obtain desirable) and "if you exercise regularly you won't become unfit" (not obtain undesirable).

Both (b) and (c) are outcomes of not engaging in the behaviour (again, where the behaviour is a positive one) and are defined as 'loss-framed messages,' or *negative* framing. An example of this would be "if you don't exercise regularly you won't stay fit" (not obtain desirable) and "if you don't exercise regularly you will become unfit" (obtain undesirable).

This framework can also be used in relation to a 'negative' behaviour, such as smoking, as follows:

- a) If you don't smoke you will have healthy lungs (obtain desirable);
- b) If you don't smoke you won't damage your lungs (not obtain undesirable);
- c) If you smoke you will damage your lungs (obtain undesirable); and
- d) If you smoke you won't have healthy lungs (not obtain desirable).

There is currently a debate about whether each of the four frames has a different persuasive impact (Higgins *et al.*, 1994) or whether there is simply a gain versus loss main effect (Petty and Wegener, 1991) – that is (a) and (b) versus (c) and (d).

This study compared the effectiveness of the four persuasive communication approaches. Given the recommendation of adopting a health-enhancing behaviour (where 'do' refers to adopting the behaviour and 'don't' refers to not adopting the behaviour), and the type of consequences (positive or negative), the four communication approaches can be categorised as:

- 1) do and obtain the desirable consequences;
- 2) do and avoid the undesirable consequences;
- 3) don't do and incur the undesirable consequences; and
- 4) don't do and miss out on the desirable consequences.

Hypotheses

Given the contradictory theoretical predictions and findings of the studies reported above, it was anticipated that the results of this study would find no clear support for either of the two-cell 'framing' manipulations, but rather identify differences between the *four* framing cells. Thus, the hypotheses were as follows:

H1: There will be no significant main effect on communication effectiveness between the 'different behaviour' manipulations – that is, the 'do the behaviour gain-framed' and the 'don't do the behaviour loss-framed messages'.

H2: There will be no significant main effect on communication effectiveness between the 'different consequences' manipulations – that is, the 'positive consequences gain-framed' and 'negative consequences loss-framed messages'.

H3: There will be a significant interaction effect on communication effectiveness between participants in the four framing manipulation cells.

Methodology

Participants were 76, year-10 high school students at a local government high school and 55 third-year undergraduate university students in the School of Human Movement and Exercise Science. Approval for the study was obtained from the University of Western Australia Human Research Ethics Committee, and approval for the high school students' participation was obtained from the Principal and parents were notified of this by the school.

Participants were randomly allocated to one of the four experimental conditions (see communication approaches 1-4 above). Both the high school and undergraduate students undertook the study in classroom settings. They were told the purpose was to evaluate a health pamphlet. Because of the classroom administration, necessitating the distribution of different versions at the same venue, participants were told that several different pamphlets were being handed out and asked to concentrate on the one they received because that was what their questionnaire was about. They were then informed that their answers would be anonymous and confidential.

The front page of the questionnaire asked for demographic information and general health beliefs. The pamphlet was included in the questionnaire and appeared as the next page. After reading the pamphlet, participants completed the questions about their emotional reactions to the information and their intentions to exercise more regularly. They were thanked and then given the opportunity to request the free information sheets about exercise.

The dependent variables were:

- Intention to increase exercise levels – this was measured on a 5-point scale, in response to the question: “Having read the pamphlet, will you try to do more regular exercise?”, from 1 = definitely won't try to 5 = definitely will try.
- Request for information sheets on physical activity – respondents were offered a series of free information sheets “as a thank you for participating in the survey”. In order to obtain the information sheets they were required to provide their name and address, thus enabling us to determine the number of information sheets requested by participants in each condition. There were five information sheets available, and this intermediate behavioural measure was scored 1 – 5, based on the number of information sheets requested.

All four versions of the brochure contained the same illustrations and layout, and focused on the same health outcomes. The framing was manipulated in that the information was presented in terms of either do the behaviour (i.e., exercise regularly) or don't do the behaviour; and positive consequences (benefits gained or lost) or negative consequences (incurred or avoided). Combining the two manipulations gives us a third categorization, in that the consequences can be seen as being turned 'ON' (benefits gained or losses incurred) or turned 'OFF' (benefits lost or losses avoided). The order of presentation of the consequences was rotated to control for order effects.

Results

Intention to Exercise

The results from the one-way analyses of variance of the four conditions for each group revealed that intentions did not differ significantly by condition, for any of the groups. Additionally, the mean for intentions in all conditions ranged from 2.6 to 3.1 on the 1 to 5 intention scale, indicating that the messages had limited impact on this measure (that is, none of the message frames resulted in a significant increase in intention to exercise).

Requests for Information

There was a significant effect of condition for the older group ($\chi^2 = 10.07$, $df = 3$, $p = .02$); and also for the two groups combined ($\chi^2 = 11.12$, $df = 3$, $p = .01$), indicating that there was a difference in the information requests between conditions. However, there was no significant effect for same behaviour, different consequences (consequence valence) framing as in McNeil *et al.*'s (1982) dramatic example of 'live' versus 'die'. This perspective, in its basic form, predicts that the positive consequence conditions will be more effective than the negative consequence conditions. This prediction was not supported; the proportions of requests were almost identical for positive consequences and negative consequences in each group. Further, Detweiler, Bedell, Salovey, Pronin and Rothman's (1999) gain-frame versus loss-frame hypothesis also was not supported; with the proportions of participants who requested information in both groups combined identical for gain versus loss framing. The gain-loss formulation predicts, for regular exercise, a prevention behaviour, that gain framing (positives obtained and negatives avoided, the two ways of reinforcing 'do exercise' behaviour) will be more effective than loss framing (negatives incurred and positives foregone, the two ways of punishing the alternative 'don't exercise' behaviour).

The results of the one-way Anovas showed that the only statistically reliable effect was for operation framing (i.e., 'ON' versus 'OFF'). For the older group, the 'ON' conditions generated a higher mean number of requests than the off conditions ('ON' mean = 1.5; 'OFF' mean = 0.1; $t = 3.58$, $df = 53$, $p = .001$). Although the difference for the younger group was not statistically significant, it was in the same direction ('ON' mean = 1.3; 'OFF' mean = 0.9; $t = < .88$, $df = 72$, $p = .38$).

Discussion

Various formulations of framing were examined in this study. We found no support for same behaviour, different consequences (consequence valence) framing or for the gain-frame versus loss-frame hypothesis.

There was evidence, however, that 'operation framing' had an effect in which the presentation of consequences was more effective than the removal of consequences. Although self-reported intention to exercise was unaffected, presentation-framed messages generated a higher prevalence and number of requests for information across all groups, with these differences statistically significant for the older group. For this group, the 'ON' conditions generated a higher proportion of requests than the 'OFF' conditions, and a higher mean number of sheets requested. In the younger group, the 'ON' conditions also generated a higher proportion of requests and mean number of sheets requested, although these results were not statistically significant.

A possible explanation for this result relates to the linguistic complexity of the messages and the consequent difficulty that may be experienced in processing them. Briefly, the 'ON' conditions (i.e., "If you do, you could benefit" and "If you don't, you could suffer") are easier to understand than the 'OFF' conditions ("If you don't, you won't benefit" and "If you do, you won't suffer") which include double negatives. Consistent with Detweiler *et al.*'s (1999) sunscreen usage study, the loss-framed messages may have performed less well due to the linguistic complexity of the 'OFF' messages. One of Detweiler *et al.*'s "do and miss out" conditions was captioned with a particularly complex headline: "Don't protect yourself from the sun and you won't help yourself stay healthy," and included difficult statements such as "You are out in the sun right now – Are you not protecting yourself and not ensuring that your skin stays healthy?" Psycholinguistic research has shown that participants have poorer comprehension of negative constructions, particularly double negatives as in the "do and miss out," or non-reward, examples (Johnson-Laird, 1983). Thus, linguistic complexity could explain many so-called 'framing' effects where logically there should be no effect.

A study of preferences for different cancer drugs which, included a 'mixed frame' (probability of surviving and probability of dying), as well as the usual negative (dying) and positive (surviving) frames found that, while there was a significant difference between preferences in the positive and

negative conditions, preferences in the mixed frame condition were virtually identical to the positive frame (O'Connor *et al.*,1985). The authors concluded that the presence or absence of the word 'survive' was the main source of the framing effect.

The results of this study provides further support for the instability of framing effects, contributing to the growing research base demonstrating the complexity of effects of message framing in health behaviour change. Health educators and social marketers should be cautious in the use, or interpretation of effects, of message framing when constructing health education material. Importantly they should ensure that their message is appropriate for the target audience and the behavioural objective. Efforts should be made to minimize the linguistic complexity of their message (e.g., avoid the use of double negatives) to ease comprehension by the target audience.

Limitations of the Study

This study has a number of practical limitations. The pamphlets used appeared to have only limited impact on the study's participants. The use of dramatic, graphic visual illustrations could have produced stronger emotional responses and greater cognitive and behavioural effects. Moreover, the small sample sizes may have contributed to the lack of significant results in the younger group (particularly given that the differences were directionally consistent with the significant results in the older group). Finally, our participants were high school students who were all participating to some extent in physical activity as part of their school curriculum, and university students, who, because of their area of study (human movement), could be expected to be more active than members of the general community. Future research should apply the framing of exercise messages to members of the general population, and particularly to inactive persons.

References

- Brendl, C., Higgins, E. and Lemm, K. (1995). Sensitivity to varying gains and losses: The role of self-discrepancies and event framing. *Journal of Personality and Social Psychology*, 69, 1028-1051.
- Detweiler, J., Bedell, B., Salovey, P., Pronin, E. and Rothman, A. (1999). Message framing and sunscreen use: Gain-framed messages motivate beach-goers. *Health Psychology* 18, 189-196.
- Ganzach, Y. and Karsahi, N. (1995). Message framing and buying behavior: A field experiment. *Journal of Business Research*, 32(1), 11-17.
- Ganzach, Y., Weber, Y. and Ben Or, P. (1997). Message framing and buying behavior: On the difference between artificial and natural environment. *Journal of Business Research*, 40(2), 91-95.
- Grewal, D., Gotlieb, J. and Marmorstein, H. (1994). The moderating effects of message framing and source credibility on the price-perceived risk relationship. *Journal of Consumer Research*, 21(1), 145-153.
- Higgins, E., Roney, C., Crowe, E. and Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance distinct self-regulatory systems. *Journal of Personality and Social Psychology*, 66, 276-286.
- Higgins, E. and Tykocinski, O. (1992). Self-discrepancies and biographical memory: Personality and cognition at the level of psychological situation. *Personality & Social Psychology Bulletin* 18(5), 527-535.
- Homer, P.M. and Yoon, S-G. (1992). Message framing and the interrelationships among ad-based feelings, affect, and cognition. *Journal of Advertising*, 21(1), 19-32.
- Johnson-Laird, P. (1983). *Mental Models: Towards a cognitive science of language, inference, and consciousness* (MA: Harvard University Press ed.). Cambridge.
- Kahneman, D. and Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291.
- Levin, I. and Gaeth, G.J. (1988). How consumers are affected by the framing of attribute information before and after consuming the product. *Journal of Consumer Research*, 15, 374-378.
- Maheswaran, D. and Meyers-Levy, J. (1990). The influence of message framing and issue involvement. *Journal of Marketing Research*, 27(3), 361-367
- McNeil, B. J., Pauker, S. G. and Tversky, A. (1988). On the framing of medical decisions. In Bell, D., Raiffa, H. and Tversky, A. (Eds.), *Decision making: Descriptive, normative, and prescriptive interactions*. Cambridge: Cambridge University Press, pp. 562-568.
- McNeil, B. J., Pauker, S.G., Sox, H.C. and Tversky, A. (1982). On the elicitation of preferences for alternative therapies. *New England Journal of Medicine*, 306, 1259-1262.
- O'Connor, A., Boyd, N., Tritchler, D., Kriukov, Y., Sutherland, H. and Till, J. (1985). Eliciting preferences for alternative cancer drug treatments: The influence of framing, medium, and rater variables. *Medical Decision Making* 5, 453-463.
- Petty, R. and Wegener, D. (1991). Thought systems, argument quality, and persuasion. In Wyer, R. and Srull, T., (Eds.), *Advances in Social Cognition* Vol. 4. Hillsdale, NJ: Erlbaum, pp. 147-161.
- Puto, C.P. (1987). The framing of buying decisions. *Journal of Consumer Research*, 14, 301-315.

Rothman, A. and Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: The role of message framing. *Psychological Bulletin* 121, 3-19.

Rothman, A., Salovey, P., Antone, C., Keough, K. and Drake Martin, C. (1993). The influence of message framing on intentions to perform health behaviors. *Journal of Experimental Social Psychology*, 29, 408-433.

Tversky, A. and Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science* 211.

Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model. *Communications Monographs* 61, 113-134.

Zhang, Y. and Buda, R. (1999). Moderating effects of need for cognition on responses to positively versus negatively framed advertising messages. *Journal of Advertising*, 28(2), 1-15.