

Adult Age Differences in Response to Framed Exercise Messages: The Relationship between Affect and Effectiveness

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RATIONALE

- Health-related messages, framed in terms of gains or losses, can impact decision making. Theoretical accounts have emphasized the role of emotion in such framing effects, with implications for age differences in making health decisions (Löckenhoff & Carstensen, 2007; Mikels et al., in press). The age-related positivity effect is a relative preference among older adults for positive over negative information compared to younger adults (Carstensen & Mikels, 2005; Shamaskin, Mikels, & Reed, 2010), which suggests an age-related preference for gain-framed messages.
- Further, the effects of outcome framing (i.e., attaining the desirable vs. avoiding the undesirable in gain-frames; or avoiding the desirable vs. attaining the undesirable in loss-frames) have been ignored.
- We examined age differences in subjective affective reactions and perceived effectiveness of framed exercise-promoting messages.

METHOD

- Participants were recruited through Amazon's Mechanical Turk. Sample characteristics are presented in **Table 1**.
- Materials: 24 gain-framed (GF) and 24 loss-framed (LF) exercise-related messages (**Table 2**).

Table 2. Conditions of message framing.

Condition		Text
Frame Behavior	Outcome	
Gain	Engage	Attain Desirable A life with regular exercise can increase the quality of life in old age.
	Engage	Avoid Undesirable A life with regular exercise can prevent poor quality of life in old age.
Loss	Don't Engage	Avoid Desirable A life without regular exercise can reduce the quality of life in old age.
	Engage	Attain Undesirable A life without regular exercise can lead to poor quality of life in old age.

Table 1. Participants characteristics.

	Young	Old	t	p
N	132	106		
Age	M (SE) 29.4 (0.4)	65.9 (0.4)		
	Range 19 - 39	60 - 86		
ED	M (SE) 15.1 (0.2)	15.3 (0.2)	0.5	n.s.
	Range 10 - 20	12 - 20		
Activity*	M (SE) 53.6 (3.7)	46.0 (4.1)	1.9	n.s.
	Range 0 - 206	2 - 196		
Gender (%)	Male	54	55	
	White	76	89	
Race (%)	Black	8	3	
	Asian	10	4	
	Other	6	5	

*Activity was measured by questions 3 to 5 in the Physical Activity Scale for the Elderly.

- Procedure: Participants rated messages on 6-point Likert scales on affect and effectiveness.

- Affect: How does the statement make you feel?
- Effectiveness: How effective is the statement making you want to exercise?

REFERENCES

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RESULTS

- GF messages were rated more positive, $F(1, 236) = 243.5, p < .01$, and were perceived to be more effective than LF messages, $F(1, 236) = 91.9, p < .01$ (**Figure 1**). Older adults had more positive reactions to messages than the younger adults, $F(1, 236) = 3.8, p = .05$. This was primarily attributable to their less negative reaction to the LF messages, $t(236) = 1.8, p = .04$ (one-tailed). There were no age differences in effectiveness ratings.

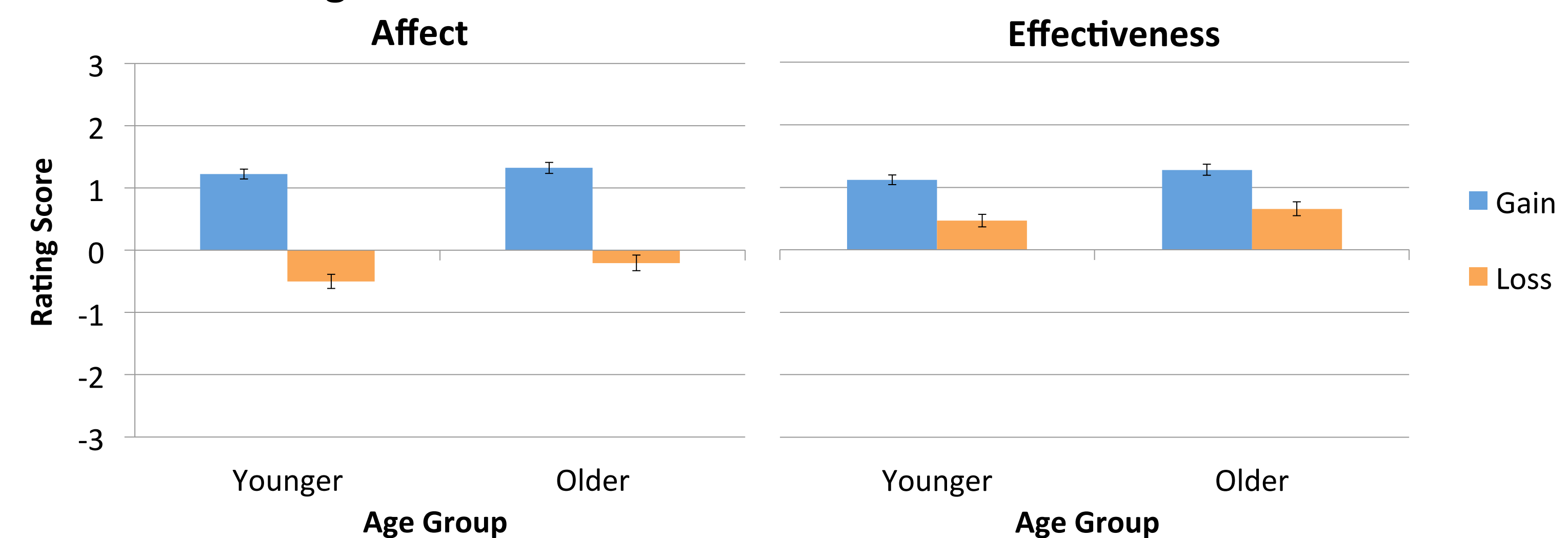


Figure 1. Mean rating scores for affect and effectiveness as a function of frame and age group.

- GF messages were rated as differentially more positive, $F(1, 236) = 9.7, p < .01$, and more effective, $F(1, 236) = 30.5, p < .01$, relative to LF messages when focused on attaining desirable outcomes rather than avoiding undesirable outcomes (**Figure 2**).

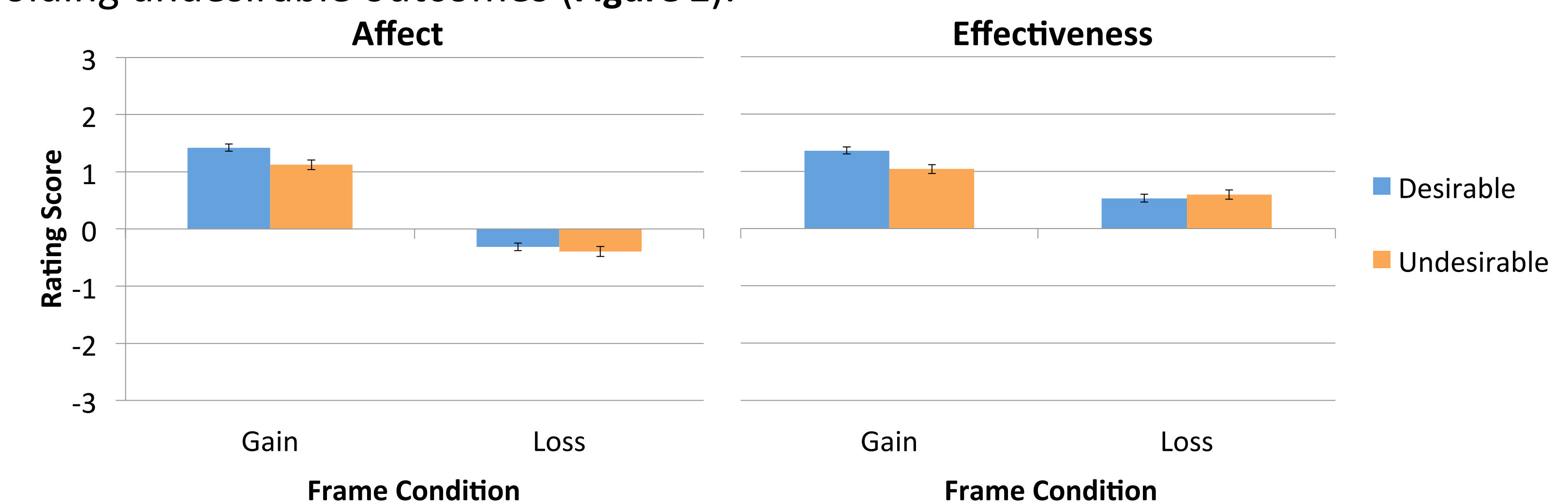


Figure 2. Mean rating scores for affect and effectiveness as a function of frame and outcome collapsed across age group.

- For GF messages, ratings of affective reactions and perceived effectiveness were positively correlated, more so among older adults than younger adults, $Z = 1.87, p = .03$. Whereas, for LF messages, there was a negative correlation between affect and effectiveness rating, and the relationship was stronger among the young than the old, $Z = 1.64, p = .05$ (**Table 3**).

Table 3. Correlations between affect and effectiveness rating among younger and older adults.

Age Group		1	2	3
Young	1. Affect_Gain			
	2. Affect_Loss	.013		
	3. Effect_Gain	.369**	.257	
	4. Effect_Loss	.374**	-.636**	.239
Old	1. Affect_Gain			
	2. Affect_Loss	.300*		
	3. Effect_Gain	.653**	.395**	
	4. Effect_Loss	.403**	-.385**	.214

CONCLUSION

- Gain-framed messages generally engender more positive affect and were perceived to be more effective than loss-framed messages, especially when outcomes are framed as attaining the desirable.
 - This suggests that affect is primarily driven by the valence of conceptual terms in the messages.
- Older adults experience relatively less negative affect when messages are framed in terms of loss.
- The linkage between emotional reaction and perceived effectiveness varies with age, with positive affect more motivating for the old and negative affect more motivating for the young.
- These findings are generally consistent with age-related shift in positivity, and suggest potential translational applications to promote physical activity throughout the adult lifespan.