

**Supplementary file 3: Summary of findings of studies included in this systematic review.**

Authors Year	Outcome measures and collection time	Main findings	Mediators/Moderators
Park <sup>32</sup> 2020	Attitudes, perceived control and intentions for diabetes self-care behavior. All measured at post-intervention.	Attitudes: Loss-framed group improved more; Perceived control: Loss-framed group improved more; Intentions: Both conditions produced significant increases, but no group difference.	Significant indirect effect of message framing on intentions for diabetes self-care behavior mediated through attitudes and perceived control. No significant interaction effects were observed between health literacy level and message framing.
Paragas <sup>33</sup> 2019	Diabetes self-management knowledge and self-efficacy. All measured at pre- and post-intervention.	Knowledge: Both loss-framed and gain framed group improved more, but no difference between the two; Self-efficacy: Both loss- and gain- framed group improved, and gain framed group improved more.	NR
Keyworth <sup>34</sup> 2018	Self-care behavior intention. Measured at post-intervention.	Intention: Messages focused on short-term health risk, gain-framed messages more persuasive than loss-framed messages; messages about long-term health risk, loss-framed message more persuasive than gain-framed message	A significant frame by focus interaction was found for behavioral intention to reduce alcohol intake.
Li <sup>35</sup> 2017	PA. Measured at pre-intervention and 2-week follow up: PA.	PA: Loss-framed group improved more.	NR
Hirschey <sup>36</sup> 2016	PA, attitudes, subjective norms, perceived behavioral control, intention. PA and intention were measured at pre- and post-intervention, 1-and 12-months follow up; Attitudes, subjective norms and perceived behavioral control measured at pre-intervention and 1-month follow up.	PA: Both conditions produced significant increases in PA, with no differences between framing conditions; TPB constructs: Neither the gain- nor loss-framed brochures produced significant changes from baseline to the 1- and 12-months follow-up.	NR
Bassett <sup>37</sup> 2013	PA response efficacy and intention. All measured at pre- and post-intervention.	LTPA response efficacy: Loss-framed condition increased more than gain-framed and control conditions, no difference	NR

		between gain-framed and control conditions; Intention: Loss-framed condition increased more than gain-framed and control conditions, no difference between gain-framed and control conditions.	
Zhao <sup>38</sup> 2012	Medicine adherence intention and attitude. All measured at post-intervention.	Intention: Gain- and loss-framed messages improved more than control, no difference between gain- and loss-framed conditions; Attitude: Gain- and loss-framed messages improved more than control, no difference between gain- and loss-framed conditions.	Significant interaction between frames and CFC, among high-CFC patients, both gain- and loss-framed messages heightened intention and attitude with respect to the no-message control, gain frame showed a consistent superior to the loss frame. Message exposure had no effect on the two outcomes for low- and medium-CFC participants.
Trupp <sup>39</sup> 2011	Adherence to CPAP, self-efficacy. CPAP use was measured at post-intervention; Self-efficacy was measured at pre- and post-intervention.	CPAP use: Loss-framed group improved more; Self-efficacy: Both conditions improved, Loss-framed group improved more than gain-framed group.	NR
Janke <sup>40</sup> 2011	Knowledge, pain self-efficacy, pain readiness to change, pain self-management behavioral skills. Pain self-efficacy, pain readiness to change were measured at pre-intervention; Knowledge, pain self-management behavioral skills were measured at post-intervention.	Knowledge: Loss-framed group improved more; Confidence to practice relaxation: Loss-framed group improved more.	Pain self-efficacy, pain readiness to change and message frame independently influenced motivation to engage in relaxation. There were no observed interactions between message frame and either self-efficacy or readiness to change.
Grady <sup>23</sup> 2011	Knowledge, attitude, foot care behaviors. Knowledge and attitude were measured at pre- and post-intervention, 3- and 6-month follow-ups; Foot care behaviors were measured at pre-intervention, 3- and 6-month follow-ups.	Foot care behaviors: Gain-framed group improved more.	Attitude and framing are significant predictors of 6-months behavior, gain framing positively related to long-term behavior; knowledge affects attitudes, in turn, attitudes affect behavior.

McCall <sup>41</sup> 2004	Adherence to exercise, health belief cognitions (perceived susceptibility, benefits and barriers). Adherence to exercise was measured at 3-months follow-ups; Health belief cognitions were measured at post-intervention.	Adherence to exercise: Gain-framed condition attended more exercise sessions than control; loss-framed group attend more exercise, but no difference with control; Perceived susceptibility: Gain- and loss-framed conditions perceived more susceptibility than control; Perceived barriers: Loss-framed condition perceived greater barriers than gain-framed and control conditions; Perceived benefits: No difference among the three conditions.	HBM constructs did not mediate the effects of the educational messages.
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Abbreviations: CFC: Consideration of future consequences; CPAP: Continuous positive airway pressure; HBM: Health belief model; LTPA: Leisure time physical activity; NR: Not report; PA: Physical activity; TPB: Theory of planned behavior.