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Exploring Conflict and Facilitation between Values and Health Goals: A Mixed-Method Study

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Abstract

Background

Health behaviors often conflict with other life goals due to time constraints but can also facilitate personal values. Behaviors that fulfill personal values are more likely to be adopted, while conflict impedes adoption. This study examines the interplay between personal values and health goals, focusing on the conflicting and facilitating relationships associated with physical activity (PA) and healthy diet (HD) in emerging adults (18–30 years).

Methods

In this mixed-method study, 78 participants (mean age = 24.62 years, 62 females) completed an adapted Personal Project Analysis and rated how their PA and HD goals aligned or conflicted with personal values. Quantitative analyses assessed differences in facilitative and conflicting ratings, and qualitative analyses explored underlying factors.

Results

Vertical goal conflict was low for both PA and HD. PA and HD facilitated values like self-direction, stimulation, and hedonism, but HD occasionally conflicted with hedonism, stimulation, and conformity. PA was perceived as enjoyable and empowering, while HD conflicts often related to flavor and cultural expectations. Some goals simultaneously facilitated and conflicted with specific values, reflecting individual differences.

Conclusions

Aligning health goals with personal values can promote adoption. Interventions should emphasize enjoyment, cultural relevance, autonomy, and self-regulation to strengthen facilitative relationships.

Background

Physical activity (PA) and healthy diet (HD) are modifiable lifestyle factors associated with reduced risk of non-communicable diseases [1], yet they fluctuate across the lifespan [2,3]. During emerging adulthood (18-30 years), health-risk behaviors like physical inactivity and unhealthy diet tend to increase [4,5] and may persist into later adulthood [6]. This period involves major life transitions (e.g., leaving parental home, entering higher education or work) that require adaptation and may lead to maladaptive behaviors, including health-compromising behaviors and reduced engagement in health-promoting behaviors [4]. Emerging adulthood is therefore a critical period for interventions targeting health behaviors.

Goal Hierarchy Model

Many interventions promoting PA and HD focus on increasing motivation (e.g., risk perception, self-efficacy) thereby strengthening intentions [7]. However, intentions alone are often insufficient for sustained behavior change and maintenance [7], and goal conflict – when one goal interferes with the simultaneous pursuit of another goal [8] – can hinder the translation from intentions to action [9]. Individuals pursue multiple goals under limited resources (e.g., time, energy, money), leading to potential conflicts [8]. In contrast, goal facilitation occurs when pursuing one goal supports the pursuit of another one, for example when exercise reduces stress and enhances work performance [10].

While research has examined how interactions between health goals and other life goals can impact health behavior goal progress [11], less attention has been given to conflict and facilitation between health goals and personal values. Personal values (e.g., achievement, self-direction) are abstract, higher-level goals that guide behavior [12]. Individuals tend to engage in behaviors that facilitate the values they find important [13]. Unlike behaviors, personal values are not end-states that can be achieved, instead they continuously guide ongoing actions [8]. In a goal hierarchy, values are thus considered higher-level goals that drive behavior, while behaviors are lower-level goals [14]. Conflict and facilitation can thus occur horizontally (between low-level goals) or vertically (between goals and values) [15]. Vertical conflict arises when lower-level goals conflict with personal values (e.g., when work tasks conflict with hedonism) [14], leading to unfulfilled values [16]. According to self-regulation theory, individuals adjust lower-level goals to better align with their values through processes such as planning and monitoring [15,18].

Vertical facilitation is closely linked to the concept of self-concordance, defined as “the degree to which stated goals express enduring interests and values” [19]. Rooted in self-determination theory, higher self-concordance indicates stronger facilitative relationships between a goal and personal values [19], which increases the goal’s subjective value and leads to greater effort and success in trying to attain this goal [21].

Past research on PA, HD, and personal values

Since behavior engagement depends on their alignment with personal values, understanding how PA and HD relate to these values is crucial for promoting these health behaviors. Schwartz’ Value Theory describes ten universal values organized in a circular continuum, where adjacent values share motivations and opposing values conflict in their motivations [22]. Values are organized along dimensions reflecting openness to change (*stimulation, self-direction, hedonism*), conservation (*conformity, security, tradition*), self-enhancement (*power, achievement*), and self-transcendence (*benevolence, universalism*) [22,23]. Research has shown that dietary choices are linked to specific values. For instance, meat consumption, vegetarianism and sustainable diets are positively associated with *universalism* (protecting others and nature) [22,24,25,26], while healthy drink consumption is linked to *security* [27]. In terms of PA, *achievement* and *power* are linked to higher sports performance [28,29], while *stimulation* and *self-direction* are associated with a more active lifestyle [30].

Beyond facilitation, research is needed to explore how health behavior can conflict with personal values. Conflicts between goals and values require self-regulation and may deplete resources, hindering goal attainment [31]. Thus, minimizing conflicts between health goals and personal values while enhancing facilitative relationships may support sustained behavior by increasing subjective important and self-regulatory capacity. Moreover, to our knowledge, no study has explored the simultaneous experience of conflict and facilitation between the same lower-level health goals and personal values. However, research on horizontal goal relations suggests that conflict and facilitation are independent constructs [10]. For instance, exercise may simultaneously facilitate work (via stress reduction) and conflict with it (due to time constraints). In this study, we aim to explore whether similar dynamics can occur at the vertical level. Identifying these dynamics could promote sustained health behavior by reducing conflicts and reinforcing facilitation with personal values.

Aims of the study

This study investigates vertical goal conflict and facilitation between personal values and the health goals of PA and HD in emerging adults. To overcome the methodological shortcomings of existing tools, we developed an adapted Personal Project Analysis (PPA) to measure vertical conflict and facilitation between health goals and personal values [14]. As an initial step, we examined the relationship between this adapted measure and self-concordance ratings through correlations, offering a preliminary indication of the adapted PPA's validity. The following research questions are addressed: 1) to what extent does vertical goal conflict and facilitation occur with PA and HD goals? (RQ1); 2) to what extent do vertical goal conflict and facilitation occur simultaneously? (RQ2); 3) with which values do vertical goal conflict and facilitation occur most often? (RQ3) Using an explanatory mixed-methods design, quantitative data were complemented by qualitative interviews to gain better insight into the factors that explain the relations between these health goals and personal values [32,33].

Method

A cross-sectional mixed-method study was conducted among emerging adults (18–30 years) in Belgium. Participants were recruited via convenience sampling between February 2021 and October 2022 through university course credits, Facebook advertisements, and personal networks. Inclusion criteria were the ability to understand English, French, or Dutch, to walk at least 100 meters, and an interest in a healthy lifestyle. Exclusion criteria included medically prescribed diets or treatment affecting mobility. A sample of 84 participants was determined to provide 80% power ($\alpha = .05$) to detect moderate effects (see [14]). Materials were provided in English or French, and informed consent was obtained from all participants. The study was approved by the Faculty Ethics Committee of the Faculty of Psychology, Educational Sciences and Speech Therapy of Université Libre de Bruxelles (reference number 174/2021).

Measures

Personal Project Elicitation

An adapted Person Project (PPA) [14] was used to assess vertical conflict and facilitation between health goals and personal values. The PPA is administered as a semi-structured interview that incorporates both qualitative and quantitative methods. In the first step, researchers elicited participants' projects. Personal projects are defined as 'extended sets of personally salient action' that represent mid-level goals [34]. Participants were asked to list at least one personal project for PA and/or HD.

Personal Project Laddering

In the second step, participants were asked *how* they engage in their personal projects, generating lower-level goals that represent more concrete actions. Some participants directly listed these lower-level goals, skipping the broader personal projects. To explore underlying motivation, participants were then asked *why* they engage in their personal projects and had to match each project with one or more of Schwartz's ten personal values [35]. These personal values include Self-direction (*independent thought and action*); Stimulation (*excitement, novelty, and challenge in life*); Hedonism (*pleasure or sensuous gratification for oneself*); Achievement (*personal success through demonstrating competence according to social standards*); Power (*social status, prestige, and control over people and resources*); Security (*safety, harmony and stability of society, of relationships and of the self*); Conformity (*restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms*); Tradition (*respect, commitment, and acceptance of the customs and ideas that one's culture or religion provides*); Benevolence (*preserving and enhancing the welfare of those with whom one is in frequent personal contact*); Universalism (*the understanding, appreciation, tolerance, and protection of the welfare of all people and nature*) [22].

Measuring Vertical Goal Conflict and Facilitation

Participants were then presented with two separate cross-impact matrices to rate the vertical relations between their lower-level goals and the ten personal values. Facilitation ratings between each lower-level goal and the personal values were measured on a Likert scale from 0–5 (is not helping at all – is helping very much). Similarly, conflict ratings between each lower-level goal and personal value were measured on a Likert scale from 0–5 (makes it not difficult at all - very difficult). These ratings were then averaged per goal to obtain overall measures of vertical facilitation and conflict. Further details on the method and additional materials are reported in the protocol [14]. Each rating of conflict and facilitation was followed up with open-ended, exploratory interview questions to further contextualize the quantitative results.

Self-concordance Scale

A self-concordance score was obtained for each lower-level goal. Participants rated from 1–5 (not at all for this reason - very much for this reason) the extent to which they pursue their goals for the following reasons; external ("because somebody else wants you to, or because the situation seems to compel it");

introjected (“because you would feel ashamed, guilty, or anxious if you didn’t”); identified (“because you really believe that it’s an important goal to have”); and intrinsic (“because of the enjoyment or stimulation that goal provides you”). A self-concordance score for each goal was then calculated by subtracting the sum of external and introjected items from the sum of the identified and intrinsic items (Sheldon & Elliot, 1999).

Statistical analysis

Statistical analyses were conducted in R software version 4.3.1 [36]. Percentages were calculated for the total number of reported PA and HD goals, those who selected both goals and those who reported either a PA or HD goal only. Additionally, the percentage of categories (e.g., *academic*, *interpersonal*, *leisure*) to which participants’ goals belonged were computed. The number of personal values selected by participants to align with their lower-level goals was also reported as percentages. Correlations were conducted to examine the relationships between vertical conflict and facilitation scores, as well as between self-concordance and vertical facilitation. Scores are calculated for each participant based on the values mentioned during the personal project laddering.

Vertical facilitation

A linear mixed model (LMM) was fitted for PA and HD goals to examine significant differences in facilitation scores across values. The model was fitted using the *lmer* function from *lme4* package [37] with the restricted maximum likelihood method (REML) method, including value category as a fixed effect and subject ID as a random intercept to account for within-subject dependencies. An ANOVA (type II) was applied using the *Anova* function from the *car* package [38] to test the main effect of value category, followed by Tukey post-hoc tests for significant results using the *emmeans* package.

Vertical conflict

Generalized linear mixed models (GLMM) were fitted for PA and HD goals to assess significant differences in conflict scores across values. Visual inspection of model diagnostics showed that the conflict scores had excess zeros, leading to a skewed distribution. To account for this, GLMMs were fitted using the *glmmTMB* package [39], with both Poisson and negative binomial (NB) models, as well as zero-inflated counterparts (ZIP and ZINB), including value category as a fixed effect and subject ID as a random intercept. These models were chosen due to their frequent use with zero-inflated data [40]. The most parsimonious model was selected based on the lowest AIC value [68] and model fit was assessed through residual inspection, overdispersion, and zero-inflation tests using the *DHARMa* package [41]. A negative binomial model was found to best fit both PA and HD goals. An analysis of deviance using *Anova.glmmtmb* was conducted to test the main effect of value category, with significant results followed by Tukey post-hoc tests. A significant threshold of $p < .05$ was applied to all analyses.

Qualitative analysis

The interviews were conducted by trained experimenters, either Sara Kassas or Catherine Culot (PhD), using the adapted Personal Project Analysis Interview Procedure. Recorded interviews from the laddering approach, exploring the 'how' and 'why' of personal project engagement, along with open-ended questions on participants' experiences of conflict and facilitation with personal values, were transcribed verbatim. Data were analyzed by one of the experimenters in Nvivo, using Braun and Clarke's method for Thematic Analysis [42], which involves familiarization with the data, coding, defining and reviewing the themes. In the results section, the number of times each theme was mentioned is provided in brackets. A full list of themes is available in Supplementary material (Tables S1-S2). Qualitative data were available for 69 participants.

Results

From the 84 participants recruited, 8 participants were discarded because data on which values they selected was not available. The final sample consisted of 78 participants (mean age=24.62 years old, SD=3.22). Most were female (71.8%), almost half of the sample were students (44.9%) and 29.5% found it easy to make ends meet. Detailed socio-demographic information is provided in Supplementary Material (Table S3).

Frequency of reported goal types

Participants on average reported 5.98 low-level goals (*SD* = 1.23, range = 4-8 goals). Exactly half of the sample reported having both PA and HD goals. Twenty-eight participants only reported PA goals (35.9%), 11 only had HD goals (14.1%). Percentages of selected goal categories in the full sample are provided in Supplementary material (Table S4).

The extent of vertical goal conflict and facilitation in PA and HD goals

Results showed low average conflict scores for both PA (M = 0.41, SD = 0.60) and HD (M = 0.46, SD = 0.64), with many participants giving a score of 0. In contrast, facilitation scores were higher for PA (M = 2.40, SD = 1.16) and for HD (M = 2.03, SD = 1.19).

Co-occurrence of vertical goal conflict and facilitation

Next, we examined the relationship between conflict and facilitation scores in both PA and HD across each value (RQ2). Overall, the correlations between vertical conflict and facilitation scores were weak, supporting the assumption that conflict and facilitation are independent constructs. The only significant correlation was observed for Hedonism in PA, which showed a moderate negative association between conflict and facilitation scores ($r = 0.42$, $p < .001$). No other values showed significant correlations, indicating minimal relationships between conflict and facilitation scores across personal values (detailed results in Table S5). For each health goal, we examined the percentage of participants who reported simultaneous conflict and facilitation with each personal value. Conflict and facilitation were considered present when participants rated both with scores greater than 0. Among those who selected

the relevant values, participants most frequently reported simultaneous conflict and facilitation with Tradition (30.8%) and Hedonism (25.9%) for PA. For HD as a goal, the highest percentages of simultaneous conflict and facilitation were observed with Hedonism (50.0%) and Stimulation (36.1%). These results suggest that Tradition and Hedonism are values that participants most commonly perceive as both conflicting with and facilitating their health goals (detailed percentages in Table S6).

Additionally, significant positive correlations were found between self-concordance ratings and facilitation scores for both PA ($r\tau = 0.23$, $p = .008$) and HD ($r\tau = 0.21$, $p = .032$).

Values most associated with vertical goal conflict and facilitation

To address our third research question, we explored which specific values are facilitated by or conflict with PA and HD (RQ3) by exploring the difference of conflict and facilitation across the values.

1. Vertical Facilitation: PA

Quantitative results: LMM showed a statistically significant difference between values in how they were facilitated by PA ($F_{9,359} = 31.10$, $p < .001$; Table S6). PA facilitated achievement, hedonism, stimulation, self-direction, and power the most, with no statistically significant differences between them (Table 1, Figure S1). Tradition had the lowest facilitation score that differed significantly from all values except conformity, benevolence, and security.

Table 1. Tukey post-hoc pairwise comparison obtained from the LMM model in comparing vertical facilitation of PA for different personal values.

Physical activity facilitation scores	Mean (SD)	
Achievement	3.79 (1.30)	a
Hedonism	3.74 (1.41)	a
Stimulation	3.65 (1.26)	a
Self-direction	3.63 (1.51)	a
Power	3.16 (1.76)	ab
Universalism	2.54 (2.16)	bc
Conformity	1.95 (1.89)	cd
Benevolence	1.87 (1.91)	cd
Security	1.31 (1.73)	d
Tradition	1.15 (1.62)	d

Note: Value categories are displayed in descending order of mean facilitation scores. Value categories with the same letter are not significantly different from each other. Detailed results of the Tukey post-hoc

tests for facilitation scores in PA are in supplementary material (Table S7).

Qualitative results: PA was found to facilitate openness to change values, such as hedonism, stimulation, and self-direction (number of mentions, n=88). Participants reported that PA increased hedonism by promoting positive affect and providing a sense of accomplishment. PA was often described as fun, enjoyable, and pleasurable (n=22), linking it to improve mental well-being (n=9), the effect of 'feel-good hormones' (n=6), decreased stress (n=3), having a 'clear mind' (n=2), being more present in the moment (n=2), and feeling calm or relaxed (n=1). A sense of satisfaction from achieving PA goals gave participants the 'license' to engage in other activities (n=3), further enhancing their enjoyment (n=2). PA was also seen as stimulating by introducing novelty and breaking everyday routines, contributing to well-being (n=24). This was achieved through trying new exercises (n=19), engaging in outdoors activities (n=8), or participating in PA socially or (n=1). PA supported self-direction value by providing autonomy and control over setting and maintaining personal PA goals (n=9). PA also facilitated self-enhancement values, such as achievement and power (n=65). Participants felt personal success from accomplishing challenging PA goals, requiring self-discipline and pushing limits (n=27). Achievement was linked to feelings of pride (n=6), willpower (n=1), and tackling other life goals (n=7), with PA increasing self-efficacy and confidence in pursuing other goals (n=1). Power was associated with receiving social recognition and acknowledgment for PA performance (n=11). Additionally, maintaining a healthy lifestyle and physical appearance through PA was seen as a positive trait (n=4), with participants emphasizing the importance of preserving their public image (n=8).

2. Vertical conflict: PA

Quantitative results: The GLMM ANOVA did not show a statistically significant difference between values in their conflict scores for PA (NB: χ^2 = 15.18, df = 9, p = .08) (Table S6, Figure S1).

Qualitative results: In line with quantitative findings, participants reported very few instances of conflict between PA goals and values. Conflict with hedonism was mentioned several times (n=12), with reasons such as physical fatigue (n=3), risk of injury (n=1), needing a break from PA (n=3), and feeling obligated to exercise (n=5). Additionally, time constraints or fatigue from PA were mentioned as barriers to achieving professional goals, reflecting conflict with achievement (n=5).

Summary for PA goal: It appears to be rare that PA both conflicts with and facilitates the same values. PA primarily facilitates values, with little conflict reported. The few instances of conflict mainly concerned hedonism and achievement, where PA is generally seen as enjoyable and fulfilling, but occasionally viewed as exhausting and obligatory.

3. Vertical facilitation: HD

Quantitative results: The LMM showed a statistically significant difference between values in their facilitation by HD ($F_{9,272}$ = 7.45, p < .001) (Table S6). HD facilitated the values of self-direction, hedonism, achievement, stimulation, power, tradition, and universalism the most, with no significant differences

between them. Self-direction was the only value significantly higher than all others. Security and benevolence had the lowest facilitation scores, which did not differ significantly from power, tradition, universalism, and conformity (Table 2, Figure S2).

Table 2. Tukey post-hoc pairwise comparison obtained from the LMM in vertical facilitation between HD and personal values.

Healthy diet facilitation scores	Mean (SD)	
Self-direction	3.12 (1.92)	a
Hedonism	2.85 (1.64)	ab
Achievement	2.70 (1.84)	ab
Stimulation	2.55 (1.48)	ab
Power	2.48 (2.08)	abc
Tradition	2.22 (1.91)	abc
Universalism	2.18 (2.21)	abc
Conformity	1.76 (1.87)	bc
Benevolence	1.30 (1.83)	c
Security	1.30 (1.54)	c

*Note***:** Value categories are displayed in descending order of mean facilitation scores. Value categories with the same letter are not significantly different from each other. Detailed results of the Tukey post-hoc tests for facilitation scores in HD are in supplementary material (Table S7).

*Qualitative results***:** HD facilitates openness to change values, including hedonism, stimulation, and self-direction (n=37). Regarding hedonism, participants reported that preparing meals, trying new food or recipes, and the challenge of maintaining a HD were enjoyable experiences (n=8), with some mentioning that HD contributed to improved well-being and mood (n=5). Similar to PA, accomplishing HD goals was found to be enjoyable and gave a 'license' to engage in other activities afterward (n=2). Stimulating aspects of HD included variety and change from trying new recipes and foods (n=12), which motivated participants to sustain their HD (n=1). Self-direction was facilitated by the autonomy participants felt in choosing and maintaining their own HD goals (n=5), along with a sense of control (n=4). To a lesser extent, HD facilitated self-enhancement values, such as achievement and power (n=17). Achievement was linked to pride in accomplishing challenging HD goals (n=6) and improved mental capacity for intellectual tasks like academic work (n=4). Some mentions were made of experiencing personal achievement in setting and achieving HD goals (n=3). Power was associated with social recognition for valuing a healthy lifestyle (n=4). HD was also linked to conservation (tradition, n=5) and self-transcendence (universalism, n=5) values. HD in some cases preserved tradition through cooking foods

from their home country (n=5), while in some cases HD was linked to universalism by adopting eco-friendly diets that reduce pollution, such as meat-reduced, organic, or plant-based diets (n=5).

4. Vertical Conflict: HD

Quantitative results: we found statistically significant differences in how HD conflicts with the values (NB: χ^2 = 46.51, df = 9, p < .001) (Table S6). Hedonism, stimulation, conformity, and tradition had the highest conflict scores, with no significant differences between them (Table 3, Figure 2S). Hedonism showed significantly higher vertical conflict with HD than all other values. Self-direction had the lowest conflict score and was significantly different from hedonism (z = 4.923, p < .001) and stimulation (z = -3.25, p = .038).

Table 3. Tukey post-hoc pairwise comparison obtained from the NB model in vertical conflict between HD and personal values.

Healthy diet conflict scores	Mean (SD)	
Hedonism	1.33 (1.42)	a
Stimulation	0.75 (1.07)	ab
Achievement	0.42 (1.01)	bc
Conformity	0.42 (1.12)	abc
Power	0.38 (1.08)	bc
Security	0.29 (0.86)	bc
Benevolence	0.27 (0.77)	bc
Tradition	0.27 (0.90)	abc
Self-direction	0.25 (0.81)	c
Universalism	0.04 (0.21)	bc

*Note***:** Value categories are displayed in descending order of mean conflict scores. Value categories with the same letter are not significantly different from each other. Detailed results of the Tukey post-hoc tests for conflict scores in HD are in supplementary material (Table S8).

Qualitative results: Few mentions were made of conflict between HD and personal values. HD primarily conflicted with openness to change values, such as hedonism and stimulation (n=16). Some reports were made that lower eating enjoyment conflicted with hedonistic values (n=7), with challenges in excluding food groups or restraining from sweets and fast food (n=3). Some mentions were made that HD is tedious, boring (n=1), or obligatory (n=1) due to repetitive or unpalatable meals. Additionally, a HD restricted participation in certain social activities, like going to a bar (n=1). HD conflicted with stimulation because of its bland flavors (n=1) and the lack of variety, with some needing dietary changes

to stay motivated (n=3). HD also conflicted with conservation values, such as tradition, and conformity (n= 6). Some mentions reported that social contexts centered around unhealthy foods during events or outings posed a challenge (n=2). One report was made that discomfort can occur in following a diet that differed from their social group (n=1). Traditional foods from participants' home countries were seen as incompatible with a HD due to their unhealthy nature (n=2). Difficulty maintaining self-discipline when engaging in a HD was also noted as conflicting with conformity values (n=1).

Discussion

This study examined vertical goal conflict and facilitation between personal values and the health goals of physical activity (PA) and healthy diet (HD) in emerging adults. Extending prior work on horizontal goal relations, we introduced a novel measure of *vertical* goal facilitation and conflict [14] and provided initial validation of the facilitation component though its association with self-concordance. The main aims of the study were to assess the prevalence of vertical goal conflict and facilitation with PA and HD, to what extent they coexist, and the values most frequently involved.

Understanding these dynamics is important because health behaviors not only serve specific goals but also help individuals align with broader personal values. This alignment is central to behavior maintenance and is emphasized in interventions such as motivational interviewing and Acceptance and Commitment Therapy (ACT), which aim to strengthen links between behaviors and values while managing potential conflicts [43]. For example, someone might exercise to be a role model for their children, aligning with the value of benevolence, but experience conflict with the value of hedonism due to the effort required. Although such conflicts can be experienced as unpleasant and distressing, ACT suggests that enduring these challenges through strategies like self-control, while maintaining focus on long-term goals, is key to sustaining healthy habits [31].

A first key finding is that, in both qualitative and quantitative results, vertical goal conflict for PA and HD was generally low. This aligns with research showing lower levels of horizontal conflict compared to facilitation in PA and diet [44, 45], although findings are mixed [46]. To the best of our knowledge, no prior research exists on the level of vertical goal conflict in PA and HD.

One potential explanation for the low level of vertical goal conflict is that individuals regulate their behavior to align with their personal values. As abstract life goals, values guide behavior, and individuals tend to engage in actions that facilitate their attainment [48, 49]. Consequently, perceived conflict may be low because people actively minimize it. It is possible that daily or momentary assessments would reveal higher levels of conflict. However, horizontal goal conflict has also been found to be low and unrelated to goal attainment in daily assessments of HD [44] and PA [45], and no such data currently exist for vertical conflict. Alternatively, low conflict may reflect our recruitment strategy, as participants were already motivated to engage in PA and/or HD. If behavior is value-driven, this may reduce perceived conflict between health goals and values. Although no research has examined vertical conflict in pre-motivational stages, horizontal goal conflict has been linked to self-regulatory self-efficacy and a more

passive, state-oriented approach to goal pursuit [50, 51], suggesting a potential association between goal conflict and motivation.

A second important finding is that, for most values, vertical goal conflict and facilitation were not correlated, suggesting that health goals generally do not both help and hinder the same value, nor are they simple opposites. Descriptive analyses, however, showed that for some values, around one-third (e.g., PA with tradition and hedonism; HD with stimulation) to half (HD with hedonism) of participants reported some co-occurrence of conflict and facilitation. This was not reflected in overall correlations, likely due to low conflict levels and sample heterogeneity. For PA, however, a negative correlation emerged with hedonism: when PA was perceived as facilitating hedonism, it was less likely to be seen as conflicting with it, and vice versa. Qualitative findings suggest that PA facilitates hedonism when experienced as enjoyable and relaxing, but may conflict when perceived as effortful, fatiguing, or obligatory. These differences may reflect fitness level or stage of behavior change, as enjoyment of PA often develops once it becomes easier and more habitual [52]. Adjusting intensity and offering autonomy-supportive options (e.g., social or outdoor activities) may enhance enjoyment and make the experience more pleasurable [53, 54]. Given that PA also facilitated values such as stimulation, self-direction, and autonomy, promoting choice and flexibility may further improve engagement.

When examining the relationships between health goals and specific personal values, both PA and HD mainly facilitated values within the 'openness to change' (hedonism, self-direction, stimulation) and 'self-enhancement' (power, achievement) domains. These values emphasize pleasure, novelty, and excitement [12], and our findings align with previous research showing that healthy diets can enhance well-being, particularly among younger individuals who prioritize immediate rewards [30]. However, HD sometimes conflicted with hedonism and stimulation, due to the perceived lack of flavor and variety in healthy foods, consistent with prior research [55]. This highlights the importance of promoting enjoyable and positive affective experiences when engaging in healthy behaviors to mitigate conflicts and strengthen facilitative relationships with these values. Research has shown that interventions focusing on sensory pleasure and the joy of cooking can improve dietary outcomes [56].

HD also showed both facilitative and conflicting relationships with tradition. Some participants linked healthy eating to preserving cultural heritage through home cooking, while conflict arose when traditional, calorie-dense foods were incompatible with health goals. Although this positive link is underexplored, prior work suggests individuals are motivated to maintain cultural dietary practices [57, 58]. For example, omnivores considered increasing legume consumption if it was from their traditional foods [58]. This suggests that culturally adapted interventions may reduce conflict and support healthier behaviors. HD also conflicted with socials contexts, as participants felt social settings did not promote healthy eating, emphasizing the importance of social support, particularly in emerging adults [59]. Regarding conformity, difficulties with dietary self-discipline were reported, and restrictive approaches may backfire by increasing feelings of deprivation [60]. Emphasizing the enjoyment and palatability of healthy foods may help improve self-regulation and adherence [61].

These findings are particularly relevant for emerging adults, a life stage marked by identity exploration, instability, and increasing autonomy [62]. Compared to older adults, young adults show lower levels of goal facilitation [63], making it important to identify factors that support health behavior adoption and maintenance. During this period, individuals face new responsibilities (e.g., education, work, relationships) while forming habits that often persist into adulthood [64]. Although PA and HD are critical, emerging adults tend to prioritize immediate rewards and enjoyment over long-term health benefits [65]. Their value system reflects this, with greater emphasis on hedonism, stimulation, and self-direction [66], consistent with our findings that PA and HD are most strongly associated with enjoyment, stimulation, and autonomy. Accordingly, interventions that emphasize enjoyment and support autonomy – by offering choice and control – may be particularly effective in promoting sustained engagement in health behaviors [30, 67].

In conclusion, emerging adulthood is a unique period for health behavior development, characterized by a focus on openness to change, autonomy, and personal exploration. Interventions should therefore emphasize enjoyment, autonomy, and cultural relevance to align health behaviors with personal values that matter most to emerging adults. Promoting enjoyable and culturally adapted behaviors may increase the likelihood of long-term habit formation.

Strengths and limitations

This study makes an important methodological contribution by introducing the first measure of vertical conflict and facilitation between health goals and personal values, with initial validation supported by its association with self-concordance. By applying Schwartz's full value framework, it provides a more comprehensive understanding of how PA and HD relate to personal values. The mixed-methods design further strengthened the findings, combining quantitative patterns with qualitative insights into factors such as enjoyment, fatigue, cultural relevance and autonomy.

However, several limitations should be noted. The sample size and composition – predominantly female and well-educated – limit generalizability. The cross-sectional design also prevents conclusions about temporal dynamics, such as changes across life transitions or contexts. In addition, participants were already motivated to engage in health behaviors, which may explain the low levels of reported vertical conflict. While suitable for studying facilitation, future research should include individuals in earlier motivational stages and adopt longitudinal or momentary designs to better capture how conflicts emerge and evolve in daily life.

Abbreviations

PA, physical activity

HD, healthy diet

SDT, self-determination theory

SCT, self-concordance theory

PPA, Personal Project Analysis

LMM, linear mixed model

GLMM, generalized linear mixed models

Declarations

Ethics approval and consent to participate: The study was approved by the Faculty Ethics Advisory Committee of the Faculty of Psychology, Educational Sciences and Speech Therapy of Université Libre de Bruxelles (reference number 174/2021). All participants provided informed consent prior to participation.

Consent for publication: not applicable.

Availability of data and materials: The dataset and materials supporting the conclusions of this article is available in the Open Science Framework repository, https://osf.io/sfje4/overview.

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