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ARTICLES

Do All Dimensions of Sustainable Consumption Lead to Psychological Well-Being? Empirical Evidence from Young Consumers

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Abstarct
This research responds to the call for a greater understanding of how sustainable consumption leads to quality of life. Previous studies have not yielded conclusive evidence regarding whether individuals' sustainable consumption promotes well-being. We theorize that both well-being and sustainable consumption should be conceptualized and measured as multi-faceted constructs to reconcile and understand the contradictory previous findings. This study examines the association between three dimensions of sustainable consumption: purchasing, simplifying and activism, and the six markers of psychological well-being in a sample of 423 young consumers. The findings show that the relationship between sustainable consumption and happiness is more intricate than depicted in previous studies. Happiness is mainly derived from simplifying behaviors, whereas engaging in activist behaviors is associated with lower levels of psychological well-being. Understanding the relationship between SC and well-being may help leverage points of action to support sustainable consumers and persuade more young consumers to embrace this lifestyle.

Keywords Sustainable consumption · Psychological well-being · Young consumers · Simplifying · Activism

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Introduction

Sustainable consumption (SC) is often encouraged as a means to ensure happiness for future generations (Veenhoven 2004). However, in the short term, well-being not only is a consequence of sustainable consumption but also becomes a requirement for the transition to sustainability as follows: individuals who experience suffering rather than happiness as a consequence of their adoption of a sustainable lifestyle are very likely to abandon (Valor and Carrero 2014) or minimize their efforts to behave sustainably (Valor et al. 2018).

The relationship between SC and well-being is controversial. On the one hand, narratives by voluntary simplifiers have established that such individuals perceive themselves as happier than mainstream consumers (Arias-Gallegos et al. 2016) and that SC successfully drives self-fulfillment (Moisander and Pesonen 2002) and purpose in life (Schösler et al. 2013). Similarly, quantitative studies have consistently found a positive and significant relationship between SC or pro-environmental behavior and personal well-being (e.g., Kasser 2017) or social well-being (Prati et al. 2016). On the other hand, other studies have shown that SC may not result in personal well-being (Gregory-Smith et al. 2013; Moraes et al. 2012), especially when the adoption of SC is a source of stress and anxiety or results in conflicts with significant others (Cherrier et al. 2012; Valor et al. 2018; Valor and Carrero 2014).

When studied as single-faceted constructs, previous research has firmly established a relationship between SC and well-being; however, examining the associations between these constructs as multi-faceted constructs could help reconcile these contradictory results. First, we propose that operationalizing well-being as a multi-faceted construct using the psychological well-being scale (Ryff and Keyes 1995) may help enhance our understanding of the previous contradictory findings regarding the relationship between SC and well-being. For instance, previous studies (Longo et al. 2019; Venhoeven et al. 2016) indicate that SC may negatively affect the "environmental mastery" facet of well-being but may enhance the "purpose in life" facet (Moisander and Pesonen 2002). Second, given the preliminary evidence suggesting that not all SC actions impinge equally on well-being (Schmitt et al. 2018), examining SC as a multi-faceted construct may also clarify the relationship between SC and well-being.

This research responds to the call for a greater understanding of how SC impacts the quality of life (Lunde 2018). In particular, this paper makes a twofold contribution to the literature. First, by disentangling the constructs under examination, a nuanced depiction of the association between SC and well-being is provided. Consistent with past work on SC and well-being (Rich et al. 2017), we corroborate that SC creates overall PWB; however, there is no consistent positive relationship among the three different facets of SC and six markers of PWB. In particular, purchasing sustainable goods and brands is positively associated with self-acceptance; simplifying is associated with personal growth and environmental mastery; and activism is negatively associated with personal growth, positive relations and environmental mastery.

Second, our results have practical implications that may help counteract major environmental and social problems, which could, in turn, lead to the increased well-being of citizens. In particular, this study focuses on young adults because they are a crucial stakeholder group in SC (Grebitus et al. 2017) who are increasing their concern and action regarding sustainable issues; thousands of students mobilizing in the streets worldwide to fight climate change offer some evidence in this regard. Understanding the relationship between SC and well-being in this important section of society helps leverage points of action to support sustainable consumers and persuade more young consumers to embrace this lifestyle.

Well-Being and Sustainable Consumption as Multi-faceted Constructs

The relationship between SC and well-being has received much attention. Regarding well-being, most papers have studied well-being as a single-faceted construct using the life satisfaction scales proposed by Diener et al. (1985) or Lyubomirsky and Lepper (1999) (see Table 1 for a summary of studies). Alternatively, other studies have examined the relationship between SC and a particular facet of well-being, such as emotional well-being (Venhoeven et al. 2016) or social well-being (Prati et al. 2016). To the best of our knowledge, no work has concurrently focused on the different dimensions of well-being; thus, the distinct associations between SC and different facets of well-being have not been examined. Similarly, previous studies have examined SC as a unidimensional construct (see Table 1). Even though some work conceptualizes and measures SC as a multi-faceted construct (Choi 2016; Corral-Verdugo et al. 2011), in the measurement models, its dimensions were collapsed into a second-order construct, preventing the unveiling of different associations. Other studies have focused on a single facet of SC, such as simplifying (e.g., Boujbel and d'Astous 2012; Rich et al. 2017) or purchasing of sustainable goods (e.g., Hwang and Kim 2018; Venhoeven et al. 2016); thus, a comparison of the different facets could not be established. Moreover, in studies comparing the potential of more granular sustainable behaviors to cause well-being, the evidence was inconclusive. For instance, Schmitt et al. (2018) compared the impacts of 39 pro-environmental behaviors on life satisfaction and found that life satisfaction was higher when individuals engaged in behaviors that involved social interaction and were observable. This study suggested that different SC-related behaviors may be differently associated with well-being.

This paper aims to disentangle the relationship between SC and well-being by examining the relationship between the two constructs while conceptualizing the constructs as multi-faceted. Regarding well-being, the psychological well-being scale (PWB) (Bauer et al. 2015; Huta and Waterman 2014) developed by Ryff (1989) and refined by Ryff and Keyes (1995) is proposed as an appropriate measure for two reasons. First, PWB comprises the following six markers of well-being (Ryff and Keyes 1995: 720): self-acceptance ("positive evaluations of oneself and one's past life"), personal growth ("a sense of continued growth and development as a person"), purpose in life ("the belief that one's life is purposeful and meaningful"), positive relations with others ("the possession of quality relations with others"),

Table 1 Summary of key papers on well-being and SC

Measure of independent variable/behavior	Measure of dependent variable/happiness	Sample	Main findings concerning the relationship between SC and well-being	Source
Assessments of one's perceived lifestyle, one's attitudes toward climate change and environmentally-friendly behavior, self-reported variables on the frequency of green behavior (energy and resources conservation)	Subjective well-being (single item of self-perceived satisfaction with life)	n = 44,000 households in UK household longitudinal study (78,165 observations)	Greater association between self-environmental image and happiness, rather than pro-environmental behavior and happiness	Binder and Blankenberg (2016)
Relationship between voluntary simplicity and life satisfaction, mediated by control of consumption desires and moderated by income	Life satisfaction (satisfaction with life scale, Diener et al. 1985)	344 Canadian simplifiers and 267 Canadian non-simplifiers	The proposed model was moderated by individual's income. For the low income consumers, voluntary simplicity had both a direct effect and an indirect effect on life satisfaction. Among the high income consumers, voluntary simplicity did not have a statistically significant relationship with life satisfaction	Boujbel and d'Astous (2012)
Sustainable behavior scale, comprising pro-environmental behavior, altruistic behavior, and fairness	Life satisfaction (Lyubomirsky and Lepper 1999)	n = 202 Korean undergraduate students	Positive relationship between sustainable behavior and happiness	Choi (2016)
Sustainable behavior as a second order construct comprising four dimensions: pro-ecological behavior (14 items from general ecological behavior scale), altruistic actions frugality and equity	Life satisfaction (Lyubomirsky and Lepper 1999)	n = 606 undergraduate Mexican students	Positive relationship between sustainable behavior and happiness	Corral-Verdugo et al. (2011)

Table 1 (continued)

Measure of independent variable/behavior	Measure of dependent variable/happiness	Sample	Main findings concerning the relationship between SC and well-being	Source
Pro-environmental activities (undisclosed measure)	Undisclosed measure of happiness; reference to subjective well-being	n = 1012 Hungarian residents	Positive relationship between pro-environmental activities and happiness	Csutora and Zsóka (2013)
Fair trade buying	Nam's happiness scale (combination of eudaimonistic and hedonistic items)	n = 471 Fair Trade Korean consumers	Relationship between narcissism and self-actualization; self-actualization and happiness	Hwang and Kim (2018)
Ecologically behavior (11 items measuring three dimensions: recycling behavior, Sustainable household choices, and sustainable food practice)	Subjective well-being (8 items taken from Campbell et al. 1976)	n = 829 meditators recruited from Buddhist peace fellowship via email	Positive relationship between ecological behavior and subjective well-being, mediated by mindfulness-as-a-trait	Jacob et al. (2009)
Pro-environmental behavior (water and energy conservation)	Life satisfaction (satisfaction with life scale, Diener et al. 1985)	n = 279 Swedish consumers	Positive relationship between pro-environmental behavior and present and future subjective well-being	Kaida and Kaida (2016)
Sustainable consumption (undisclosed measure developed by authors)	Measurement of three innate needs (Ryan and Deci 2000); happiness measured as positive affect	N = 452 consumers (Amazon M-Turk)	Sustainable luxury purchases impinge positively on positive affect, which in turn increases repurchase intention	Ki and Kim (2016)
Pro-environmental behavior (energy conservation behavior) (Markle 2013)	Social well-being, Italian version of the social well-being scale (Cicognani et al. 2008)	n = 298 Italian undergraduate and master students	Bidirectional relationship between conservation behavior and social well-being	Prati et al. (2016)

Table 1 (continued)

Measure of independent variable/behavior	Measure of dependent variable/happiness	Sample	Main findings concerning the relationship between SC and well-being	Source
Voluntary simplicity	Life satisfaction scale (Diener et al. 1985)	n = 549 Australian consumers	Positive relations between voluntary simplicity dimensions, gratification of the three psychological needs and life satisfaction. The strongest relationship is found between self-sufficiency, autonomy and life satisfaction	Rich et al. (2017)
39 pro-environmental activities	Life satisfaction (satisfaction with life scale, Diener et al. 1985)	n = 1120 Canadian and 1000 US consumers in a web panel	All but 2 were positively correlated with life satisfaction pro-environmental behaviors that involved social interaction, that were easily observed and that involved direct costs present a stronger relationship with happiness	Schmitt et al. (2018)
Environmental behavior (water saving habits, water saving technologies and volunteerism)	Subjective well-being (single item of self-perceived satisfaction with life)	n = 1472 Spanish households	No relationship between water saving habits and SWB. Positive relationship between water saving technologies and SWB. Positive relationship between volunteerism and SWB	Suárez-Varela et al. (2016)
Pro-environmental behavior (general ecological behaviour scale, Kaiser 1998)	Life satisfaction (Lyubomirsky and Lepper 1999)	n = 200 undergraduate Indian students	Positive relationship between pro-environmental behavior and happiness	Tiwari (2016)

Table 1 (continued)

Measure of independent variable/behavior	Measure of dependent variable/happiness	Sample	Main findings concerning the relationship between SC and well-being	Source
Self-assessed measure of purchase of environmentally friendly products	Happiness measured as means of positive emotions (good, proud and cheerful). Negative emotions (bad, guilty or frustrated) used as distracting fillers	n = 178 Dutch consumers	Positive relationship between self-environmental identity and happiness	Venhoeven et al. (2016)
Purchase of environmentally friendly products (food, lightening, appliances)	Life satisfaction (single item of self-perceived satisfaction with life)	n = 429 German consumers	Unclear relationship between green purchase and satisfaction; peers' green purchase and historic green purchase record mediate the relationship	Welsch and Kühling (2011)
Sustainable consumption (green purchase behavior)	Life satisfaction (single item of self-perceived satisfaction with life)	n = 3221 Chinese consumers	Positive relationship between green purchase behavior and life satisfaction	Xiao and Li (2011)

environmental mastery ("the capacity to manage effectively one's life and surrounding world") and autonomy ("a sense of self-determination"). By employing a multifaceted construct, whether SC is differentially associated with each facet can be unveiled. Second, PWB is conceptually appropriate for examining its links with SC. PWB is a suitable measure of the outcomes of eudaimonic living (Ryan et al. 2008). Eudaimonism and hedonism are two philosophical schools inquiring what constitutes a good life (Huta and Waterman 2014). Examining the philosophical underpinnings of these two positions is beyond the scope of this paper. However, eudaimonia and by extension eudaimonic happiness is associated with fully functioning individuals (Huppert 2009; Huta and Waterman 2014; Ryff and Singer 2008) who pursue intrinsic goals, satisfy the three innate needs of autonomy, competence and relatedness (Ryan et al. 2008, 2013), and carry out personally expressive activities (Waterman 1999). Given that SC fits these characteristics, SC has been considered a form of eudaimonic living (Venhoeven et al. 2013). Indeed, past studies (Kasser 2017; Rich et al. 2017) have provided evidence that pro-environmental behavior nourishes the three innate needs associated with eudaimonic living, namely, competence, relatedness and autonomy (Ryan and Deci 2000; Ryan et al. 2008). Third, evidence suggests that prosocial behavior is correlated with PWB (Ryan et al. 2013), and SC is considered a form of pro-social behavior (Corral-Verdugo et al. 2011). Similarly, more political forms of SC, i.e., the so-called citizenship-consumption dimension (Barnett et al. 2005), should be understood as participation in a community, which has also been shown to increase PWB (Huppert 2009).

In past studies on life satisfaction, SC has been measured as a unidimensional construct (except for Schmitt et al. 2018). However, past work has shown that SC should be understood as multi-faceted as it comprises different facets or dimensions (Quazi et al. 2016; Vitell and Muncy 1992). Papaoikonomou et al. (2011) categorized sustainable lifestyles into the following two different types of behaviors depending on whether the decision was carried out inside or outside the market: (1) ethically simplifying consumption and (2) sustainable purchases. *Simplifying behaviors* are behaviors performed to adopt a simpler life to reduce the social and environmental impact on one's consumption (Papaoikonomou et al. 2011; Shaw and Newholm 2002). S*ustainable purchases* comprise decisions regarding the selection (buycotting) or non-selection (boycotting) of a product after considering its impacts on the environment (ecological dimension of sustainability) and other human beings (ethical dimension of sustainability) (Grunert et al. 2014). A third dimension (*Activism*) could be added to the definition because SC also comprises consumer actions oriented toward altering systems or practices in a public sphere (Micheletti et al. 2004; Stern 2000). *Activist behaviors* could include actions, such as protesting, rallying, and petitioning and direct involvement with associations (Klas 2016; Stern 2000). In summary, SC could be considered a multi-faceted construct comprising the following three sets of behaviors: simplifying behaviors, purchase-related behaviors, and activist behaviors.

In summary, to better understand the relationship between SC and well-being, this study proposes to conceptualize these constructs as multi-faceted to separately examine how different SC behaviors may be associated with the different markers of PWB. The following section explains why the different types of SC behaviors

may be differentially associated with different impacts on the six markers of PWB to ground the hypotheses of this study.

Different Associations Between the Different Facets of SC and the Six Markers of Psychological Well-Being

This section reviews the prior literature to establish whether a positive, neutral or negative relationship should be expected between the three dimensions of SC and the six markers of PWB. Past evidence unanimously suggests that a positive association exists between the three facets of SC and four PWB markets (i.e., self-acceptance, personal growth, purpose in life, and autonomy). However, the relationship with the markers "positive relations" and "environmental mastery" is contradictory as explained in the following discussion.

First, evidence suggests that a relationship exists between SC and *self-acceptance*. For instance, Venhoeven et al. (2016) found that engaging in pro-environmental behavior leads individuals to view themselves in a more positive light if this behavior is volitional or autonomously chosen. The authors conclude that pro-environmental behavior influences self-identity, which is associated with happiness because such behavior creates a better self-image. Similarly, Binder and Blankenberg (2016) found that life satisfaction increased as the self-environmental image improved. These findings suggest that pro-environmental behavior enhances self-acceptance. Even when consumers do not shape their consumption according to what they believe is intrinsically worthwhile and deviate from their own set of norms do not manifest frustration or stress; rather, such consumers discount their *peccadillos* and are self-indulgent, providing further evidence of self-acceptance (Black and Cherrier 2010; Moraes et al. 2012; Papaoikonomou et al. 2011). As these papers used a unidimensional understanding of SC and did not find any differences in the type of behavior, we could expect a positive association to exist between the three facets of SC and self-acceptance.

H1 Apositive and significant association is expected between the three facets of SC and self-acceptance.

Second, although the construct of *personal growth* has not been specifically measured, previous research suggests that SC may contribute to the expansion of one's potential as sustainable consumers view themselves in a never-ending process of learning and "ethical selving" (Black and Cherrier 2010; Valor et al. 2012). Hwang and Kim (2018) provide further empirical evidence; their measurement of self-actualization is similar to that of personal growth. In their model, self-actualization is considered an antecedent rather than a dimension of happiness, and an association is found among fair trade purchases, self-actualization and life satisfaction. Regarding activist behaviors, empirical evidence has shown that activists are more likely to experience personal growth than nonactivists (Eigner 2001; Klar and Kasser 2009). Finally, other studies (Elgin and Mitchell 1977; Howell 2013; Kasser 2009; Manríquez-Betanzos et al. 2016) have shown that the practice of voluntary

simplification provides an opportunity to grow by connecting with the inner dimensions of life. Thus, we hypothesize the following:

H2 Apositive and significant association is expected between the three facets of SC and personal growth.

The posited relationship between SC and *purpose in life* has been found in previous studies (Ganglmair-Wooliscroft and Wooliscroft 2016; Prati et al. 2016; Suárez-Varela et al. 2016). Additionally, work based on narratives by voluntary simplifiers or very committed sustainable consumers has concluded that such a lifestyle is driven by a desire to live the good life or a meaningful life (Cherrier 2007; Howell 2013; Moisander and Pesonen 2002). The relationship between SC and purpose in life is not surprising given that SC is usually the result of transcendent values (Burroughs and Rindfleisch 2002; Shaw et al. 2005) or a perceived ethical obligation (Shaw et al. 2000) and reflects a more intrinsic orientation (Brown and Kasser 2005; Kaida and Kaida 2016; Klöckner 2013) or intrinsic motivation (van der Werff et al. 2013). Qualitative studies have also concluded that for consumers, SC is an expression of the broader aim of constructing oneself as an ethical person and/or making the world more just (Cherrier 2009; Moisander and Pesonen 2002; Valor et al. 2012). Thus, SC reflects a directed goal associated with the dimension of personal meaning (Ryff 1989). One could expect that simplifying behaviors are also associated with personal meaning because simplifiers deliberately change their lifestyle to seek a more meaningful existence (Cherrier 2007, 2009; Moisander and Pesonen 2002). Finally, both qualitative (Eigner 2001) and quantitative (Klar and Kasser 2009) studies have shown that activist behaviors outside the consumption realm lead to higher levels of the sense of meaning than nonactivist behaviors. Hence, we propose the following:

H3 Apositive and significant association is expected between the three facets of SC and purpose in life.

Evidence regarding autonomy in experimental or correlational studies is limited. Rich et al. (2017) found a positive association between autonomy and simplifying behaviors (i.e., self-sufficiency-related activities). Similarly, narratives by sustainable consumers (e.g., Cherrier 2009; Howell 2013; Kozinets and Handelman 2004; Papaoikonomou 2013; Valor et al. 2018) have shown that such consumers experience autonomy and freedom by reducing their consumption. We find the following antecedent regarding activism in Klar and Kasser's (2009) work: while their study of activism is outside the consumption realm, these authors found a positive association with the dimensions of PWB, especially purpose in life, autonomy and personal growth. Thus, based on previous research, we propose the following hypothesis:

H4 Apositive and significant association is expected between the three facets of SC and autonomy.

Thus far, this discussion suggests that the three facets of SC should be equally associated with these four markers of PWB. However, evidence regarding the relationship between SC and the other two dimensions of PWB, i.e., personal relations and environmental mastery, is mixed. On the one hand, some evidence regarding *personal relations* suggests that SC may foster connectedness with others, which could enhance this dimension (Nelson et al. 2007). For example, Cherrier (2007) found that simplifying movements provided a sense of solidarity to its members (similarly Papaoikonomou et al. 2016); similarly, other work has emphasized that ethical buyers feel that they form a part of an imagined community of committed consumers (Moraes et al. 2012; Shaw 2007) from which they draw emotional support.

On the other hand, other research suggests that sustainable purchasing may thwart personal relations. As sustainable behaviors deviate from the social norm, sustainable consumers often experience conflicts with close individuals. Several papers (Cherrier et al. 2012; Valor and Carrero 2014; Valor et al. 2018) have reported that the sustainable lifestyles of consumers are not supported by their significant others; consumers' peers reject their engagement in sustainable activities and even mock or derogate sustainable actions. These conflicts may even lead sustainable consumers to abandon their sustainable activities or, alternatively, find groups that are more supportive of their lifestyle (Valor and Carrero 2014). There is limited evidence in experimental or correlational studies regarding the relationship between SC and the social dimension of PWB. Prati et al. (2016) found a bidirectional relationship between energy conservation behavior and social well-being. Regarding activism, Klar and Kasser (2009) found weaker correlations between activism and the "positive relations" marker. These results are plausible because activists' goals are oriented towards changing consumer practices, which often results in social rejection (Bashir et al. 2013; Kozinets and Handelman 2004). Thus, evidence regarding the relationship between the three facets of SC and this marker is contradictory, and the following hypotheses are proposed:

H5a Apositive and significant association is expected between simplifying behaviors and positive relationships.

H5b Anonsignificant association is expected between purchasing behaviors and positive relationships.

H5c Anegative and significant association is expected between activist behaviors and positive relationships.

Similarly, the evidence regarding the relationship between SC and *environmental mastery* is mixed. Environmental mastery refers to a sense of competence in managing the world, taking advantage of the opportunities it provides or creating contexts attuned to one's personal needs and values (Ryff 1989). Past evidence has unveiled the obstacles reported by consumers in creating a context attuned to their sustainable lifestyle. These obstacles are more prevalent in actions performed in the market;

contextual barriers, such as limited or confusing information, lack of availability in habitual stores or limited sustainable offers (Bray et al. 2011; Longo et al. 2019), may lead consumers to believe that they lack control over the environment (Voget-Kleschin 2015), and therefore, this dimension should be thwarted. However, in the case of simplifiers, by moving away from material goods, their degree of material and psychological dependency is reduced, leading simplifiers to perceive greater control over their lives (Elgin and Mitchell 1977). Because simplifying behaviors are performed outside the market, such individuals have a greater ability to make their own decisions (Seegebarth et al. 2016) as they do not encounter the problems often associated with sustainable purchases, such as premium prices or limited availability (Bray et al. 2011); thus, simplifiers may feel more competent at creating the appropriate context for their desired lifestyle. Indeed, empirical evidence has shown that simplifying behaviors are associated with higher levels of competence (Rich et al. 2017). Finally, activist behaviors are oriented towards changing existing systems to solve sustainability problems. Because the individual capacities of activists to address this global issue are limited (Chen 2015), unsurprisingly, activists have been found to experience burnout (Sheldon et al. 2016). Hence, past studies again suggest a different relationship between each facet of SC and environmental mastery as follows: simplifying could be positively associated with this marker, whereas purchasing and activism could be negatively associated. Thus, based on previous evidence regarding the relationship between SC and contextual barriers, the following hypotheses are proposed:

H6a Apositive and significant association is expected between simplifying behaviors and environmental mastery.

H6b Anegative and significant association is expected between purchasing behaviors and environmental mastery.

H6c Anegative and significant association is expected between activist behaviors and environmental mastery

In summary, a concurrent examination of the association between the three facets and the six markers of PWB could help explain the contradictory evidence found in past studies and enlighten our understanding regarding how SC may impinge on happiness.

Methods

Participants and Procedures

The sample consisted of 453 undergraduate students (49% women; mean age 18 years) from a Spanish University. To avoid self-selection, the students were recruited in their classrooms during classes, although the teachers were not present

during the data collection to avoid negative power dynamics. This method ensured a greater completion rate while minimizing self-selection biases. Permission for the data collection was given by the deans, and the study was approved by the Committee of Ethics. First, the researchers briefly explained the study and asked for the students' consent. Second, the participants were invited to use their smartphones or computers to complete an online questionnaire. The participants were reminded of their right to revoke consent at any time.

Although the use of a student sample reduces generalizability, this sample is appropriate for the purpose of this study; the literature related to social science research has stated that student responses are more homogeneous than non-student responses (Peterson 2001). Henry (2008) expounded on this issue and contended that the university setting creates a singular environment with particular norms, views and practices that differ from those outside the university. This homogeneity in the population provides a perfect environment to minimize the effect of situational and personal barriers that can affect the relationship between happiness and SC (Bray et al. 2011).

Instruments

The assessment of psychological well-being was performed using the Spanish translation of the PWB Scale—EBP (Díaz et al. 2006), and the psychometric properties of this scale have already been tested and are acceptable. This scale (Ryff 1989; Ryff and Singer 2008) comprises 29 items grouped into six dimensions or facets, and the scores are computed as the mean of the following corresponding items: *self-acceptance*, *personal growth, purpose in life*, *autonomy, positive relations*, and *environmental mastery*. The well-being factor measured by these dimensions had good composite reliability (= .86) and validity according to the significant CFA regression weights, which were over 0.4 (Table 2).

To assess the independent variable, i.e., SC, an initial sample of items was obtained from prior studies. However, given the particularities of the Spain context in which SC is far from being as institutionalized as it is in other European countries (Valor et al. 2018), to obtain an appropriate scale, qualitative and quantitative methods were used. First, we conducted 30 in-depth interviews with Spanish people who defined themselves as sustainable consumers. These interviews led to the identification of a list of purchasing, simplifying and activist behaviors. Then, a new 10-item,

Table 2 CFA on PWB regression weights

	Estimate
Self acceptance → WB	.797
Positive relations → WB	.504
Autonomy → WB	.4
Environmental mastery → WB	.752
Purpose in life → WB	.777
Personal growth → WB	.562

5-point Likert scale was developed, and when possible, the wording of the items was similar to that in previous scales (Webb et al. 2008) (Table 2). This scale was pretested in a sample of 209 students for a preliminary evaluation of the measurement properties. An initial exploratory factor analysis (EFA) using principal axis extraction and varimax rotation in the pretest sample confirmed the following three underlying dimensions of SC: *purchasing, simplifying* and *activism*. The eigenvalue greater-than-one test was used to determine the number of meaningful factors, and the decision rule for judging whether an item was included in a certain factor was a loading greater than .40 with low cross-loadings (Towler and Dipboye 2003). Three factors with eigenvalues greater than 1.0 were revealed, collectively accounting for 61.15% of the variance, which confirmed the three dimensions. The composite reliability (CR) is above the .60 threshold, indicating the reliability of the scale (Table 3).

Then, the final version of the scale was administered to the final sample. A confirmatory factor analysis (CFA) confirmed the factor structure found in the EFA. First, a one-factor model was tested to support the multidimensionality of the construct (Podsakoff and Organ 1986). This one-factor model poorly reproduced the data, supporting the proposed multidimensionality of the 10 items. Second, the correlations among the three SC-related dimensions were examined (Table 5). All correlations were significant, further supporting that the three dimensions shared common content related to the construct of SC, but no dimension was higher than the CR values. Third, to determine the independence of the three subconstructs of SC, a nested model comparison using the sequential Chi squared difference test was conducted (Table 4). This test revealed that equating various combinations of dimensions significantly decreased the model fit relative to the 3-construct solution, confirming the factor structure found in the pretest study and demonstrating the

Table 3 Cross-loads and composite reliability

	Purchase	Simplifying	Activism
Purchase (CR = .89)			
I try to buy brands that improve the conditions of their workers and suppliers	**.854**	.120	.136
I try to buy brands that improve the salary of their workers	**.817**	.237	.122
I try to buy from ethical companies	**.805**	− .006	− .011
I try to change to brands that support the community	**.773**	.312	.138
Simplifying (CR = .75)			
I try to reduce my energy consumption	.286	**.724**	.007
Whenever I can, I walk, use the bicycle or public transport instead of private car	− .043	**.654**	− .033
I try to make a determined effort to consume less	.297	**.633**	.055
I prefer to buy second hand or borrow, rather than buy	.093	**.601**	.267
Activism (CR = .75)			
I volunteer in non-profit organizations	.077	− .058	**.812**
I participate in campaigns of activism, sending emails, signing requests	.120	.212	**.743**

High loading items (> .6) are shown in bold

Table 4 Discriminant validity of measures

Nested model	Chi	Df	Chi/df	GFI	IFI	TLI	CFI	RMSEA	Description	Dif Chi	Dif df	*p* val
SC measure discriminant validity												
N1	203.281	34	5.979	.911	.901	.868	.9	.105	1-construct model: (Activism + Reduce + Purchase)	123.57	3	.000
N21	114.715	33	3.476	.952	.952	.934	.952	.074	2-constructs model: (Activism + Reduce) – (Purchase)	980.428	9	.000
N22	109.914	33	3.331	.953	9.55	.938	.955	.072	2-constructs model: (Activism + Purchase) – (Reduce)	1037.863	9	.000
N31	177.914	33	5.391	.921	.915	.884	.915	.059	2-constructs model: (Activism) – (Purchase + Reduce)	808.055	7	.000
N3	79.711	31	2.571	.966	.972	.958	.971	.047	3-construct model: (Activism) – (Reduce) – (Purchase)	Reference for comparison		
Discriminant validity between SC and WB measures												
M1	440.900	100	4.409	.888	.869	.841	.868	.087	1-construct model: (CR + WB)	808.055	7	.000
MM	241.577	99	2.440	.938	.945	.933	.945	.056	2-constructs model: (CR) – (WB)	(Measurement model) Reference for comparison		

Table 5 Descriptive statistics and correlations

	Mean	SD	Correlations									
			1	2	3	4	5	6	7	8	9	10
1. Purchase	2.857	.896										
2. Simplify	3.027	.797	.484**									
3. Activism	2.799	.982	.314**	.257**								
4. SC	2.913	.675	(.978)									
5. Self acceptance	4.011	.662	.203**	.124**	.056	.182**	(.855)					
6. Positive relations	4.080	.747	− .010	− .069	− .023	− .044	.421**	(.853)				
7. Autonomy	3.310	.705	.008	.011	.051	.024	.338**	.216**	(.810)			
8. Environmental mastery	3.583	.538	.059	.087	− .021	.066	.585**	.458**	.293**	(.710)		
9. Purpose in life	3.897	.650	.194**	.154**	.131**	.214**	.628**	.285**	.301**	.593**	(.849)	
10. Personal growth	4.035	.611	.140**	.196**	.057	.183**	.431**	.309**	.200**	.381**	.489**	(.803)
11. PWB	3.819	.456	.137**	.111*	.060	.143**	(.857)					

significant at 5%; * significant at 1% (Composite Reliability in brackets)

discriminant validity of the three dimensions proposed to represent the latent indicators of SC.

Finally, a series of CFAs was performed to determine the distinctiveness of the SC constructs and PWB. Again, using a Chi squared test, the hypothesized measurement model (*purchasing, simplifying* and *activism* loading on SC and *self-acceptance*, *personal growth, purpose in life, autonomy, environmental mastery* and *positive relations* loading on PWB) was compared to the alternative nested model in which all factors were set to load on a single factor, and the proposed model significantly fit the data better than the alternative model (Table 4), supporting the validity of the SC and WB construct discriminant validity.

Analysis

Since all data were cross-sectional and self-reported, which is consistent with most previous studies (see Table 1), we provide reasonable evidence that our study did not suffer major problems due to common method bias (Conway and Lance 2010). First, following Podsakoff et al. (2003), we included objective measures, such as gender or age, and guaranteed the anonymity of the respondents to mitigate common method effects. Second, Harman's single-factor test (an un-rotated factor analysis of all items used in the model) was performed to assess common method bias (Williams et al. 2017). The test showed that 27% of the variance was explained by the first factor, accounting for less than half of the total variance. Third, the construct discriminant validity is shown in Tables 2, 3 and 4. Thus, common method bias is unlikely to be an issue in this study.

To test our hypotheses, structural equation modeling (SEM) was applied using AMOS version 22. Additionally, we tested the first model in which the relationship between the constructs of SC and PWB, which were treated as single-faceted constructs, was measured. This first model served as a baseline. The second model was run to examine the separate relationships between the three facets of SC and six markers of PWB.

Results

Descriptive Statistics

The means, standard deviations and correlations among the variables in the model are shown in Table 5.

Structural Models

Model 1 is included as a baseline against which we tested our rival model. Model 1 presented a strong goodness of fit (chi = 241.577; df = 99; chi/df = 2.440; GFI = .938; IFI = .945; TLI = .933; CFI = .945; and RMSEA = .056). The standardized impact (SRW) of SC on PWB was significant and positive (p = .011. SRW = .202). This

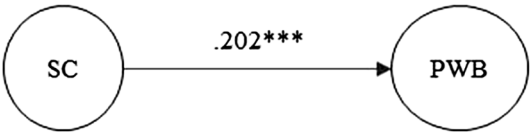

Fig. 1 Model 1. Relationship between SC and PWB. *Significant at 10%; **Significant at 5%; ***Significant at 1%

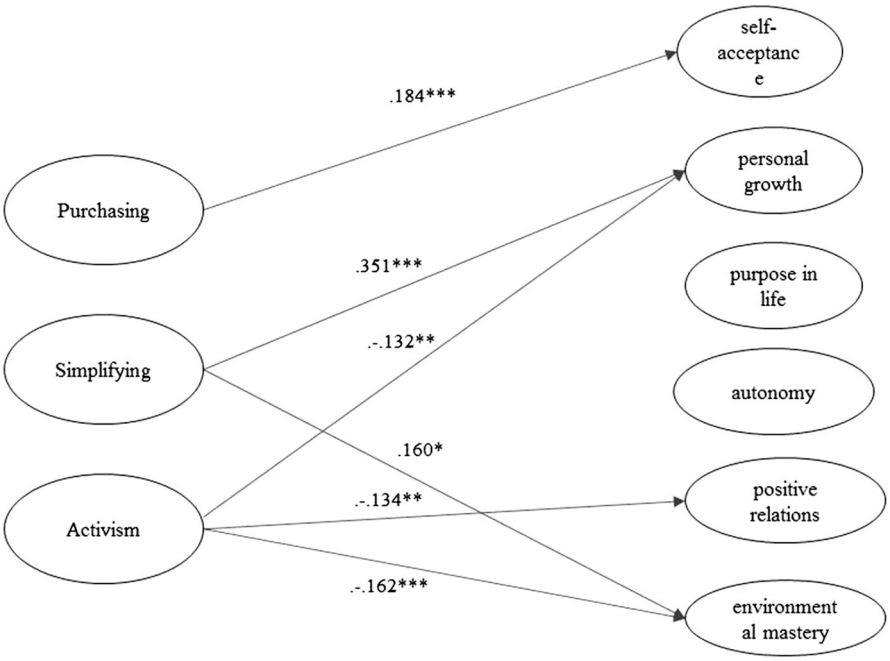

Fig. 2 Model 2. Relationship between the facets of SC and the dimensions of PWB. Only significant paths are shown Covariances are not shown to enhance clarity. * significant at 10%; **significant at 5%; ***significant at 1%

model corroborates previous findings as follows: SC is positively associated with PWB when both constructs are measured as single-faceted constructs. However, the effect size was medium–low (Fig. 1).

Model 2 examined the relationships between the three dimensions of SC and the six markers of PWB. The model presented a very good fit (chi = 146.552; df = 73; chi/df = 2.008; GFI = .962; IFI = .972; TLI = .953; CFI = .971; and RMSEA = .047) (Fig. 2).

A comparison of both models was conducted using a Chi squared test and confirmed significant improvement in the model fit in Model 2 (dif Chi = 95.025; difDF = 26; $p = .000$). In this model, only *purchasing* had a significant and positive impact on s*elf-acceptance*; thus, H1 was only partially supported. A positive, significant association was found between s*implifying* and *personal growth* in H2; however, the relationship between p*urchasing* and this marker of PWB was not significant, while the relationship between *activism* and *personal growth* was negative.

Thus, H2 was only partially supported. H3 was not supported because there was no significant association between any of the examined behaviors and *purpose in life*. H4 was not supported because no significant path was found between the three facets of SC and *autonomy*. No significant association was found between *positive relations* and *purchasing* or *simplifying* behaviors; the relationship between *activism* and this marker was negative, leading to the partial rejection of H5. Finally, *simplifying* was positively associated with *environmental mastery*; however, the association between *purchasing* and this marker of well-being was not significant, while *activism* had a negative impact. Thus, H6 was only partially supported. Notably, the sign of the correlation coefficient is not always consistent with the sign of the regression coefficient (e.g., *purpose in life* and *activism*). This fact is explained by the different analyses performed as follows: the correlation analysis is bivariate based, but the regression analysis conducted under SEM is multivariate based (Mosteller and Tukey 1977).

Discussion

To the best our knowledge, this study is the first to empirically disentangle the association between the three dimensions of SC and six markers of PWB. Consistent with some studies, this study found that when SC and well-being are measured as single-faceted constructs, there is a significant and positive relationship (e.g., Kaida and Kaida 2016; Prati et al. 2016). However, when these constructs are disentangled and the relationships between their components is examined separately, the results differ. These findings contribute to the literature related to the relationship between SC and happiness because they enhance our understanding of the contradictory results found in previous studies and enrich our understanding of the impact of SC on well-being as follows: SC both fosters and hinders PWB as the relationship between these constructs changes depending on the SC activity and the examined marker of PWB. Consequently, our study contributes to the existing literature by showing the relevance of conceptualizing and measuring these constructs as multidimensional and examining the relationships between the dimensions separately to better understand the relationships between these constructs.

More specifically, our results show that simplifying behaviors are associated with the following markers of well-being: personal growth and environmental mastery. This conclusion contradicts the conclusion drawn by Schmitt et al. (2018), who found that behaviors involving a reduction in consumption were weakly related to well-being. These contradictory results may be due to the way the dependent variable is measured; Schmitt et al. (2018) measured well-being as life satisfaction, and the present study used a measure of eudaimonic well-being (Huta and Waterman 2014). Consumption-reduction behaviors may be associated with reductions in hedonic well-being (Venhoeven et al. 2013); however, our findings show that these behaviors may be positively associated with psychological well-being.

Regarding purchase-related behaviors, a significant relationship was found with only self-acceptance, suggesting that individuals who consider sustainability issues when buying products have a better view of themselves, which is consistent with

previous research (Venhoeven et al. 2016). However, previous studies (e.g., Bray et al. 2011) have suggested that a negative relationship exists with environmental mastery, while our results yielded a nonsignificant association. A possible explanation for this discrepancy might be that the items of the scale inquired about habitual behaviors rather than behavioral intentions. This difference may have led the respondents to report only those behaviors over which they have control and, therefore, have been included in their lifestyles. Previous studies have shown that when confronted with contextual or social barriers, sustainable consumers give up certain practices and/or reconfigure their SC lifestyle to avoid stress (Valor et al. 2018). Thus, the respondents may have only mentioned the behaviors they currently practice and not those they attempted but abandoned due to the barriers encountered in the environment. Consequently, the respondents had a greater assessment of environmental mastery.

Finally, according to our results, engaging in activist behaviors is associated with lower levels of well-being, suggesting that although necessary for collective well-being, SC activism may be negatively associated with PWB. As hypothesized, behaviors that involve acting in a public sphere are associated with lower positive relations (Kozinets and Handelman 2004) and environmental mastery likely as a consequence of the uncertain outcomes of their actions (Sheldon et al. 2016). In contrast to Schmitt et al. (2018), we cannot conclude that behaviors involving greater social interaction, more visibility and higher cost result in greater happiness; in contrast, activist behaviors meet the first two conditions but negatively impinge on three of the six dimensions of PWB. Additionally, previous research suggested that a positive association exists between personal growth and activist behaviors (Klar and Kasser 2009). We find this relationship in our correlations when we consider only these two variables similar to Klar and Kasser (2009). Nevertheless, the entire model shows that when we include the six markers of PWB, this relationship becomes positive, highlighting the need to use integrative models that allow for an in-depth understanding of the relationship between the different variables.

Conclusions

This study tested the association between three dimensions of sustainable consumption and six markers of PWB. Our results show that this relationship is more intricate than that depicted in previous studies.

The insight gained from this study may assist in the design of effective public policies to persuade young consumers to adopt SC by promoting behaviors that lead to higher levels of well-being and supporting sustainable consumers who are struggling with the adoption of some of the examined behaviors.

For instance, campaigns encouraging the adoption of simplifying behaviors by suggesting that personal well-being could be enhanced could serve to increase SC. The present study confirms the results of previous studies showing that simplifying behaviors give individuals a sense of self-realization (Kasser 2009) and a higher sense of control over the environment (Rich et al. 2017). Our recommendations are consistent with those proposed by Seegebarth et al. (2016), who suggested that if

the goal is to escalate SC, the first step could be providing incentives to consumers who adopt simplifying practices because individuals who experience a psychological reward are more likely to adopt this lifestyle.

Regarding activism, our findings show that activism hinders the social dimension of PWB, which is especially concerning as social relationships are crucial in emerging adulthood (Rueger et al. 2016). Since activism is the key to social change (Klein, et al. 2004; Kozinets and Handelman 2004), it could be necessary to generate spaces that create social support and interaction to ultimately augment the social dimension of PWB. Moreover, following the suggestions proposed by Boffi et al. (2014), resources must be provided to young citizens to help them reduce burnout and boost commitment; for instance, messages reinforcing the idea of the efficacy and feasibility of activism could be used while emphasizing that they drive processes of flourishing.

This study has provided a fruitful avenue for further research. Notwithstanding, this study has some limitations. The main limitation of our study is the cross-sectional nature of our study, which did not allow us to test the causal relationships. Although we grounded the directionality of our hypotheses in solid theory, it could be interesting for future research to replicate this study in a longitudinal design to empirically test for causal relationships.

Although most past studies have been correlational, Prati et al. (2016) and Binder and Blankenberg (2016) conducted longitudinal studies and, thus, were able to test causality, suggesting that there is a reciprocal relationship between SC and well-being. Thus, future longitudinal studies should examine this issue to clarify the causal relationship between SC and well-being. For instance, consumers with lower senses of the realization of dreams and aspirations could be more inclined to engage in activist behaviors seeking a new and meaningful role in their lives. In this vein, Valor et al. (2018) showed how feelings of constraint and dissatisfaction with the economic system and society spurred action among conscious consumers. This finding opens a new area for future research to determine whether young people with lower levels of PWB are more inclined towards activism. More broadly, longitudinal, in-depth studies should explore how the experience of ill-being in certain dimensions may lead consumers to re-engineer their sustainable habits to increase their overall well-being.

Additionally, future research should unveil the key constructs that could moderate the relationship between the three facets of SC and PWB. For instance, this study did not explore the reasons why consumers carry out the analyzed behaviors; as past research has shown (Howell 2013), individuals may engage in sustainable actions for various reasons. Thus, future research should examine whether different motives for SC adoption (e.g., extrinsic or intrinsic motives) mediate the relationship between SC and PWB. Additionally, as contextual influences may affect the relationship between SC and some dimensions of PWB (notably environmental mastery and personal relations), further studies should address the mediating effect of cultural facilitation by studying the association between focal constructs in countries where SC is well established.

Finally, to increase the ecological validity, further testing in other populations is necessary; in particular, given that PWB varies according to age and gender, this

study should be replicated in older populations, and the moderating role of gender should be considered

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Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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