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Using Self-Determination Theory to Understand when and how Money Buys Happiness: a Cross-Sectional and Intervention Study

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Abstract

The objectives of this article were twofold: (1) understand what motivates people to make money and how this impacts well-being and (2) explore whether it is possible to encourage the adoption of healthy reasons for making money. Using confirmatory factor analysis ($n = 633$), Study 1 found support for three broad categories of reasons for making money, namely Financial stability, Self-integrated and Non-integrated motives. Study 2 ($n = 464$) revealed that when individuals desire money for Financial stability and Self-integrated reasons, this encourages psychological need satisfaction and in turn leads to well-being. When money is pursued for Non-integrated reasons, this leads to the active thwarting of the psychological needs and in turn greater ill-being. Using structural equation modeling, Study 2 also suggests that materialism may be better conceptualized as a set of unhealthy reasons for desiring money. Finally, Study 3 ($n = 41$) provided preliminary evidence for the effectiveness of an intervention aiming to help individuals become aware of their own motives for making money and reduce unhealthy motives.

Keywords Motives · Self-determination theory · Need satisfaction · Need frustration · Materialism · Intervention

Money buys happiness to the extent that it allows individuals to extract themselves from poverty (Howell and Howell 2008). Once basic needs are met, additional increases in income have a negligible impact on well-being (Jebb et al. 2018). Research based on Self-Determination Theory (SDT; Deci and Ryan 2000a, 2000b), however, suggests that if money is used to fulfill the psychological needs for autonomy, competence and relatedness, it can lead to greater happiness (Thibault Landry et al. 2016). In developing

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the Motivations for Making Money Scale, Srivastava et al. (2001) revealed that people make money for ten main reasons. Recently, Thibault Landry et al. (2016) found that the motives for making money are best represented by three categories of motives (Self-integrated, Financial stability, and Non-integrated motives) depending on whether they encourage or impede psychological growth. Making money for Self-integrated reasons encourages need satisfaction and well-being, whereas Non-integrated motives lead to the active thwarting of the psychological needs and, in turn, ill-being. Given that only a handful of studies have attempted to replicate the factor structure of the MMMS, Thibault Landry et al. (2016) urge researchers to replicate their classification of the money motives and their concomitant links with psychological health. Hence, Study 1 aims to replicate the factor structure of the MMMS while Study 2 tests the effects of the money motives on psychological health.

In trying to understand what motivates people to make money, the vast amount of research on materialism cannot be ignored (Kasser 2016). Despite the conceptual overlap, the research on money motives and materialism has evolved relatively independently. One exception is the study by Srivastava et al. (2001), which asserted that materialism's effects on well-being are accounted for by unhealthy motivations for desiring money. A secondary aim of Study 2 is to explore materialism's associations with money motives, while addressing an important limitation of Srivastava et al.'s (2001) study. Finally, Study 3 tests an intervention designed to shift individuals away from unhealthy reasons for wanting money and towards more beneficial motives.

Money, Happiness and Self-Determination Theory

The answer to the question "does money buys happiness?" has been the subject of empirical debate for the past three decades, with the result being a vast and seemingly inconclusive literature (Kahneman and Deaton 2010). Nevertheless, a number of studies point to the fact that money's effect on well-being (assessed through indices of life satisfaction and happiness) satiates once higher income levels are reached (Jebb et al. 2018; Kahneman and Deaton 2010). Moreover, the association between income and well-being is significantly stronger among economically developing samples than among middle and upper class individuals in wealthier countries (Diener and Biswas-Diener 2002; Howell and Howell 2008). This suggests that money buys well-being to the extent that it allows people to acquire basic life necessities, such as sufficient food and shelter (Howell and Howell 2008; Kahneman and Deaton 2010). At low-income, acquiring money leads to substantial gains in well-being, but for wealthier individuals (who presumably have these needs met) earning additional income does little to improve happiness (Diener and Biswas-Diener 2002). In fact, the fulfillment of psychological needs is a better predictor of daily happiness than money (Diener et al. 2010; Tay and Diener 2011). Income may buy happiness to the extent that, in addition to securing food and shelter, it is used to help individuals fulfill their psychological needs.

According to SDT, people experience optimal well-being only when their three innate psychological needs for autonomy (having the freedom to live according to one's values), competence (feeling efficacious in carrying out one's goals) and relatedness (having meaningful relationships with others) are satisfied (Deci and Ryan 2000a, 2000b; Sheldon et al. 2011). Diverse forms of research shows that the

fulfillment of these needs plays a central role in predicting well-being, vitality and positive affect as well as in predicting the absence of mental and physical ill health (Gagné et al. 2015; Vansteenkiste et al. 2010). Moreover, need frustration reflects instances when individuals experience actual feelings of rejection, incompetence and/or oppression (Bartholomew et al. 2014; Bartholomew et al. 2011a; Bartholomew et al. 2011b). Compared to the mere absence of satisfaction, need frustration is a better predictor of ill-being, such as depression, negative affect and burnout (Bartholomew et al. 2011a, 2011b).

A main premise of SDT is that people engage in behaviours for different reasons/motivations, which fall along a continuum ranging from intrinsically or autonomously motivated (e.g. because the behavior is enjoyable or interesting and/or because it is believed to be important) to extrinsically motivated or controlled (e.g. engaging in behaviours to receive rewards and/or to avoid punishment and feelings of guilt; Ryan and Deci 2000). Behaviours that are autonomously motivated lead to well-being because they encourage psychological need satisfaction, whereas behaviours that are pursued for controlled reasons lead to ill-being because they actively thwart the psychological needs (Niemiec et al. 2009). Traditionally, some types of behaviours, such as becoming involved in one's community, were viewed as inherently intrinsically motivated. On the other hand, goals such as seeking social status and money, were considered as being extrinsically motivated and thus detrimental to long term well-being (Kasser and Ryan 1993). Some authors, however, have contested the notion that the pursuit of money is always detrimental to well-being by showing that money is actually a means through which people can pursue behaviours that can be intrinsically and/or extrinsically motivated. In fact, the reasons that motivate people to make money are more predictive of well-being than money per se (Carver and Baird 1998; Thibault Landry et al. 2016).

Motivations for Making Money

A study by Carver and Baird (1998) was one of the first to reveal that pursuing wealth for intrinsic reasons (e.g. personal fun and satisfaction) leads to well-being, whereas desiring money for extrinsic reasons (e.g. social status) leads to decreased well-being. In 2001, Srivastava et al. developed the MMMS and revealed that there is a broader set of motives for making money. Specifically, their study indicated that people are motivated to make money for ten main reasons: to support one's family (Family support), to ensure basic life requirements such as housing and food (Security), to earn a fair compensation for one's work (Market worth), to donate money and time to those in need (Charity), to participate in hobbies (Leisure), to be able to live one's life independently (Freedom), to experience a sense of pride for life accomplishments (Pride), to attract the attention of others (Social comparison), to appease feelings of personal insecurity (Overcoming self-doubt) as well as to spend impulsively (Impulse). Through second-order factor analysis, the authors suggested that the ten motives could be categorized into three broader motive categories. The motives of Security, Family support, Market worth and Pride were labeled as positive motives as they reflect individuals' life achievements and competency in meeting life necessities. Negative motives included Social comparison and Overcoming self-doubt as they reflect an individual's desire to feel superior over others. Finally, the motives of Leisure,

Freedom, Impulse and Charity were identified as freedom of action motives as they reflect the ability to spend money as one pleases.

Since Srivastava et al. (2001), the handful of studies that have used the complete version of the MMMS have not been able to replicate the originally proposed factor structure of the scale (Burke 2004; Robak et al. 2007). Recently, a study by Thibault Landry et al. (2016) revealed that the ten motives are more suitably represented by three broad categories that differed from Srivastava et al.'s (2001) classification. The motives of Charity, Leisure, Freedom, Pride, and Market worth were conceptualized as 'Self-integrated motives' as they represent people's desire to behave in line with their values (Sheldon and Elliot 1999). The motives of Social comparison, Overcoming self-doubt and Impulse represent 'Non-integrated motives' because they impede healthy personal development. Moreover, Family support and Security motives were labeled 'Financial stability' motives as they represent individuals' desire to support themselves and loved ones. Moreover, the study revealed that people endorsing Self-integrated motives were more likely to experience need satisfaction and in turn greater well-being (as well as lower ill-being). For instance, wanting money to help others may encourage the development of meaningful relationships with others (relatedness) and feelings of autonomy and competence in having a positive impact in others' lives. On the other hand, Non-integrated motives positively predicted need frustration (and negatively predicted need satisfaction), which in turn led to greater ill-being (and lower well-being). Making money to attract attention and boast may encourage feelings of isolation, incompetence and pressure over the long term (Van den Broeck et al. 2008). Stability motives were unrelated to need satisfaction or need frustration. One important limitation of Thibault Landry et al.'s (2016) study is that the sample was limited to individuals with a professional background in human resources, which presents issues with respect to generalizability of the results. The authors advised future research to replicate their findings using a more diverse sample. In line with this recommendation, the objective of Study 1 is to replicate the first and second-order factor structure of the MMMS and Study 2 tests the associations between money motives and psychological health.

Materialism and the Motives for Making Money

Any investigation into the reasons that motivate people to make money must consider the vast literature on materialism, which is commonly defined as the extent to which an individual ascribes importance to the acquisition of money and possessions, relative to other life goals, especially as a way to develop a socially desirable image (Kasser 2016). Materialistic individuals experience lower levels of happiness, vitality, life satisfaction as well as mental and physical health (Diener and Seligman 2004; Dittmar et al. 2014; Unanue et al. 2017). Materialism has also been linked with an increased incidence of anxiety, depression, unpleasant emotions, as well as low self-esteem (Diener and Seligman 2004; Dittmar et al. 2014). Individuals high in materialism are less likely to fulfill their psychological needs and more likely to experience need frustration and this, in turn, explains their lower well-being levels (Unanue et al. 2017).

Despite the conceptual overlap, the money motives and materialism research has evolved relatively independently. One exception is the study by Srivastava et al.

(2001), which suggested that the concept of materialism is oversimplified because it's negative effects on well-being disappeared when negative money motives (Social comparison and Overcoming self-doubt) were controlled for. In their study, materialism was assessed through 'money importance' (the degree to which a person assigns importance to money in comparison to other life goals). Scholars urge for studies to further explore how materialism relates to other psychological factors (Kasser 2016). Given that Thibault Landry et al. (2016) found a different factor structure of the MMMS, it is useful to explore how materialism relates to Self-integrated, Financial stability and particularly the Non-integrated motives for making money. This study tests the hypothesis that when a person is labeled as materialistic, they consider the pursuit of money as important because it represents a way to overcome feelings of self-doubt, appear better than others and to spend impulsively (Non-integrated motives) and these motives drive materialism's negative effects on health.

There is evidence that materialism may be closely related, and be encompassed by, the non-integrated motives of Impulse, Social comparison and Overcoming self-doubt. Materialism is associated with spending money impulsively, especially when it is used to impress others (Kasser 2016). Materialistic people are more likely to have gambling (Carver and McCarty 2013) and compulsive consumption problems (Dittmar et al. 2014). They are also less likely to save, to responsibly manage their money (Donnelly et al. 2013) and more likely to accumulate debt (Richins 2011). With respect to Social comparison, materialism is associated with behaviors focused on developing an appealing image that others will admire, such as acquiring clothing and fashion items (Workman and Lee 2011). Recent research finds that when individuals make unfavorable social comparisons, this increases the relative importance they place on achieving financial success (Kim et al. 2017). Finally, there is ample evidence that materialism is related to low self-esteem (Li et al. 2018; Kasser et al. 2014).

With respect to Self-integrated and Financial stability motives, materialism is likely unrelated or negatively related to motives of Family support, Security, and Charity. People high in materialism have been found to engage in fewer prosocial behaviors, such as volunteering and helping others (Briggs et al. 2007) and score lower in empathy (Sheldon and Kasser 1995). Experimentally activating materialism causes people to be less likely to help others and to donate money (Vohs et al. 2006). In addition, materialism has been found to correlate negatively with values such as self-acceptance, self-direction and a desire for personal development (Kasser 2016). This makes it unlikely that materialism is associated with the money motives of Pride, Market worth, Freedom and Leisure because these goals emphasize an individual's desire to develop him/herself socially and emotionally.

In line with the research presented above, Study 1 attempts to replicate the first and second-order factor structure of the MMMS and Study 2 tests the mediating role of need satisfaction and frustration in the associations between money motives and psychological health among diverse samples of participants. Study 2 also explores how materialism relates to the money motives, need satisfaction/frustration as well as well-being/ill-being. The current study extends the work of Srivastava et al. (2001) by testing associations between materialism and the motive factors found by Thibault Landry et al. (2016) and by assessing materialism directly using a widely used materialism scale (Material Values Scale; Richins and Dawson 1992). The following hypotheses are tested in Studies 1 and 2:

- **H1:** Self-integrated motives positively predict well-being and negatively predict ill-being through need satisfaction and need frustration.
- **H2:** Non-integrated motives positively predict ill-being and negatively predict well-being through need satisfaction and need frustration.
- **H3:** Stability motives are unrelated to need satisfaction and need frustration.
- **H4:** Materialism is positively associated with Non-integrated money motives;
- **H5:** Materialism is negatively associated with Financial stability motives and Self-integrated motives;
- **H6:** The association between materialism and psychological health (need satisfaction/frustration) is fully accounted for by the money motives.

Money Interventions

A secondary objective of this article is to determine whether it is possible to encourage the adoption of healthy motives for making by testing the effectiveness of an intervention (Study 3) designed to encourage individuals to become aware of their own motives as well as to help them shift away from unhealthy reasons for wanting money. To date, the majority of intervention studies focus on reducing materialism (Kasser 2016). For instance, Kasser et al. (2014) revealed that adolescents that received a financial education program designed to reduce materialism, compared to a no-treatment control group, showed decreases in materialism ten months following the intervention. Moreover, Lekes et al. (2012) revealed that increases in well-being were experienced by participants who were asked to write brief essays about their two most important intrinsic values (e.g. helping others) in their lives, relative to a control group. Finally, Sheldon et al. (2003) revealed that simply helping individuals become aware of their scores on the Aspiration Index (a measure of materialism) leads people to less strongly materialistic goals.

Given the adverse effects of materialism on well-being, interventions aimed at reducing the endorsement of materialism are timely (Dittmar et al. 2014; Kasser 2016). As discussed above, materialism may actually represent a set of unhealthy motives for desiring money, such that money is used to avoid feelings of personal insecurity (Overcoming self-doubt), to develop an image that others will envy (Social comparison) as well as to spend money impulsively (Impulse). These motives lead to the thwarting of the psychological needs and to greater mental ill-health. Nevertheless, there are healthier reasons for desiring money (Financial stability and Self-integrated motives) that may countermand these negative effects. In line with Thibault Landry et al.'s (2016) call for research to discover practical ways to encourage the endorsement of beneficial money motives, the aim of Study 3 is to test an intervention designed to help individuals become aware of their own motivations for making money and to encourage a shift away from Non-integrated motives and toward Self-integrated and Financial stability motives. Thus, the following two hypotheses are also tested in this article:

- **H7:** After participating in the intervention, participants in the experimental group will exhibit significantly higher Self-integrated and Financial stability motives than the control group**;**

- **H8:** After participating in the intervention, participants in the experimental group will exhibit significantly lower Non-integrative motives compared to the control group.

Study 1: Method

Recruitment and Study Procedure

Participation involved completing the MMMS. Recruitment was accomplished through various data collection methods; a first sample ($n = 143$) was recruited through online ads posted on social media networks as well as an online classifieds advertising service, while another round of recruitment ($n = 99$) was accomplished using the listserv of the professional order of Certified Human Resources Professionals (CHRP) in the province of Québec, Canada. Undergraduate university students ($n = 238$) from the Université du Québec à Montréal (UQAM) were also recruited to participate in this study. Finally, Prolific Academic, an online crowdsourcing website was used to recruit participants ($n = 153$). Prolific Academic recommends that participants receive $10 per hour for any type of study completed. Given that this study took approximately 15 min to complete, participants received on average of 2.50$ for their participation.

Sample Demographics

The total sample included 633 individuals (33% men and 65.5% women) with an average age of 33.8 years. With respect to education, 38.1% held a Bachelor's degree, 30.8% a graduate degree, 23.4% a vocational degree, and 7.7% a high school degree or less. A majority of the sample (51.2%) worked full-time (35 h or more), 24.5% worked between 15 and 34 h and 14.5% worked less than 15 h. Approximately 10% did not work.

Measures

Motives for Making Money Scale (MMMS)

The MMMS (Srivastava et al. 2001) includes 30 items measuring the ten motives for making money. Reliability coefficients in the current study were adequate for the motives of Family support ($\alpha = .71$), Market worth ($\alpha = .81$), Pride ($\alpha = .70$), Charity ($\alpha = .75$), Leisure ($\alpha = .66$), Impulse ($\alpha = .75$), Overcoming self-doubt ($\alpha = .85$), and Social comparison ($\alpha = .82$). Motives of Security ($\alpha = .59$) and Freedom ($\alpha = .54$) revealed low reliability estimates. An analysis of item inter-correlations for the Security motive revealed that one item (item 1: "to acquire life's basic necessities such as decent housing, food and clothes") revealed low correlations with the other two items. Upon removal of the problematic item, the inter-item correlation between the two remaining Security items was to $r = .64$. Similarly, one item for the Freedom motive (item 7: "so that I can put my personal ideas into action and develop my own projects") revealed low correlations with the other two

Freedom items. Removal of this problematic item revealed an inter-item correlation between the two remaining Freedom items of $r = .68$. Items 1 and 7 were thus removed in subsequent analyses.

Results

Confirmatory Factor Analysis

To confirm the first-order factor structure of the MMMS, Confirmatory Factor Analysis (CFA) was conducted using AMOS version 23 (Arbuckle 2014). Five goodness-of-fit indices were used to assess model fit: the Minimum discrepancy per degree of freedom (CMIN/DF), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR). In general, threshold values of less than 0.08 for RMSEA are indicative of an acceptable fit (MacCallum et al. 1996). CMIN/DF values less than 5 indicate a reasonable fit (Marsh and Hocevar 1985) and values less than 3 are considered acceptable (Kline 1998). Generally, values higher than .90 for the CFI and TLI (Hoyle 1995) and lower than .08 for the SRMR (Hu and Bentler 1999) indicate an acceptable fit. The Akaike Information Criterion (AIC) was used when comparing models as smaller values generally indicate a better fitting and parsimonious model (Tabachnick and Fidell 2013).

A first model (Model 1) representing the 10 factor structure found by Srivastava et al. (2001) was tested (using 28 items). The model revealed an acceptable fit to the data, CMIN/DF = 3.13, RMSEA = .06, CFI = .92, TLI = .88, SRMR = .05, AIC = 1714.87. All items loaded significantly on their respective factors (Table 1). A second-order factor solution (Model 2) was subsequently tested containing three second order factors: (1) "Financial stability motives" comprised of two first-order factors (Security and Family), (2) "Self-Integrated motives" comprised of five first-order factors (Charity, Market worth, Freedom, Pride and Leisure) and (3) "Non-integrated motives" comprised of three first-order factors (Impulse, Overcoming self-doubt and Social comparison). The fit indices for Model 2 were CMIN/DF = 3.73, RMSEA = .07, CFI = .89, TLI = .84, SRMR = .07, AIC = 2007.43. Inspection of the model modification indices suggested that the inclusion of three covariances (between second-order factors of Family and Charity, Pride item 14 and Overcoming self-doubt item 9 as well as between Leisure item 25 and Social comparison item 20) would improve model fit. Correlations between error terms occur when there is common variance across two measures that is not explained by the theoretical constructs (Kenny 2012). Inspection of the items for Family support and Charity reveals that these factors overlap conceptually. The Family support motive represents items that imply a desire to make money in order to financially support family members, while the Charity motive represents items that imply desiring money in order to help others. In this case, the correlation between the error terms of these two factors may represent the variance that is associated with the notion of making money with the purpose of giving money to others more generally that is represented by both factors. Similarly, inspection of Pride item 14 ("in order to prove to myself that I am successful in life") and Overcoming self-doubt item 9 ("in order to prove to myself that I am not a failure") are conceptually very similar. Finally, Leisure item 25 ("so that I can enjoy luxurious things, e.g. cars, houses, art") and Social

comparison item 20 ("so that I can buy a nicer house or fancier car than my neighbors") are also similar. Both items involve desiring money to purchase items such as houses and cars, however each with a different purpose. Thus, given the conceptual overlap described above, it was decided to modify the factorial model to include the covariances. Model 3, consisting of Model 2 with the inclusion of the covariances, provided a better fit to the data, CMIN/DF = 3.33, RMSEA = .06, CFI = .91. TLI = .87, SRMR = .06, AIC = 1821.52).

Study 2: Method

Recruitment and Study Procedure

Participants were asked to complete a set of questionnaires in the language of their choice (English or French). Similarly to Study 1, recruitment for this study was accomplished through various data collection methods, including Prolific Academic ($n = 305$), ads posted on social media networks ($n = 37$) and the UQAM university campus ($n = 122$).

Sample Demographics

The total sample consisted of 464 individuals (54.7% women and 43.3% men) with an average age of 31.2 years. With respect to education, 47.4% held a Bachelor's degree, 20.3% a graduate degree, 18.3% a general or vocational college degree, and 14% a high school degree or less. Approximately half of the sample worked full-time (49.4%), 24.4% worked between 15 and 34 h, 12.7% worked less than 15 h and 13.6% did not work. The salary breakdown was the following: below $10,000 (15.3%), $10000–39,999 (40.1%), $40000–74,999 (26.5%), $75000–124,999 (15.3%), $125,000 and above (2.8%).

Measures

Motives for Making Money Scale

The MMMS was used to assess the ten motives for making money (see study 1 for full description). The ten subscales revealed adequate reliability estimates: Security ($\alpha = .63$), Family ($\alpha = .73$), Market worth ($\alpha = .82$), Pride ($\alpha = .68$), Charity ($\alpha = .79$), Leisure ($\alpha = .67$), Freedom ($\alpha = .70$), Impulse ($\alpha = .84$), Overcoming self-doubt ($\alpha = .82$), and Social comparison ($\alpha = .84$).

Need Satisfaction

The Balanced Measure of Psychological Needs Scale (Sheldon and Hilpert 2012) was used to assess the satisfaction of the needs for autonomy (e.g., "I feel my choices express my true self"), relatedness (e.g., "I feel close and connected with other people who are important to me") and competence (e.g., "I feel I can successfully complete difficult tasks"). The need satisfaction scale revealed a reliability estimate of $\alpha = .84$.

Table 1 Study 1 – First-order Confirmatory Factor Analysis of the MMMS

Factor and items	Factor loading	Critical ratio
Security		
Item 11 "to ensure that I have a decent emergency fund saved up."	.57**	–
Item 21 "so that I can feel secure."	.82**	10.83
Family		
Item 2 "to be able to support the people who are important to me (e.g. friends and family)."	.63**	–
Item 12 "so that I can pay my children's (or future children's) college tuition."	.66**	12.42
Item 22 "so that I can leave money to my family (or friends) when I am no longer around."	.74**	12.79
Market worth		
Item 3 "to know that I am being fairly compensation for the work that I do."	.68**	–
Item 13 "because it ensures that I receive what I deserve for my ideas and effort."	.80**	16.63
Item 23 "to ensure that I am compensated fairly for my work achievements."	.83**	16.93
Pride		
Item 4 "because it allows me to feel proud of myself."	.67**	–
Item 14 "In order to prove to myself that I am successful in life."	.81**	17.21
Item 24 "to prove to myself that I can deal with life's challenges."	.56**	12.77
Leisure		
Item 5 "in order to have time to pursue leisure activities that I enjoy."	.63**	–
Item 15 "so that I can spend my time and money on my hobbies."	.74**	13.13
Item 25 "so that I can enjoy luxurious things (e.g. cars, houses, art)."	.56**	11.24
Charity		
Item 6 "in order to donate to those in need."	.84**	–
Item 16 "to be able to donate to a cause that is important to me."	.77**	17.18
Item 26 "so that I can have free time to pursue volunteer activities."	.50**	12.39
Freedom		
Item 17 "to ensure that I am not accountable to anyone for what I do or how I do it."	.67**	–
Item 27 "so that I can lead my life with no interference from anyone."	.73**	9.41
Impulse		
Item 8 "so that I can let my mood guide me at times to spend impulsively on shopping just for the thrill of it."	.79**	–
Item 18 "so that I can gamble and participate in betting games."	.49**	12.09
Item 28 "so that I can then spend it on impulsive purchases."	.83**	18.82
Overcoming self-doubt		
Item 9 "in order to prove to myself that I am not a failure."	.72**	–
Item 19 "to prove that I am not incompetent."	.72**	19.74
Item 29 "to prove that I am not as dumb as people may think."	.75**	19.35
Social comparison		
Item 10 "so that I can prove to others (friends/siblings/relatives) that I am better than them."	.82**	–
Item 20 "so that I can buy a nicer house or fancier car than my neighbours."	.71**	18.22
Item 30 "so that others will pay attention to me and admire me."	.77**	19.68

Note. **. Correlations significant at the 0.01 level

Need Frustration

An adapted version of the Psychological Need Thwarting Scale (PNTS; Gillet et al. 2012) was used to assess the frustration of the needs for autonomy (e.g., "I feel prevented from making choices with regard to the way I do things"), relatedness (e.g., "I feel other people dislike me") and competence (e.g., "There are situations in which I am made to feel inadequate"). The need frustration revealed adequate reliability ($\alpha = .91$).

Well-Being

The Positive and Negative Affect Schedule – Short Form (PANAS-SF; Thompson 2007) was used to measure positive affect. Participants are asked to indicate the frequency with which they generally experience five different positive emotions (e.g., "inspired"). The reliability estimate for the positive affect subscale was adequate ($\alpha = .69$). General well-being was also assessed using the Measure of Psychological Well-being (Choi et al. 2014). Participants indicate their level of agreement to 7 items (e.g. "My life has meaning and purpose"). Reliability for this scale was within expected range ($\alpha = .72$). Mean scores of the PANAS-SF and the Measure of Psychological Well-being were transformed into standardized scores and then combined and used as an indicator of well-being. Reliability ($\alpha = .79$) for the global well-being score (all items) suggests that the combination of these two scales was appropriate.

Ill-Being

The negative affect subscale of the PANAS-SF (Thompson 2007) was used as a measure of negative affect. Participants are asked to indicate the frequency with which they generally experience five different negative emotions (e.g., "upset"). Reliability for the negative affect subscale was adequate ($\alpha = .76$). Depression symptoms were assessed using the Center for Epidemiologic Studies – Depression Scale – short form (CES-D; Cole et al. 2004). Participants are asked to indicate the frequency with which they experience eight different negative states (e.g. "I felt my life had been a failure") over the last 12 weeks. Reliability for the CES-D was adequate ($\alpha = .85$). The mean scores of the PANAS-SF and the CES-D were transformed into standardized scores and then combined and used as an indicator of ill-being. Reliability ($\alpha = .88$) for the global ill-being score (all items) suggests that the combination of these two scales was appropriate.

Materialism

The Materialistic Values Scale (Richins and Dawson 1992) was used to assess materialism. Participants indicated their level of agreement to a set of 9 items (e.g., "I admire people who own expensive homes, cars, and clothes"). Reliability ($\alpha = .88$) for this scale was considered appropriate.

Results

Control Variables

A MANOVA was carried out to verify whether the study variables varied significantly with respect to the different data collection methods (i.e., online ads, university campus, crowdsourcing website). Results revealed that the variables varied significantly across the different data collection methods ($F(16, 906) = 8.07$, $p < .001$; Wilk's $\Lambda = .766$, partial $\eta^2 = .13$). Specifically, well-being ($F(2, 460) = 14.52$, $p < .001$, partial $\eta^2 = .06$), Non-integrated motives ($F(2, 460) = 27.66$, $p < .001$, partial $\eta^2 = .11$), need satisfaction ($F(2, 460) = 7.24$, $p = .001$, partial $\eta^2 = .03$), need frustration ($F(2, 460) = 13.68$, $p < .001$, partial $\eta^2 = .06$) and materialism ($F(2, 460) = 22.51$, $p < .001$, partial $\eta^2 = .09$) varied significantly with respect to data collection method. Given that multiple ANOVAs were run, a Bonferroni correction was applied and thus statistical significance was accepted at the $p < .006$ level ($p = .05$ divided by 8 tests). Similarly, a MANOVA was also conducted to determine whether study variables varied according to language (English and French). Results revealed that the variables of interest varied significantly with respect to language ($F(8, 454) = 14.45$, $p < .001$; Wilk's $\Lambda = .797$; partial $\eta^2 = .20$). Specifically, well-being ($F(1, 461) = 27.16$, $p < .001$, $\eta^2 = .06$), Non-integrated motives ($F(1, 461) = 52.90$, $p < .001$, $\eta^2 = .10$), need satisfaction ($F(1, 461) = 18.52$, $p < .001$, $\eta^2 = .04$), need frustration ($F(1, 461) = 21.07$, $p < .001$, $\eta^2 = .04$) and materialism ($F(1, 461) = 44.81$, $p < .001$, $\eta^2 = .09$) varied significantly with respect to language. In addition to the variables of age, gender, education, work hours, and salary, language and data collection method were also included as control variables in the analyses. Categorical control variables (i.e., gender, data collection method, and language) were dummy coded. Table 2 presents the correlations between all study variables.

Main Analyses

Money Motives and Psychological Health

Before testing hypotheses H1 through H3 with Structural Equation Modeling (SEM) using AMOS (Arbuckle 2014), a measurement model (Model 1) was tested in which indicators of the variables included in the structural model (Self-integrated, Financial stability, Non-integrated money motives, need satisfaction and frustration, well-being and ill-being) loaded on their respective latent factor. This model provided a satisfactory fit to the data (CMIN/DF = 2.52, RMSEA = .06, CFI = .90, TLI = .88, SRMR = .06) and all indicators had significant loadings on their corresponding latent factor. Given that all data were self-reported, Harman's single factor score (in which all items measuring the latent variables are loaded into one common factor) was calculated in order to test for common method bias (CMB; Harman 1960). The total variance for a single factor was 18.91%, hence below the recommended value of 50%, suggesting that CMB was unlikely to distort the interpretation of the relationships among variables.

SEM was subsequently conducted to test the hypothesized model in which need satisfaction and frustration mediate the associations between money motives and well-being and ill-being. A first model (Model 2) was tested which included indirect links

Table 2 Study 2 – Descriptive statistics and intercorrelations between study variables

Variables	Mean	SD	1	2	3	4	5	6	7
1. Financial stability motives	22.79	4.46							
2. Self-integrated motives	19.45	4.07	.49**						
3. Non-integrated motives	10.90	5.42	.23**	.52**					
4. Need satisfaction	3.97	.56	.23**	.24**	−.11*				
5. Need frustration	3.44	1.19	.03	.10*	.37**	−.50**			
6. Well-being		.86	.22**	.22**	−.13*	.71**	−.49**		
7. Ill-being		.91	−.03	.001	.19**	−.55**	.65**	−.60**	
8. Materialism	3.23	1.02	.15**	.33**	.60**	−.12*	.28**	−.17**	.17**

Note. *. Correlations are significant at the 0.05 level; **. Correlations are significant at the 0.01 level

from Self-integrated and Non-integrated motives to well-being and ill-being through need satisfaction and need frustration (full mediation). An analysis of the correlation table prior to testing the proposed model revealed that Financial stability motives were linked to need satisfaction. Thus, the model tested also included links from Stability motives to need satisfaction. Model 2 provided a good fit to the data, CMIN/DF = 1.50, CFI = .99, TLI = .98, RMSEA = .03, SRMR = .03, AIC = 222.42. Model 2 (M2) was then compared to a partial mediation model (M3), which consisted of M2 with the addition of 4 direct paths from Self-integrated motives to well-being, from Stability to well-being, and from Non-integrated motives to well-being and ill-being. This model provided a slightly better fit to the data, (CMIN/DF = 1.09, CFI = .99, TLI = .99, RMSEA = .01, SRMR = .03, AIC = 212.56) suggesting the presence of significant direct effects of the motives on well-being and/or ill-being. Fig. 1 presents the final retained model (links from control variables are not shown for simplicity). The results indicate that self-integrated motives positively predict need satisfaction ($\beta = .31$, $p < .001$) and negatively predict need frustration ($\beta = -.10$, $p = .041$). Non-integrated motives positively predict need frustration ($\beta = .40$, $p < .001$) and negatively predict need satisfaction ($\beta = -.27$, $p < .001$). Financial stability motives positively predict need satisfaction ($\beta = .14$, $p < .001$). Moreover, need satisfaction is positively associated with well-being ($\beta = .54$, $p < .001$) and negatively associated with ill-being ($\beta = -.32$, $p < .001$). Need frustration positively predicts ill-being ($\beta = .49$, $p < .001$) and negatively predicts well-being ($\beta = -.18$, $p < .001$). Moreover, there was a significant direct effect of Self-integrated motives on well-being ($\beta = .10$, $p = .005$).

To formally test the mediating role of need satisfaction and need frustration in the relationship between money motives and psychological health, 95% confidence intervals were computed from 1000 bootstrap samples (Preacher and Hayes 2008). Mediation (i.e., indirect) effects are said to be significant when confidence intervals exclude zero. Results revealed a significant indirect effect of stability motives on well-being ($\beta = .08$, CI [.03, .14] $p = .002$) and ill-being ($\beta = -.05$, CI [−.08, −.02], $p = .001$) through need satisfaction. Moreover, there were significant indirect effects of self-integrated motives on well-being ($\beta = .19$, CI [.11, .26), $p = .002$) and ill-being ($\beta = -.15$, CI [−.22, −.08), $p = .002$) through need

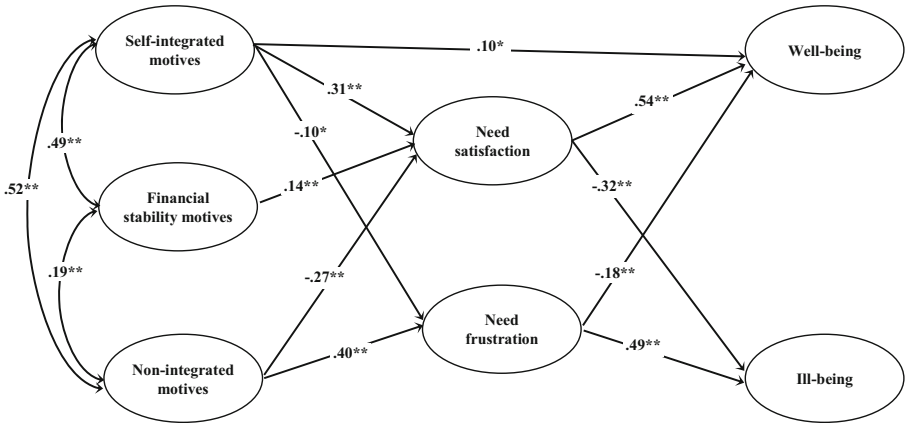

Fig. 1 Study 2 - The final model depicting the standardized path coefficients between money motives, need satisfaction/frustration and well-being/ill-being. Note. Paths from control variables are not shown for simplicity of presentation. (**. Coefficients are significant at the 0.01 level; *. Coefficients are significant at the 0.05 level)

satisfaction and need frustration. There were also significant indirect effects of Non-integrated motives on well-being (β = −.22, CI [−.28, −.14), $p = .002$) and ill-being (β = .28, CI [.21, .35], $p = .002$) through need satisfaction and need frustration. PROCESS SPSS software (Hayes 2012) was used to determine if both need satisfaction and need frustration were significant mediators in the relationships between money motives and well-being/ill-being. The results revealed that in the relationship between self-integrated motives and well-being, both need satisfaction (β = .13, CI [.08, .19], $p < .05$) and need frustration (β = −.04, CI [−.07, −.02], $p < .05$) played a significant mediating role. In the relationship between self-integrated motives and ill-being, both need satisfaction (β = −.07, CI [−.10, −.04], $p < .05$) and need frustration (β = .11, CI [.07, .16], $p < .05$) also played a unique mediating role. In addition, the results indicated that only need frustration (β = −.05, CI [−.08. -.03], $p < .05$) significantly mediated the relationship between non-integrated motives and well-being, and that the mediating role of need satisfaction in this relationship was not significant (β = −.05, CI [−.11, 01], $p > .05$). Similarly, in the relationship between Non-integrated motives and ill-being, only need frustration was a significant mediator (β = .16, CI [.11, .21], $p < .05$), whereas need satisfaction did not significantly mediate this relationship (β = .03, CI [−.01, .06], $p > .05$). Taken together, the results provide support for H1 and partial support for H2. Although need satisfaction and need frustration mediate the relationship between Self-integrated motives and well-being/ill-being, only need frustration mediates the relationship between non-integrated motives and these outcomes. H3 was not supported as Financial stability motives were associated with well-being through need satisfaction.

Materialism, Money Motives and Psychological Health

With respect to H4 and H5, correlations between the money motives and materialism were inspected. Materialism correlates positively with Non-integrated motives ($r = .60$, $p < .001$), Financial stability motives ($r = .15$, $p < .001$) and Self-integrated motives ($r = .33$, $p < .001$). With respect to individual money motives, as expected, materialism

was strongly associated with non-integrated motives of Impulse ($r = .50$, $p < .001$), Overcoming self-doubt ($r = .47$, $p < .001$) and Social comparison ($r = .54$, $p < .001$). Contrary to expectation, materialism was also positively associated with the motives of Security ($r = .13$, $p = .005$), Family ($r = .16$, $p = .007$) as well as with Market worth ($r = .20$, $p < .001$), Pride ($r = .44$, $p < .001$), and Leisure ($r = .46$, $p < .001$) Materialism was unrelated to Charity ($r = -.03$, $p = .501$) and Freedom ($r = .05$, $p = .337$). These results provide support for H4 but not H5.

SEM using AMOS (Arbuckle 2014) was used to test H6 that need satisfaction and frustration mediate the relationship between materialism and psychological health (well-being and ill-being). First, a measurement model (M4) in which indicators of the variables included in the structural model (materialism, need satisfaction and frustration, well-being and ill-being) loaded on their respective latent factor, was tested. This model provided a good fit to the data (CMIN/DF = 3.21, RMSEA = .07, CFI = .93, TLI = .91, SRMR = .07) and all indicators had significant loadings on their corresponding latent factor. Harman's single factor score indicated that the total variance for a single factor was 23.88% indicating that CMB is unlikely to affect the results. Subsequently, a full mediation model (M5) was tested with indirect paths drawn from materialism to well-being and ill-being through need satisfaction and need frustration. This model provided a good fit to the data, CMIN/DF = 1.21, CFI = .99, TLI = .99, RMSEA = .02, SRMR = .02, AIC = 171.00. A partial mediation model (M6) was compared to Model 5 with additional direct links from materialism to well-being and ill-being. This model did not provide a better fit to the data (CMIN/DF = 1.34, CFI = .99, TLI = .99, RMSEA = .03, SRMR = .02, AIC = 174.11), thus M5 was retained. Model 5 (Fig. 2) indicates that materialism positively predicts need frustration ($\beta = .23$, $p < .001$) but does not significantly predict need satisfaction ($\beta = -.06$, $p = .219$). Moreover, 95% confidence intervals computed from 1000 bootstrap samples revealed that need frustration significantly mediated the relationship between materialism and well-being ($\beta = -.04$, CI [−.06, −.01]) and between materialism and ill-being ($\beta = .12$, CI [.07, .17]).

Finally, SEM was used to determine the effect of materialism on need frustration after accounting for all the money motives. Fig. 3 indicates that non-integrated motives are the common cause of both materialism and need frustration and that there is no direct residual relationship between materialism and need frustration. The model fit statistics reveal a good fit to the data, CMIN/DF = 1.16, CFI = .99, TLI = .99, RMSEA = .02, AIC = 192.27, SRMR = .03. The model shows that Non-integrated motives significantly predict materialism ($\beta = .50$, $p < .001$), but that Integrated ($\beta = .06$, $p = .195$) and Stability ($\beta = -.01$, $p = .795$) motives do not. Moreover, the effect of materialism on need frustration ($\beta = .08$, $p = .148$) is not significant. Thus, support was found for the hypothesis that the relationship between materialism and need frustration is accounted for by money motives (H6).

Study 3: Method

Recruitment and Study Procedure

The experimental group was recruited by posting an ad on an event management website as well as on social media websites inviting individuals to participate in a free

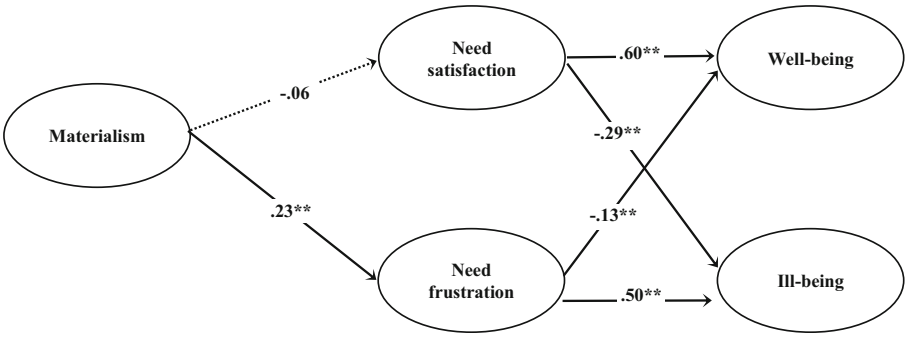

Fig. 2 Study 2 - The final model depicting the standardized path coefficients between materialism, need satisfaction/frustration and well-being/ill-being. Note. Paths from control variables are not shown for simplicity of presentation. (**. Coefficients are significant at the 0.01 level)

3-h workshop. The workshop was held at the UQAM campus in Montréal (Canada) and was led by the second author. As part of the workshop, participants completed the MMMS as well as a demographic questionnaire. A full description of the content of the intervention is found in Appendix Table 4. It is important to note that this study represents the first validation effort for this intervention. Participants in the experimental group were contacted two weeks after the workshop and were asked to complete the same set of questionnaires. The no-treatment control group consisted of students

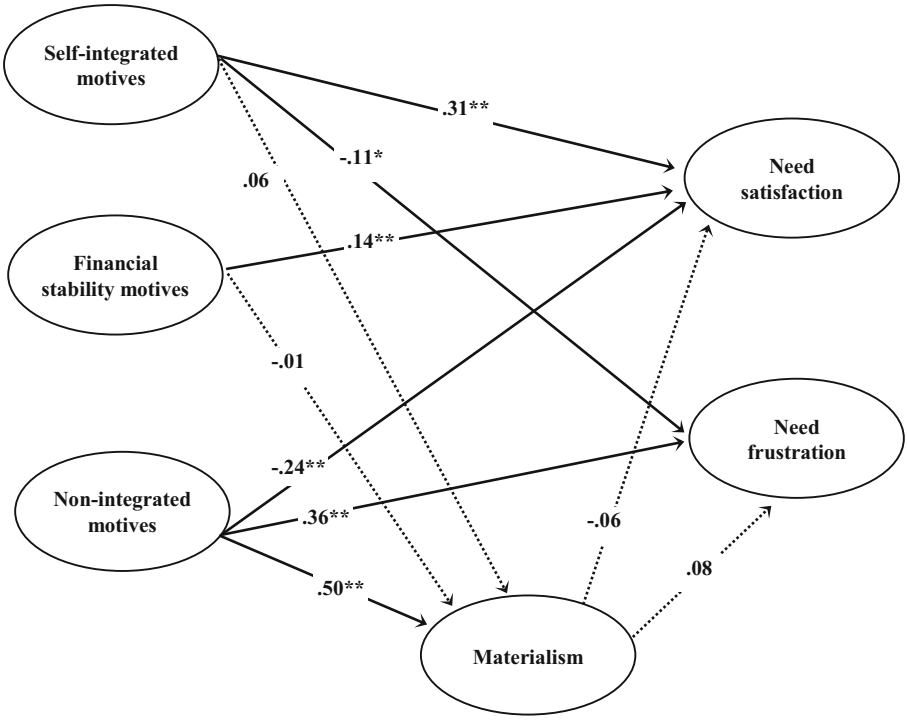

Fig. 3 Study 2 - The model depicting the standardized path coefficients between money motives, materialism and need satisfaction/frustration. Note. Paths from control variables are not shown for simplicity of presentation. (**.Coefficients are significant at the 0.01 level)

recruited from an undergraduate course at UQAM, who completed the same set of questionnaires as the experimental group.

Sample Demographics

The experimental group consisted of 19 participants (15 women; 4 men) with an average age of 40.8 years. Most participants were full time workers (78.9%; 35 h or more). With respect to education, 78.9% held a graduate degree and 21.2% held a Bachelor's degree. The control group consisted of 21 participants (12 women; 9 men) with an average age of 24.1 years. Most participants worked part time (71.4%), 19% worked full-time and 19% did not work. A majority had a vocational or general college degree (81%), 4.8% held a Bachelor's degree and 14.3% held a high school degree or less. Given the quasi-experimental design of this study, analyses were conducted to determine whether the control and experimental groups were significantly different in terms of the socio-demographic variables.

Measures

Motivations for Making Money

The MMMS was used to assess the ten motivations for making money (see Study 1 for a full description of this scale). The reliability estimates for the motives (before and after the intervention) were acceptable: Financial Stability ($\alpha = .71; .70$), Self-integrated ($\alpha = .76; .77$) and Non-integrated ($\alpha = .85; .83$).

Manipulation Check

To assess whether the intervention had the intended effects on participants, the experimental group was asked to answer the following questions: (1) "Do you believe the workshop was useful in helping you identify the different motives you have for making money?", (2) "Since you participated in the workshop, have you made any changes regarding the way you spend money?" and (3) "Since you participated in the workshop, have you noticed any changes regarding the way you perceive and/or relate to money?"

Results

Preliminary Analyses

A MANOVA was conducted to verify if the experimental and control groups differed with respect to the variables of age, gender, education and work hours. The results revealed that there were significant differences with respect to the set of demographic variables, $F(4, 35) = 62.69$, $p < .001$; Wilk's $\Lambda = 0.122$; partial $\eta^2 = .88$. Follow-up analyses revealed that the intervention and control group were significantly different in terms of age ($F(1, 38) = 29.42$, $p < .001$; partial $\eta^2 = .44$), education ($F(1, 38) = 193.25$; $p < .001$; partial $\eta^2 = .84$) and work hours ($F(1, 38) = 9.86$; $p = .003$; partial $\eta^2 = .21$). Age, education and work hours were controlled for in main analyses.

Manipulation Check

All participants agreed that the intervention was effective in helping them identify their motives for making money (52.6% agreed, 47.4% strongly agreed). Only 26.4% of participants agreed that the intervention helped them bring about a change in spending (42.1% neutral; 31.6% disagreed) and 36.8% agreed that they experienced a change in how they perceive their relationship with money (31.6% disagreed; 31.6% neutral). It appears the intervention was effective in helping individuals identify their money motives, but led to actual behavioral and attitudinal changes for approximately a third of participants.

Main Analyses

A between and within subjects repeated measures ANCOVA, with Time (Time 1, Time 2) as the within-subjects factor and Condition (Experimental, Control) as the between subjects factor was run separately for Self-integrated, Stability and Nonintegrated money motives. The variables of age, education and work hours were included as covariates in the analyses. In order to find support for hypotheses H7 and H8, significant interaction effects (Time by Condition) are expected. The results revealed no significant group by time interaction effect for Self-integrated ($F(1, 35) = .03$; $p = .856$) and Stability ($F(1, 35) = .50$; $p = .483$) motives. Levene's test of equality of variances was not statistically significant for both self-integrated and stability motives. This indicates that compared to the control group, participants in the experimental group did not exhibit significantly higher Self-integrated and Financial stability motives after participating in the intervention (H7 not supported).

With respect to Non-integrated motives, the results revealed that there was a significant time by group interaction effect ($F(1, 35) = 8.91$; $p = .005$; $\eta^2 = .203$). Levene's test for equality of variances was not significant. Fig. 4 as well as the estimated marginal means in Table 3 reveal that participants in the experimental condition had significantly lower non-integrated motives after the intervention, whereas non-integrated motives actually increased over time for participants in the control group. Simple main effect analyses revealed that the control group experienced an increase in Non-integrated money motives as there was a significant main effect of time for the control group ($F(1, 17) = 4.82$; $p = .042$). Although Non-integrated motives decreased in the intervention group after the intervention, the main effect of time was not statistically significant ($F(1, 15) = .09$; $p = .767$). Taken together, these results indicate that for participants in the control group, scores on Non-integrated motives increased significantly over time. Moreover, the presence of a significant interaction effect indicates that Non-integrated motives were significantly higher for the control group compared to the experimental group after the intervention (H8 partially supported).

Discussion

This article had two main objectives: (1) understand what motivates people to make money and how this impacts psychological health (Studies 1 and 2) and (2) explore

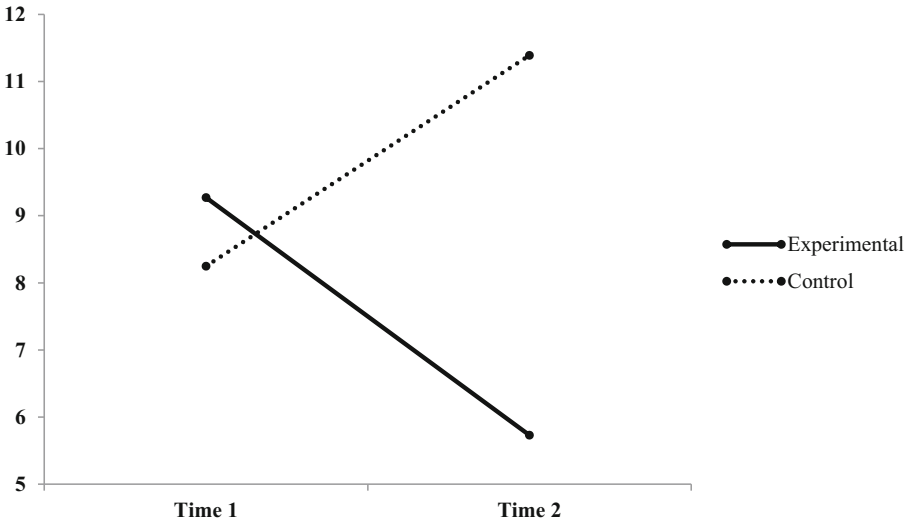

Fig. 4 Study 3 – Significant Time by Condition interaction effect for Non-integrated motives

whether it is possible to encourage the adoption of healthy reasons for making money (Study 3). Consistent with Thibault Landry et al. (2016), the results of Study 1 suggest that people are motived to make money for three broad reasons, namely Financial stability (Security and Family support), Self-integrated (Market worth, Pride, Leisure, Charity, and Freedom) and Non-integrated (Impulse, Social comparison, and Overcoming self-doubt) reasons. Moreover, Study 2 found support for the fact that when people make money for Self-integrated reasons they are more likely to experience the satisfaction (and prevent the frustration) of their three psychological needs and consequently experience greater well-being (and less ill-being). Desiring money for Non-integrated reasons, on the other hand, leads individuals to experience the active frustration their psychological needs, which in turn leads to greater ill-being. Contrary to Thibault Landry et al.'s (2016) study, Financial Stability motives also predicted need satisfaction and well-being. Given that money leads to well-being when used to fulfill basic life necessities (e.g., Howell and Howell 2008), it makes sense that individuals desiring money to ensure their own and their family's physical well-being would also encourage psychological need satisfaction. For instance, being able to afford decent housing is likely to encourage feelings of autonomy and competence. Moreover, supporting loved ones is also likely to contribute to feelings of relatedness as it

Table 3 Study 3 – Estimated marginal means for Self-Integrated, Financial stability and Non-integrated Motives

Condition		Self-Integrated	Stability	Non-integrated
Experimental	**Time 1**	19.77	20.21	9.27
	Time 2	19.67	21.12	5.73
Control	**Time 1**	23.20	28.34	8.25
	Time 2	22.73	27.03	11.39

strengthens relationships with significant others. This finding is consistent with the results of a study by Howell et al. (2013) which revealed that rises in economic standing lead to subsequent increases in life satisfaction and that this association is mediated by feelings of financial security as well as psychological need satisfaction.

In trying to understand what motivates people to make money, Study 2 also explored how materialism relates to the money motives. Consistent with previous research (Unanue et al. 2017), need frustration (but not need satisfaction) explained materialism's adverse effects on psychological health. Materialism's effect on need frustration, however, was fully accounted for by the Non-integrated motives for making money. Consistent with Srivastava et al. (2001), this finding suggests that materialism's adverse effects on mental health are most likely driven by the fact that individuals high in materialism are likely to spend money impulsively, especially to compensate for feelings of self-doubt as well as to appear better than others. From this perspective, it may be more appropriate to conceptualize materialism more broadly as a set of unhealthy reasons for desiring money that represent only some of the possible reasons for making money. As was made clear by Study 2, there are also beneficial motives for making money that may countermand the detrimental effects of materialism on mental health. These results are consistent with previous research suggesting that the concept of materialism is multifaceted and that certain aspects of materialism may contribute to well-being while others are detrimental. For instance, a distinction is sometimes made between instrumental (using material possessions as a means of fulfilling life goals) and terminal materialism (amassing wealth as a representation of social status; Fournier and Richins 1991; Rochberg-Halton 1986). While terminal materialism is harmful to well-being, instrumental materialism is not (Scott 2009). Moreover, Sirgy et al. (2019) found empirical support for a model of materialism in which two dimensions of materialism have differential impacts on life satisfaction. Happiness materialism, which refers to the belief that the acquisition of possessions brings happiness in life, was associated with decreased life satisfaction. On the other hand, people who endorsed Success materialism (defined as the acquisition of possessions as a representation of success in life) was associated with a greater willingness to work hard and make money (economic motivation) which in turn led to increased (future) life satisfaction. The authors suggest that people who endorse the 'success' dimension of materialism tend to work harder and for longer to raise their standard of living which increases their ability invest in education and improve living standards and this in turn improves life satisfaction. This perspective reiterates the assertion that money can be pursued for beneficial and detrimental reasons and that both may coexist at once. This provides a potential explanation for the finding that materialism correlates positively with Self-integrated and Financial stability motives.

Finally, Study 3 provided preliminary evidence for the effectiveness of an intervention aimed at helping individuals become aware of their own money motives and discouraging Non-integrated motives. Although no significant changes in beneficial motives (Financial stability and Self-integrated) were witnessed, participants in the experimental group revealed significantly lower Non-integrated motives than the control group two weeks after the intervention. Consistent with previous research, this study finds some support for the fact that simply becoming aware of one's motives may help to keep unhealthy motives for making money at bay (Sheldon et al. 2003).

Theoretical Contributions and Practical Implications

The three studies of this article make important contributions to the money motives literature. Given that only a few studies have attempted to replicate the factorial structure of the MMMS, Study 1 provided empirical support (among a diverse sample of participants) for the first and second order factor structure of the scale as found by Thibault Landry et al. (2016). Moreover, the results of Study 2 support the contention that the money motives can be categorized into three superordinate categories of motives based on whether they encourage psychological need satisfaction or lead to need frustration. In addition to confirming the effects of Self-integrated and Non-integrated motives on psychological health, Study 2 also adds to the literature by suggesting that desiring money for Financial stability reasons also encourages need satisfaction and consequently well-being. Another contribution of Study 2 is that the results bridged two relatively independent research fields by suggesting that materialism may be more accurately conceptualized as a set of unhealthy reasons for desiring money that represent only some of the reasons for making money. This article extends the work of previous studies (Srivastava et al. 2001) by assessing materialism directly using a widely used materialism scale and by exploring its associations with the motive categories found by Thibault Landry et al. (2016). From a broader perspective, the results of this article contribute to the literature on money, happiness and SDT by suggesting that simply considering money, in and of itself, is not sufficient to fully understand its impact on well-being. The psychological aspects of money (i.e. considering what drives people to make money) is a research topic worthy of more in depth exploration as it provides insight into an additional pathway through which money impacts well-being.

From a practical perspective, this article points to the need for more concrete interventions and programs that can actively encourage people to reflect on the reasons that underlie their desire to make money. Study 3 constituted the very first effort at helping people develop a psychologically healthier relationship with money by targeting money motives. Although additional studies are needed to support the effectiveness of the intervention and to validate its content more thoroughly, preliminary evidence was found for the malleability of the money motives and suggests that it is possible to have a positive impact on people's motives. Practically, this means that programs and initiatives (e.g. in the domains of education, finance and psychology) that encourage individuals to reflect on their reasons for making money may prove beneficial in improving psychological well-being.

Limitations and Future Research

Several weaknesses relating to the studies of this article must be outlined. A limitation of Study 2 is its correlational design, as it does not allow for inferring causality between variables. For instance, this article suggests that money motives influence psychological health through the mediating role of need satisfaction and frustration. Without longitudinal data it is impossible to

rule out the alternative possibility that psychological health influences need satisfaction and in turn the money motives. However, previous research using longitudinal designs provides support for the direction of the relationships proposed in this study (Olafsen et al. 2018).

With respect to Study 3, several limitations can be outlined. First, the small sample size decreases the odds of achieving adequate statistical power and causes significant difficulties in terms of generalizability of the results. It is crucial for future research to test the intervention with a larger and more diverse sample of participants. Second, the quasi-experimental design increases the possibility that other unaccounted factors may influence the results of the study. Nonetheless, care was taken to control for several socio-demographic variables that were known to have potentially biased the results. Moreover, participants in the experimental group voluntarily decided to participate in the workshop and this may have biased the results in several ways. Individuals who are highly motivated to learn about the psychological aspects of money may be more willing to make changes to their money habits. On the other hand, it might also provide an explanation as to why the intervention was not as effective as expected. People who are motivated to understand their relationship with money may already make active efforts to improve this relationship and thus the information presented during the workshop may not have been sufficiently powerful to lead to significant changes in money motives. Another important limitation is that participants in the control group did not participate in a placebo intervention. Participants in the experimental group received more attention from experimenters and had more contact with other participants given the dynamic nature of the workshop. This leaves open the possibility that the mere fact of participating in the intervention may have affected the outcomes that were observed. Ideally, future studies could test the effectiveness of the intervention using an experimental design in which participants are randomly assigned to both conditions and in which the control group participates in a placebo intervention (e.g. workshop dealing with financial literacy or budgeting). Finally, the effect of the intervention on variables other than the money motives (i.e., need satisfaction/frustration, well-being/ill-being) was not assessed. It is possible that the intervention may have had direct effects on these outcomes. Finally, the two-week timeframe may not have been sufficient to witness real changes in motives. It may be fruitful for future research to assess different outcome variables over multiple periods to determine how they evolve over time.

Conclusion

Money can buy happiness to the extent that it is desired for reasons that encourage psychological need satisfaction, but it does not buy happiness when it is desired for reasons that actively thwart the psychological needs. Preliminary evidence was found for the effectiveness of an intervention in allowing individuals to become aware of their own motives for making money and thereby keep unhealthy motives at bay.

Compliance with Ethical Standards

Conflict of Interest The authors declare they have no conflict of interest.

Appendix

Table 4 Content of the intervention

THEMES	Duration (min)
Introduction	**5**
• Presentation of objectives and plan of the workshop	
Activity 1: Completion of the MMMS	**15**
• Participants complete the MMMS and score their responses.	
Part 1: Money and happiness	**10**
• Presentation of key studies on money and happiness. • Presentation of Self-Determination Theory: Need satisfaction and need frustration and their effects on well-being/ill-being. **Learning objective**: Understand the conditions under which money leads to well-being.	
Part 2: Motives for Making Money	**75**
• Presentation of the ten motives for making money. • Each motive is described and participants are encouraged to share about their own motives and how they impact their well-being. • Presentation of key studies revealing beneficial (Self-integrated motives) and detrimental motives (Non-integrated motives). **Learning objective:** Allow participants to become aware of their own motives for making money and how these impact well-being.	
Break	**15**
Part 3: Strategies	**30**
• Presentation of four spending strategies thought to increase well-being and encourage the adoption of beneficial money motives (Investing in: others, experiences, time and security). • For each strategy, key studies are presented and participants are encouraged to discuss about the purchases they make and what motivates them to do so. **Learning objective:** Understand the types of purchases that provide the greatest well-being.	
Activity 2: Completion of personal contract	**20**
• Participants are provided a contract in which they outline concrete actions to be taken in the following month in order to put the strategies into place.	
Conclusion	**10**
• Summary of key points of the workshop	

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