



Why do greater curiosity and fewer depressive symptoms predict gratitude intervention use? Utility beliefs, social norm, and self-control beliefs ☆



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ABSTRACT

Prior research found that greater trait curiosity, fewer depressive symptoms, and being a woman increase the likelihood that a person will start a gratitude intervention on their own. Yet, little is known as to why these individual differences lead to self-initiation. In the present study, we examined motivational mechanisms that might account for these effects. In-home interviews were conducted with 257 adults from the community. Participants received a leaflet about gratitude interventions that asked about gratitude social belief norms (what other important people they care about would do), utility and self-control beliefs (e.g., usefulness, perceived difficulty), and intentions to start a gratitude intervention. They also completed measures of curiosity and depressive symptoms. Afterwards, participants received codes that allowed them to take part in a web-based gratitude intervention (strictly voluntary). Using structural equation modeling, we found that greater trait curiosity, fewer depressive symptoms, and being a woman indirectly led to the initiation of the gratitude intervention as a function of utility beliefs, social norm beliefs, and perceived self-control. Results suggest specific motivational pathways through which curiosity, depression, and sex influence the development of grateful people.

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1. Introduction

Despite the ubiquity and lucrative market, little is known about who initiates self-help interventions and why they do. Self-help seekers are not a homogeneous group (Parks, Della Port, Pierce, Zilca, & Lyubomirsky, 2012) suggesting that there are problems with one-size-all approaches for motivating people. In a recent study, Kaczmarek and colleagues (2013) gave people information about a website with free gratitude interventions that they could access if they chose. Greater curiosity, fewer depressive symptoms, and being a woman were each linked to a greater likelihood of voluntarily starting the gratitude intervention. To date, no research

exists on the mechanisms accounting for these effects. The primary goal of the present study was to examine motivational factors (perceptions about usefulness, social norm beliefs, self-control beliefs) that might explain why certain individual differences (curiosity, depression, sex) alter the likelihood of initiating a gratitude intervention.

1.1. Gratitude interventions

Gratitude is an emotional state that occurs when an individual attends to the benefits and gifts that are attributable to the kindness of others (McCullough, Kilpatrick, Emmons, & Larson, 2001). Intentionally attending to moments of gratitude in one's daily experiences has been shown to enhance positive experiences and reduce depressive symptoms (Emmons & McCullough, 2003). Similar effects were maintained as much as six months after the formal intervention ended (Seligman, Steen, Park, & Peterson, 2005). Compared to other positive psychological interventions, gratitude journaling is perceived by recipients as more efficacious and useful compared (Huffman et al., 2014) and it is more willingly self-initiated than other interventions (Parks et al., 2012). Gratitude

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interventions are particularly appealing because of their low financial cost and with minimal time commitment.

1.2. Theory of planned behavior

The theory of planned behavior (TPB; Ajzen, 1991, 2011) offers a framework for understanding how individual differences (i.e. curiosity, depression, sex) work in concert to understand the motivation for and actual engagement in a gratitude intervention. In the TPB human behavior is guided by three belief symptoms: the likely consequences of the behavior (utility beliefs), the normative expectations of highly valued people (social norm beliefs), and the presence of factors that may hinder the behavior (self-control beliefs). Behavioral beliefs result in a favorable or unfavorable attitude toward the behavior, normative beliefs result in assumptions about what other important people think is the best course of action, and control beliefs result in perceptions about the difficulty or effort required to execute a behavior. Together, these TPB components inform behavioral intentions that can translate into actual behavior in a given context. The TPB is particularly relevant to the study of positive interventions. It provides evidence that accounting for intentions is necessary to explain relationships between personality and behaviors, and it helps to identify specific areas of individual differences (e.g., attitudes) that guide intentional behaviors. Thus, TPB might help disentangle the motivation of voluntarily participating in a self-help intervention.

The TPB provides a guide to understanding behavioral motivations, but the foundational framework fails to account for background factors such as personality or trait-like variables. It does not specify how and where beliefs originate. Background factors provide critical information about possible antecedents of behavioral, normative, and control beliefs. Failing to account for intention and its motivational antecedents misses crucial information about which individuals are likely to initiate a gratitude intervention.

1.3. Curiosity and motivation for gratitude interventions

Curious individuals might be especially likely to seek out opportunities for self-change. Curiosity involves a preference for new and unusual activities (Spielberger & Starr, 1994). This preference might increase the motivation to try out an intervention that encourages new attitudes and responses to gifts received from other people (via a gratitude intervention). Self-change is at the minimum, mildly uncomfortable. A lack of perceived control or wariness of uncertainty might inhibit less curious people from initiating self-change exercises. Curious people might find it easier to participate because they believe they have the ability to effectively cope with or make sense of the novelty, distress, and uncertainty that accompanies lifestyle changes (Silvia, 2008).

An experimental study indicated that gratitude interventions offer more favorable outcomes for people who are more open to new experiences (Senf & Liau, 2012). Because curious people to have more positive experiences and positive evaluations of themselves and the world (Kashdan, Sherman, Yarbro, & Funder, 2013; Kashdan & Steger, 2007), they may be motivated to initiate a gratitude intervention. Positive experiences ensure more opportunities to feel and express gratitude, increasing the usefulness and ease of gratitude exercises. Taken together, curiosity is a potential predictor of utility, social norm, and self-control beliefs, which in turn, should increase intentions to engage in gratitude experiments on the self.

1.4. Depression and motivation for gratitude interventions

Depressed individuals might be less likely to self-initiate behavioral change. Their avoidance orientation and reduced reward responsiveness (Henriques & Davidson, 2000) may hinder motiva-

tion towards goal-directed activities. Depressed adults have more difficulty improving their mood through positive memories than healthy adults (Joormann & Siemer, 2004). Consequently, more depressed adults may expect their daily gratitude intervention to be useless and unnecessarily difficult. Accordingly, depressive symptoms might prevent voluntary engagement.

While depressed individuals might seek out fewer change opportunities on their own, social factors might increase motivation. Because depressed adults have a strong need for social approval (Zuroff, Blatt, Sanislow, Bondi, & Pilkonis, 1999), social norms can stimulate their motivation. Perceived social pressure motivates depressed individuals to initiate healthy lifestyle changes (Bandura, 1998). Depressed individuals are particularly sensitive to social rejection (Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997). If they perceive participation in the intervention as consistent with social norms, they might be more willing to participate in hopes of gaining social approval.

Taken together, depressed adults possess beliefs that are inconsistent with enjoying or benefitting from gratitude exercises. However, based on prior knowledge on the power of social influence, we explored whether depressed adults can be motivated by social pressure to practice gratitude.

1.5. Sex and motivation for gratitude interventions

Societal gender norms might make women more willing to engage in gratitude interventions. In general, women tend to express positive emotions more often (LaFrance, Hecht, & Paluck, 2003). Expressions of particular emotions can result from normative social pressures and stereotypical beliefs about gender roles (Brody, 1999). With regards to gratitude, women are more likely than men to experience and express grateful feelings (Kashdan, Mishra, Breen, & Froh, 2009). Men are often socially discouraged to experience and express their gratitude, whereas women are encouraged.

As a result of prescribed gender roles, we expected women to show favorable attitude towards gratitude interventions. Women derive more benefits from gratitude, and view gratitude expression as more interesting (Kashdan et al., 2009; Kashdan, Mishra, Breen, & Froh, 2009). For these reasons, we expected that women would view gratitude interventions as more useful and view social norms as more encouraging and thus, influential in decision to initiate a gratitude intervention.

1.6. The present study

In the present study, we applied the TPB to predict intentions and behavioral engagement in voluntary self-change interventions, and provide explanations for when and why positive interventions are instilled in daily life. We sought to extend prior work that identified factors influencing the start of a gratitude intervention: high curiosity, few depressive symptoms, and being a woman (Kaczmarek et al., 2013). First, we tested the degree to which utility beliefs, social norm beliefs, and self-control beliefs predicted intentions and the actual start of an online gratitude intervention. Unlike prior research that assigns gratitude interventions (Seligman et al., 2005), we informed participants about a voluntary intervention and observed their subsequent actions. Second, we used utility, social norm, and self-control beliefs as mediators to explain how curiosity, depression, and sex influence intentions and actual behavioral engagement in a gratitude intervention. We hypothesized that utility beliefs, social norm beliefs, and self-control beliefs would predict intentions. Upon including individual differences, we hypothesized that curiosity, depression, and sex would have an indirect effect on behavior through these motivational components and intentions.

2. Method

2.1. Participants

Leaflets about a gratitude intervention were given to 257 participants at their homes. Sample inclusion criterion was being between ages 18 and 35. Data was collected in Poland by professional researchers from a certified firm specialized in public opinion polls. National census data were used to achieve a sample that was representative of the young adult population (Table 1). Until the quota for a specific population center size (village, town under 50,000, etc.) was achieved, addresses within this population were randomly selected using an automated algorithm. The researchers visited this location and conducted the survey for these randomly selected individuals. Volunteers received no incentives and provided written informed consent. We excluded 28 participants who indicated obstacles for completing the online intervention (leaving for vacation or no Internet access). The remaining 228 participants (50.2% female) were between ages 18 and 37 ($M = 26.97$, $SD = 5.32$). Expectation–maximization algorithm in SPSS 21 was used to impute missing data (1.3%) that were random, Little's chi-square test, $\chi^2(186) = 209.53$, $p = .11$. This study was approved by the institution's Research Ethics Committee.

2.2. Procedure

Researchers visited participants' residences and asked to complete self-report questionnaires measuring curiosity and depression. Following this, participants received leaflets describing the gratitude intervention. After reviewing the leaflet, participants reported their utility, social norm, and self-control beliefs regarding this intervention. They were given codes to access the web-based intervention and informed that if they wanted to participate they should do so within the next seven days. Finally, researchers measured intentions toward the intervention. The questionnaires were completed in the presence of the researchers who offered instructions to ensure privacy throughout the study.

2.3. Measures

The 10-item *Curiosity and Exploration Inventory-II* (Kashdan et al., 2009) included five items assessing seeking out new knowledge and experiences (e.g., "Everywhere I go, I am out looking for new things or experiences") and five assessing the willingness to tolerate the novelty and uncertainty (e.g., "I am the type of person who really enjoys the uncertainty of everyday life") using a 5-point scale from 1 "very slightly or not at all" to 5 "extremely" ($\alpha = .86$).

Table 1
Sociodemographic sample characteristics.

	n	%		n	%
<i>Place of residence</i>			<i>Occupation</i>		
Village	81	35.5	Learning	18	7.9
<50,000	47	20.6	Student	24	10.5
50,000–200,000	37	16.2	Employed	144	63.2
200,000–500,000	19	8.3	Unemployed	16	7.0
>500,000	39	17.1	Houskeeping	24	10.5
			Other	1	0.4
<i>Education</i>			<i>Interpersonal status</i>		
Elementary	13	5.7	Married	93	40.8
Vocational	25	11.0	Engaged	7	3.1
Vocational middle	52	22.8	Cohabitation	18	7.9
Secondary	43	18.9	Dating	16	7.0
Post secondary	15	6.6	Single	85	37.3
Higher incomplete	16	7.0	Other	6	2.6
Higher	62	27.2			

The 20-item *Center for Epidemiologic Studies Depression Scale* (Radloff, 1977) measured depressive symptoms with statements such as "I had crying spells" and their occurrence over the last week using a scale ranging from 0 "rarely or none of the time (less than 1 day)" to 3 "most of the time or all the time (5–6 days)" ($\alpha = .84$).

We used four TPB generic scales to measure utility, social norm, and self-control beliefs, as well as behavioral intentions. These scales were formulated according to guidelines provided by TPB methods experts (Francis et al., 2004) and used in prior studies (Kaczmarek et al., 2014).

Utility beliefs, or attitudes about likely consequences of the gratitude intervention, were assessed with three 7-point bipolar evaluative adjective scales: "unpleasant–pleasant", "bad–good", and "useless–useful" ($\alpha = .89$).

Social norm beliefs were assessed with three items about the expectations of important others: "Most people who matter to me would approve my doing this intervention", "Most people important to me would say it is a good idea to perform this intervention", and "Most people important to me, would want me to perform this intervention". Participants responded on 7-point scales from 1 = "completely agree" to 7 = "completely disagree" ($\alpha = .88$).

Self-control beliefs were measured with three items about the perceived effort required for the intervention: "Performing this intervention would be very easy for me", "If I wanted to, I could perform this intervention without any problem", and "I could perform this interventions without difficulty". Participants responded on 7-point scales from 1 = "completely agree" to 7 = "completely disagree" ($\alpha = .90$).

Behavioral intentions were assessed with six items about specific actions in the intervention preceded by the phrase "I intend to..." and followed by: "enter the intervention website", "read information from the website", "learn more about this positive intervention", "try out this positive interventions", "complete this positive intervention", "introduce this positive intervention as a part of my life-style"; on 7-point scales from 1 = "completely agree" to 7 = "completely disagree" ($\alpha = .94$).

2.4. Gratitude intervention

Participants completed the intervention through a dedicated website that provided detailed instructions—similar to the approach used by Seligman et al. (2005): "Write about up to three good things that happened over the last few days. You can write about small things or large things. Do not worry about grammar or spelling. Do not censor yourself."

At baseline, participants received an invitation with individual pin-codes to access the intervention website. To produce the measure of behavior, a value of 1 (yes) was assigned to those participants who completed a daily entry, and 0 (no) for those who did not.

2.5. Analytical strategy

We used structural equation modeling with mPlus 7.11 (Muthén & Muthén, 2012) to test if behavior was predicted by intentions, intentions by TPB components (utility, social norm, and self-control beliefs), and TPB components by curiosity, depression, and sex. The WLSMV estimator was used to evaluate model fit with a binary outcome (did the person initiate the gratitude intervention?). Behavior (binary) was regressed on intention using probit regression with coefficients that represent the change in the z-score of probit index for one unit change in the predictor; positive values represent higher and negative values lower probability of the intervention initiation. Linear regression was used for the

Table 2
Descriptive statistics and inter-correlations among study variables.

	1	2	3	4	5	6	7
1. Curiosity							
2. Depression	-.18**						
3. Utility beliefs	.13†	-.06					
4. Social norm beliefs	.23**	.09	.52**				
5. Self-control beliefs	.35**	-.20**	.41**	.34**			
6. Intention	.23**	-.01	.51**	.56**	.41**		
7. Age	-.06	.03	.01	-.09	-.09	-.09	
8. Sex	-.19**	.08	.22**	.20**	.04	.14*	.07
9. Behavior	.07	-.04	.09	.13†	.16*	.23**	.01
<i>M</i> _{total}	32.74	12.81	13.94	11.76	14.06	19.56	26.97
<i>SD</i> _{total}	6.87	9.63	3.60	3.69	3.69	11.01	5.33
<i>M</i> _{men}	34.02	12.02	13.14	11.03	13.91	17.98	26.60
<i>SD</i> _{men}	6.38	9.03	3.38	3.79	3.86	10.19	5.34
<i>M</i> _{women}	31.41	13.62	14.73	12.47	14.22	21.12	27.34
<i>SD</i> _{women}	7.12	10.20	3.65	3.45	3.53	11.65	5.33

Note: Sex coded as 0 = men, 1 = women. Behavior coded as 0 = not initiated, 1 = initiated.
 † $p < .10$.
 * $p < .05$.
 ** $p < .01$.

remaining paths. The residual variance of TPB variables was freed to correlate amongst each other in line with TPB (Ajzen, 1991). To evaluate the model fit we calculated RMSEA with values $< .06$ indicating good fit and CFI with values $> .90$ indicating acceptable models (Bentler, 1990). We tested indirect effects as products of unstandardized coefficients for specific paths using bias-corrected bootstrapping with 10,000 samples; producing point estimates and confidence intervals (CI) for effects. Significant indirect effects are indicated by confidence intervals that do not include zero (Table 2).

3. Results

Descriptive statistics and inter-correlations are presented in Table 1. The gratitude intervention was initiated by 8.3% (73.7% women) participants. The structural model presented in Fig. 1 fit the data well, $\chi^2(196) = 252.78, p < .01, RMSEA = .04, CFI = .94$. Intentions predicted self-initiation of the intervention, $b = .24, SE b = .06, p < .001$. Intentions were influenced by utility, $b = .33, SE b = .11, p < .01$, social norm, $b = .65, SE b = .14, p < .001$, and self-control beliefs, $b = .35, SE b = .12, p < .01$. Curiosity predicted utility, $b = .08, SE b = .02, p < .01$, social norm, $b = .13, SE b = .03, p < .001$, and self-control beliefs, $b = .12, SE b = .03, p < .001$. Depression was related to greater social norm, $b = .06, SE b = .02, p < .05$, and less self-control beliefs, $b = -.05, SE b = .02, p < .05$. Sex was related to utility, $b = .56, SE b = .17, p < .001$ and social norm beliefs, $b = .53, SE b = .20, p < .01$.

Depression had no effect on utility, $b = -.06, p > .05$, and sex had no effect on self-control beliefs, $b = .05, p > .05$. Inclusion of these paths had no effect on the model fit, $\Delta\chi^2(2) = 1.84, p > .05$, thus they were removed. To explore potential partial mediations of the TPB components, we compared a model with and without direct paths (a more parsimonious model) from background variables to intention. Intention was not predicted directly by curiosity, $b = .05, p > .05$, depression, $b = .01, p > .05$, nor sex, $b = .01, p > .05$, and these paths did not affect the model fit, $\Delta\chi^2(3) = 0.90, p > .05$, indicating a full mediation.

There was a significant total indirect effect of curiosity on intervention initiation mediated by TPB components, $b = 0.036, 95\% CI [0.002, 0.080]$. This total indirect effect comprised three specific indirect effects operating through utility, $b = 0.006, 95\% CI [0.001, 0.028]$, social norm, $b = 0.020, 95\% CI [0.002, 0.051]$, and self-control beliefs, $b = 0.010, 95\% CI [0.001, 0.029]$.

Depression had an enabling indirect effect on behavior through social norm beliefs and intention, $b = 0.009, 95\% CI [0.001, 0.028]$ and a marginally significant inhibiting indirect effect on behavior through self-control and intention, $b = -0.004, 90\% CI [-0.013, -0.001]$. These two opposing effects canceled each other out producing a non-significant total indirect effect of depression on behavior through TPB components, $b = 0.005, 95\% CI [-0.007, 0.026]$.

Women were more likely to initiate this intervention as explained by TPB motivational components, a total indirect effect

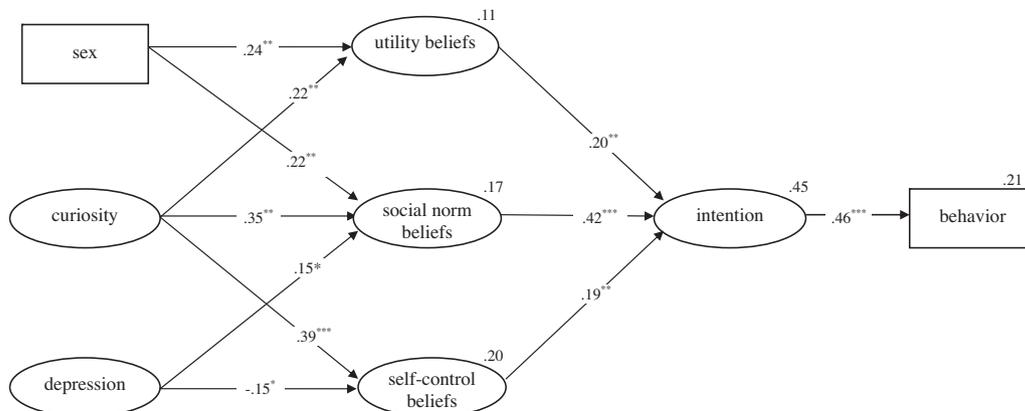


Fig. 1. A structural model for self-initiation of a gratitude intervention. Notes: standardized parameters. The percent of explained variance (R^2) is presented in the top right corner for each dependent variable. Sex coded as 0 = men, 1 = women. * $p < .05$, ** $p < .01$, *** $p < .001$.

$b = 0.128$, 95% CI [0.011, 0.302]. This total indirect effect comprised a significant indirect effect through social norm beliefs, $b = 0.083$, 95% CI [0.007, 0.234], and a marginally significant indirect effect via utility beliefs and intention, $b = 0.044$, 90% CI [0.005, 0.143].

4. Discussion

This study demonstrated specific motivational pathways through which curiosity, depression, and sex influence actions toward becoming a more grateful person. Extending prior work on self-initiated gratitude interventions in daily life (Kaczmarek et al., 2013), we found that TPB components fully mediated between individual differences and behavioral intentions. Stronger intentions to perform a gratitude intervention resulted from a favorable attitude, social norm beliefs, and high perceived self-control about the activity. Curiosity stimulated each aspect of motivation towards the intervention (i.e., utility, social norm, and self-control beliefs). Depressed adults displayed conflicted motives. They felt initiation of a gratitude intervention might be valued by people important to them, but perceived the exercise as difficult to perform. Women maintained stronger utility beliefs and perceived their involvement in this intervention to be congruent with social norms.

Including TPB components allowed for a fine-grained analysis of the relationship between individual differences and responses to a gratitude intervention opportunity. Noteworthy, curiosity influenced each TPB components. Such consistency explains why curious individuals took advantage of an opportunity to exercise their gratitude. Curious participants felt more in control of a task matching their willingness to embrace novel activities (Kashdan et al., 2009; Kashdan, Mishra, Breen, & Froh, 2009). They expected more benefits from the intervention and encouragement from significant others. Curiosity was a motivational attractor making individuals more responsive to a growth opportunity. This finding seems promising because curiosity can be trained (Proyer, Ruch, & Buschor, 2012). Our findings provide one explanation why people who exercise their curiosity experience greater well-being.

Depressed individuals expected exercising gratitude to be burdensome. Yet, depressed participants were more likely to make an effort if they felt others approved. This finding suggests that for mildly depressed individuals, normative beliefs serve as a motivational path for starting interventions. Notably, depression was unrelated to utility beliefs indicating that depressed individuals were unconvinced that gratitude interventions would improve their life. With empirical evidence for the efficacy of positive interventions in alleviating depressing symptoms, it seems imperative to promote psychoeducation about the benefits of gratitude interventions.

We found that women were more likely to initiate a gratitude intervention. Women felt more certain that significant others in their lives would approve of their behavior change. Men did not expect similar benefits and in turn, did not endorse strong intentions to start a gratitude intervention. Men also felt constrained by social pressure. As gratitude leads to personal well-being and contributes to society, it seems important to consider factors that might encourage the cultivation of gratitude among men. Because men did not perceive this gratitude intervention as more difficult than women, addressing utility and social norm beliefs might resolve this gender inequality.

Of the TPB model, social norm beliefs explain four times the variance of intentions, utility and self-control beliefs. Clearly, when deciding whether to engage in a gratitude intervention, individuals mainly considered what other people might think. This phenomenon reveals the gravity of directly targeting social contexts to maximize the probability that people embrace healthy interventions.

Our results correspond with experimental evidence suggesting that social assistance enhances the effectiveness of positive interventions (Layout, Nelson, & Lyubomirsky, 2012).

One of the strengths of this study is that we approached a diverse community sample from urban and small village settings. Yet, some study limitations exist. We used lenient criteria to evaluate the self-initiation of behavior change. Participants only had to complete one day of the gratitude intervention. A recent study that used a similar approach found that the initiation of the intervention was highly predictive of its completion (Kaczmarek et al., 2014). Furthermore, we did not collect data on the benefits of the intervention. Future work can explore the trajectory from first learning about an intervention to initiation to benefits to the maintenance of benefits, and the individual differences that influence each stage. Finally, although SEM allows for interpretation of causal effects (Pearl, 2012), experimental designs that directly manipulate background variables (curiosity, depression) can provide additional validity of the model.

Our results have practical implications. Given the individual and collective benefits of gratitude, the present findings offer insight into techniques that might persuade a large number of people to experiment with gratitude in their lives. Our results suggest that the effectiveness of an intervention depends on the extent to which it influences a social norm – a robust precursor of gratitude interventions and a mediator of intentions, trait curiosity, depressive symptoms, and sex.

In sum, we integrated work on positive psychological interventions with TPB to understand who works to become a grateful person. We advanced understanding of the interplay between specific individual differences and motivational factors that give rise to the desire to enhance one's gratitude.

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