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Need for Meaning, Meaning Confusion, Meaning Anxiety, and Meaning Avoidance: Additional Dimensions of Meaning in Life

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Abstract Two aspects of meaning in life have drawn much attention in previous research: presence of meaning and search for meaning. We proposed four additional aspects concerning individuals' thoughts and feelings about meaning in life: *need for meaning*, *meaning confusion*, *meaning avoidance*, and *meaning anxiety*. We developed items to measure these dimensions. Exploratory and confirmatory factor analysis indicated that the data fit the factors well. Convergent and discriminant validities of the four dimensions were demonstrated though their distinct patterns of correlations with other variables, such as personality traits, need satisfaction, personal aspirations, life satisfaction, anxiety and depression. Moreover, cluster analysis revealed that individuals could be divided into meaningful groups according to these dimensions, with each group demonstrating unique psychological features. Implications for future studies on meaning in life are discussed.

Keywords Meaning in life · Need for meaning · Meaning confusion · Meaning avoidance · Meaning anxiety

1 Introduction

During recent years, interest in the study of meaning in life (MIL) has surged. MIL may be defined as "the sense made of, and significance felt regarding, the nature of one's being and existence" (Steger et al. 2006, p. 81). Research on MIL covers questions ranging from the sources people draw on to make meaning (e.g., Schnell 2009), factors influencing the level of MIL (e.g., Hicks and King 2009; Schlegel et al. 2009), to meaningful work (e.g., Rosso et al. 2010) and reconstruction of MIL after traumatic experiences (e.g., Park 2010).

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Among all questions related to MIL, one fundamental yet relatively understudied area may be individuals' feelings, concerns and thoughts about the nature of MIL itself. In the current study, we focused on these subjective aspects of MIL. Specifically, we proposed four dimensions of MIL: *need for meaning*, *meaning confusion*, *meaning avoidance* and *meaning anxiety*. We developed scales to measure these dimensions, and examined their associations with a number of individual difference variables.

Two aspects of the subjective experience of MIL have been thoroughly investigated in prior studies: level of meaning (or presence of meaning), and search for meaning. For instance, a number of instruments have been developed to capture the extent to which individuals experience meaning in their lives (i.e., the level of meaning), such as the Purpose in Life Test (PIL; Crumbaugh and Maholick 1964), the Life Regard Index (LRI; Battista and Almond 1973), and the Presence of Meaning subscale of the Meaning in Life Questionnaire (MLQ; Steger et al. 2006). Search for meaning refers to the extent to which individuals actively pursue meaning in their lives. In the Search for Meaning subscale of MLQ, Steger and colleagues assess this construct using items such as "I am always looking to find my life's purpose" and "I am searching for meaning in my life" (Steger et al. 2006). The correlation between presence of meaning and search for meaning is generally negative, but weaker than some might expect (e.g., Beaumont 2009; Steger and Kashdan 2007; Steger et al. 2009). In addition to level of meaning and search for meaning, Schnell (2009) proposed another quality of MIL called "crisis of meaning", which refers to the frustration of the will to meaning and feelings of emptiness. Whereas meaningfulness indicates the presence of a positive outcome, crisis of meaning signals the presence of a negative outcome. Indeed, a similar construct was assessed in the Kunzendorf No Meaning Scale (KNMS; Kunzendorf and Maguire 1995), which focused on the extent to which individuals see life itself and their lives in particular as meaningless. Schnell (2010) identified 35% of a German sample as existentially indifferent, characterized by the absence of meaningfulness without an accompanying crisis of meaning.

We believe that there are still other important aspects of MIL that are not well conceptualized. First, although Frankl and other theorists advocate that people all have an innate drive to find meaning in their lives (Frankl 1963, 1969), some theorize that the strength of this need for meaning is likely to vary from person to person (Schlegel and Hicks 2016). Empirical evidence lends support to this proposition. For instance, the World Value Survey conducted during 2010–2014 indicated that approximately 20% of the respondents reported that they rarely or never thought about meaning or purpose of life, while 40% reported thinking about it often (World Values Survey Association n.d.). The strength of the need for meaning may be related to both presence of meaning and search for meaning. However, we think the three concepts can be distinguished from each other. Whereas need for meaning fuels the efforts to search for meaning, presence of meaning reflects the extent to which the need for meaning is satisfied.

The second aspect of MIL we propose is whether individuals have a clear sense of what MIL is and know how to find it. MIL is a very elusive construct that leaves even philosophers perplexed. We define *meaning confusion* as the extent to which one feels confused about the meaning of MIL or the way to attain a meaningful life. Researchers have talked about the experience of existential confusion or confusion about MIL following traumatic events such as the diagnosis of serious illness or the loss of a loved one (e.g., Fry 1998; Jim et al. 2006; Vickberg et al. 2000). However, the conceptualization and measure of these variables were not distinguished from meaninglessness or loss of meaning. We contend that meaning confusion and meaninglessness should be differentiated: One may admit that he/she does not know exactly what MIL means yet still believe

that his/her life has meaning. In contrast, it is possible to have a clear idea about the meaning of MIL and the way to attain it, yet still feel that you are not leading a meaningful life. In addition, we believe that meaning confusion may occur in many stages of life, not only after traumatic experiences, because a coherent meaning framework may not be permanent. For instance, the research by Alter and Hershfield demonstrated that individuals conduct a more rigorous search for meaning whenever they approach a new decade in life (Alter and Hershfield 2014). We suspect that meaning confusion may occur when entering a new stage of life, undertaking a new social role, or experiencing unexpected gains and losses, thus altering one's existing framework of meaning.

Individuals' need for MIL, presence of MIL, and confusions about MIL, may lead not only to their endeavors to search for meaning, but also to states of *meaning avoidance* and *meaning anxiety*. We define meaning avoidance as actively avoiding thoughts about MIL and meaning anxiety as worries about not finding meaning in life. To the best of our knowledge, such psychological states are seldom discussed in the literature, except in a few studies on people's reactions to disease (e.g., Sjöström-Strand and Fridlund 2007). Yet, we believe that there are reasons to introduce these concepts.

First, given that individuals all have the need to maintain a certain level of MIL, meaning anxiety and meaning avoidance may be two possible reactions when MIL dips below the desired level. We believe that when people experience such a discrepancy, they may either block out unpleasant thoughts about the failure to attain MIL (meaning avoidance) or experience meaning anxiety about the perceived lack of meaning. Second, MIL is theoretically associated with the eudaimonic form of well-being (which emphasizes the value of personal growth and social contribution), as opposite to the hedonic form of well-being (which focuses on the experience of pleasure, excitement and satisfaction; e.g., Ryan and Deci 2001; Ryff and Singer 1996; Waterman 1993). Thus, individuals may sometimes indulge in hedonic happiness to escape the painful effort of pursuing meaningfulness (e.g., Fredrickson et al. 2013). These behaviors may be a form of meaning avoidance and/or meaning anxiety. Indeed, it is not rare to hear people talking about thoughts related to meaning avoidance and meaning anxiety in our daily life. Some people may claim that they rarely think about meaning, whereas some others may express worries about life being meaningless.

In sum, we contend that need for meaning, meaning confusion, meaning avoidance and meaning anxiety may be four MIL-related variables that are worthy of research attention. These variables may be inter-correlated with each other. They may also be associated with presence of meaning and search for meaning. However, they represent distinct facets of individuals' thoughts and feelings about MIL. Given the complexity inherent in MIL, we believe that the investigation of these variables can broaden our understanding of the function and impact MIL bears in people's life.

1.1 The Present Study

The current study aimed to develop scales to measure the four dimensions of MIL we proposed above, drawing on the format of the MLQ (Steger et al. 2006). The MLQ is a 10-item scale assessing two dimensions of MIL: presence of meaning and search for meaning. It is a short, clear and potent measure that is becoming increasingly popular. We developed items to measure need for meaning, meaning confusion, meaning avoidance and meaning anxiety, and administered them along with the MLQ to a large Chinese sample. We examined the convergent and discriminant validities of these items, by investigating their associations with the MLQ, personality, satisfaction of three basic psychological

needs: relatedness, autonomy and competence, personal aspirations, and various indices of psychological adjustment (i.e., self-esteem, optimism, life satisfaction, positive/negative affect, depression and anxiety). These variables were selected because they either represent basic individual differences (e.g., personality traits), or have been found to be associated with dimensions of MIL in previous studies (e.g., personal aspirations and life satisfaction; Zhang et al. 2016). We also explored the interactions among dimensions of MIL on personal aspirations and psychological adjustment, so as to further examine the construct validity of these dimensions. Moreover, we conducted a cluster analysis to explore whether individuals could be divided into meaningful groups based on these dimensions, and then compared the psychological features of these groups.

Because this was an exploratory study, we did not have concrete hypotheses regarding the result of every single test we conducted. However, we did have several general hypotheses. First, we expected that the four additional dimensions of meaning could be identified through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Second, the four dimensions should correlated with presence of meaning and search for meaning. Specifically, need for meaning should be positively associated with search for meaning and presence of meaning. Meaning confusion, meaning avoidance, and meaning anxiety should be negatively associated with presence of meaning. Whereas meaning avoidance should be negatively correlated with search for meaning, meaning anxiety should be positively correlated with search for meaning. Third, the four dimensions could be differentiated from each other, as well as from level of meaning and search for meaning, in terms of their distinct associations with other variables, such as need satisfaction, personal aspirations and psychological adjustment. Meaning confusion, meaning anxiety, and meaning avoidance should be negatively associated with need satisfaction, and indices of psychological adjustment. Need for meaning should have stronger associations with personal aspirations than other meaning dimensions. Because individuals seek MIL through pursuing personal goals (e.g., Emmons 2003; Schnell 2009), those higher in the need for meaning should attach more importance to their personal goals than those lower in this need. Moreover, because individuals who have higher need for meaning should benefit more from a sense of meaningfulness than those lower in this need, we also hypothesized that presence of meaning should moderate the association between need for meaning and psychological adjustment.

2 Methods

2.1 Item Development

People's feelings and thoughts about MIL were gathered through several channels. First, we reviewed the literature on MIL, and examined theoretical concerns psychologists indicated besides presence of meaning and search for meaning. We found that *need for meaning*, *meaning confusion* and *meaning anxiety* were sporadically discussed, with the latter two usually being examined among individuals who suffered traumatic experiences (e.g., Schlegel and Hicks 2016; Vickberg et al. 2000). However, we did not identify any items assessing these variables. Second, we analyzed several existing measures of MIL (e.g., PIL, Crumbaugh and Maholick 1964; LRI, Battista and Almond 1973; the Life Attitude Profile-Revised, Reker 1992). Three items related to our conceptualization of *meaning confusion* were selected (i.e., the items "In thinking of my life, I often wonder

why I exist" and "As I view the world in relation to my life, the world completely confused me" from the PIL, and "I get confused when I try to understand my life" from LRI).

Third, we briefly interviewed 269 individuals about their ideas concerning the problem of MIL, with one broad question "What's your thoughts, feelings and concerns about the question of MIL?" Their answers revealed elements of the four additional dimensions we proposed. Among the answers, *confusions about meaning* were mentioned the most frequently (e.g., "I am perplexed by the question of meaning in life."; $n = 17$), followed by *meaning anxiety* (e.g., "I am afraid that my life will be meaningless."; $n = 14$), *meaning avoidance* (e.g., "It's unnecessary for me to think about meaning of life."; $n = 11$), and *need for meaning* (e.g., "It is important for me to lead a meaningful life."; $n = 8$). Fourth, we analyzed two discussions about MIL on the Internet, each involved more than 50 internet users. Although the four dimensions were all implied in the discussions, we found that the wording was generally not clear enough for a scale. We (two psychology professors, and four graduate students) then brainstormed ideas about MIL based on the discussions ($n = 11$).

An initial pool of 64 items were generated through these processes. Duplicated or double-barreled items were eliminated at this stage ($n = 15$), leaving 49 items in the pool. We administered these items to the participants, along with the other measures.

2.2 Participants and Procedure

1143 first-year graduate students completed the questionnaires online. This survey was part of the 2015 annual mental health survey conducted by the Psychological Center of Nanjing University. Whereas the completion of SCL-90 was compulsory, other measures were optional. The survey was run in large laboratories equipped with computers. We removed data from those who spent less than 10 min completing the measures ($n = 76$). Given the large volume of items, the quality of these data are questionable. For those who took the survey multiple times ($n = 4$), we only analyzed scores from their first completion. Among the remaining sample, 617 were men and 446 were women ($M_{age} = 24.73$, $SD = 2.75$). The majority of participants (945, 88.9%) reported that they did not have any religious belief. Fifty (5.2%) participants identified themselves as Buddhists, and 21 (2%) were Christians. Ten (.9%) participants reported that they believed in Taoism. Ten (.9%) believed in Confucianism. One participant reported to be Muslim. The remaining 21 (2%) chose the option "others". Participants were given a pen with the logo and telephone number of the Psychological Center, as well as a small amount of cash (around US\$ 5).

2.3 Measures

The study was conducted in Chinese. All the scales originally in English were translated into Chinese through the standard back-translation procedure (Brislin 1970).

2.3.1 MLQ

MLQ was administered to assess presence of meaning and search for meaning (Steger et al. 2006). The MLQ contains two subscales: Presence of Meaning (e.g., "I understand my life's meaning."), and Search for Meaning (e.g., "I am looking for something that makes my life feel meaningful."). Reliability and validity of both subscales have been well

established (e.g., Steger et al. 2006; Steger and Kashdan 2007). Responses were made on a 7-point Likert scale ranging from 1-"not true at all" to 7-"definitely true". Both subscales have adequate internal consistency in the current investigation (for the Presence of Meaning subscale, Cronbach's α = .89; for the Search for Meaning subscale, Cronbach's α = .78).

2.3.2 Personality

We administered the Ten Item Personality Inventory (TIPI; Gosling et al. 2003) to assess the Big Five dimensions of personality. Sample items include "I see myself as anxious, easily upset" (neuroticism) and "I see myself as dependable, self-disciplined" (conscientiousness). Participants rated to what extent each item applied to them on a 7-point Likert scale from 1-"disagree strongly" to 7-"agree strongly". The TIPI has demonstrated high content validity and test–retest reliability in previous studies (e.g., Gosling et al. 2003).

2.3.3 Need Satisfaction

Participants completed the 21-item Basic Psychological Needs Scale (Gagné 2003), which assessed the satisfaction of three psychological needs: *autonomy*, *relatedness*, and *competence*. Sample items include "I feel like I can decide for myself how to live my life" (autonomy), "People in my life care about me" (relatedness), and "Most days I feel a sense of accomplishment from what I do" (competence). Participants responded to these items on a 7-point Likert scale, ranging from 1-"not true at all" to 7-"definitely true". Internal consistencies of all three subscales were satisfactory (for the autonomy subscale, Cronbach's α = .76; for the relatedness subscale Cronbach's α = .79; for the competence subscale, Cronbach's α = .73).

2.3.4 Personal Aspirations

We assessed participants' aspiration levels in six life domains with the Aspiration Index (Kasser and Ryan 1993, 1996). Three were extrinsic goals, *financial success* (e.g., "To be financially successful"), *fame* (e.g., "To have my name appear frequently in the media."), and *appearance* (e.g., "To successfully hide the signs of aging"), and three were intrinsic goals, *self-acceptance* (e.g., "To grow and learn new things."), *community feeling* (e.g., "To help people in need."), and *affiliation* (e.g., "To have committed, intimate relationships."). The Aspiration Index has been administered in different cultures, including the Chinese (e.g., Grouzet et al. 2005; Zhang et al. 2016). Participants rated the importance of each life domain on a 7-point Likert scale ranging from 1-"not at all" to 7-"very important". Cronbach's αs among the six domains ranged from .65 (self-acceptance) to .86 (fame).

2.3.5 Self-Esteem

The widely used Rosenberg's (1965) Self-Esteem Scale was administered to assess trait self-esteem. Participants responded to the items using a 4-point scale ranging from 1-"strongly disagree" to 4-"strongly agree". Cronbach's α for the scale in the current investigation was .86.

2.3.6 Optimism

Dispositional optimism was assessed using the Life Orientation Test-Revised (LOT-R; Scheier et al. 1994). The LOT-R consists of 10 items, three of which are positively worded, three negatively worded, and four are fillers. Participants rated the items on a 7-point scale ranging from 1-"Strongly disagree" to 7-"Strongly agree". Cronbach's α was .68.

2.3.7 Meaninglessness

We measured meaninglessness as an indicator of poor well-being. For the assessment of meaninglessness, we administered the Kunzendorf No Meaning Scale (KNMS; Kunzendorf and Maguire 1995). This scale contains items such as "It does not matter whether I live or die." and " The likelihood that I shall be remembered by no one in two hundred years makes my current life seem unimportant." Individuals who score high on this scale see life as hopeless and meaningless. Responses were made on a 7-point Likert scale ranging from 1-"not true at all" to 7-"definitely true". Cronbach's α was .93.

2.3.8 Life Satisfaction

Life satisfaction was assessed with the Satisfaction with Life Scale (SWLS; Pavot et al. 1991). A sample item of this scale is "In most ways my life is close to my ideal". Participants rated the items on a 7-point Likert scale from 1- "strongly disagree" to 7-"strongly agree". Cronbach's a for this scale was .86.

2.3.9 Positive/Negative Affect

The Positive and Negative Affective Scale (Watson et al. 1988) was employed to assess participants' dispositional tendencies to experience positive affect (e.g., enthusiasm, alertness, etc.) and negative affect (e.g., anger, contempt, etc.). Specifically, participants rated to what extent they generally experienced 20 feelings and emotions (10 positive, 10 negative) on a 5-point scale ranging from 1-"very slightly or not at all" to 5-"extremely". Cronbach's α was .88 for positive affect and .89 for negative affect.

2.3.10 Anxiety and Depression

The anxiety and depression subscales of SCL-90 (Derogatis et al. 1973) were adopted to assess anxiety and depression respectively. The SCL-90 comprises items describing various psychological symptoms. Sample items in the two subscales include "Nervousness or shakiness inside" (anxiety) and "Feeling low in energy or slowed down" (depression). Participants rated the degree to which each problem bothered them during the past week on a 5-point scale from 1-"not at all" to 5-"extremely". Internal consistencies of both subscales were adequate (for anxiety, Cronbach's α = .83; for depression, Cronbach's α = .88).

3 Results

To explore the structure of the new items, we conducted an exploratory factor analysis (EFA) and a confirmatory factor analysis (CFA). Then, we analyzed the correlations among dimensions of MIL and other variables, so as to further examine the convergent and discriminant validities of these items. Moreover, we conducted a cluster analysis to examine whether individuals could be divided into meaningful groups according to these meaning dimensions; and if yes, how the groups differed in personality, need satisfaction, personal goals, and psychological adjustment. These analyses would provide supplementary evidence on the validity and importance of the MIL dimensions.

3.1 Factor Analysis

We randomly split the data into two halves. An EFA (principal axis extraction with promax rotation) was conducted in the first half of the data to establish an initial model. Then, the model was cross-validated in the remaining half of the data (Pedhazur and Schmelkin 1991). In the EFA, we included the newly developed items, as well as the ten items in the MLQ. We removed items with small loadings (<.30) on all factors or with cross-loadings larger than .30. Six factors with eigenvalues greater than 1.0 emerged, which explained 59.87% of the variance. The final model contained 34 variables (see Table 1).

We named Factor 1 *Meaning Avoidance* because the items loaded on this factor all focused on avoidance of thinking about life meaning (Cronbach's α = .90). Factor 2 was named *Need for Meaning* (Cronbach's α = .86). The items in this factor were all related to the extent to which individuals desire meaning in their lives. Factor 3 was named *Meaning Anxiety* (Cronbach's α = .84), because it consisted of items alluding to worries about having a meaningless life. Factor 4 was given the name *Meaning Confusion* (Cronbach's α = .92). Items included in this factor all represented confusions over what MIL was and how to obtain it. Factors 5 and 6 consisted of the items from the Presence of Meaning and Search for Meaning subscales of the MLQ, respectively (Cronbach's αs = .89 and .78 respectively).

We then fit this model to the remaining half of the data. Specifically, we conducted a CFA using ML estimation, with each item loading exclusively on the corresponding factor, and independence assumed among the errors. The fitness of this model was adequate, χ^2 (512) = 1528.245, *NNFI* = .90, *CFI* = .91, *IFI* = .91, *SRMR* = .06, *RMSEA* = .06, χ^2/df = 2.98. All the factor loadings were significant (*p*s < .05).

3.2 Correlations Among Dimensions of Meaning and Other variables

We found that compared to men, women had a higher need for meaning (*M* = 5.19, *SD* = .81 vs. *M* = 5.31, *SD* = .85), *t*(1061) = 2.39, *p* = .02, and possessed higher levels of meaning (*M* = 5.06, *SD* = .91 vs. *M* = 5.20, *SD* = .95), *t*(1061) = 2.06, *p* = .04. No significant gender differences were found for the other dimensions. Age was slightly correlated with meaning confusion (*r* = −.11, *p* < .001) and presence of meaning (*r* = .11, *p* < .001). The correlation between age and the other dimensions of meaning were all smaller than .10.

Table 2 shows the means (SDs) and inter-correlations among the six dimensions of MIL. Presence of meaning and search for meaning were positively correlated, though the magnitude of this correlation was rather small (*r* = .12, *p* < .001). As predicted, need for

Table 1 Exploratory factor analysis of dimensions of meaning in life (n = 503)

Items	Loadings					
	Factor 1 *Meaning avoidance*	Factor 2 *Need for meaning*	Factor 3 *Meaning anxiety*	Factor 4 *Meaning confusion*	Factor 5 *Presence of meaning*	Factor 6 *Search for meaning*
I am not willing to think about questions such as "what's the meaning of life?"	.874					
I don't actively think about meaning in life	.813					
It's unnecessary for me to think about the meaning of life most of the time	.799					
I am not inclined to think about questions about meaning in life	.781					
I don't feel like I need to dig out meaning in my life	.755					
It does not matter at all whether one thinks about meaning in life or not	.735					
I think a life without meaning is pointless		.897				
It is important for me to lead a meaningful life		.791				
I need to seek meaning in my life		.784				
I need to believe that my life is meaningful		.768				
One important mission for me is to understand my life's meaning		.596				
I always want to make my life more meaningful		.492				
I am afraid that my life will be meaningless			.880			
Sometimes I cannot stop thinking about whether my life has meaning			.716			
The thought that life might be meaningless always bothers me			.703			
The issue of meaning in life troubles me a lot			.691			
I fear that I may not be able to find meaning in my life			.648			
I feel panic at the thought of my life being meaningless			.624			
I don't have a clear idea what kind of life represents a meaningful life				.934		
I don't know where to find meaning in my life				.885		
I don't know how to obtain meaning in my life				.881		

Table 1 continued

Items	Loadings					
	Factor 1 *Meaning avoidance*	Factor 2 *Need for meaning*	Factor 3 *Meaning anxiety*	Factor 4 *Meaning confusion*	Factor 5 *Presence of meaning*	Factor 6 *Search for meaning*
I don't understand what the meaning of life is				.631		
I am perplexed by the question of meaning in life				.629		
I am confused at what I am living for				.492		
My life has a clear sense of purpose					.939	
I have a good sense of what makes my life meaningful					.894	
I understand my life's meaning					.875	
I have discovered a satisfying life purpose					.785	
My life has no clear purpose					.420	
I am searching for meaning in my life						.805
I am seeking a purpose or mission for my life						.709
I am always searching for something that makes my life feel significant						.429
I am looking for something that makes my life feel meaningful						.426
I am always looking to find my life's purpose						.352

Factor 5 consisted of the five items from the Presence of Meaning subscale of the MLQ

Factor 6 consisted of the five items from the Search for Meaning subscale of the MLQ

meaning was positively correlated with presence of meaning ($r = .47$, $p < .001$) and search for meaning ($r = .31$, $p < .001$). Meaning confusion ($r = -.57$, $p < .001$), meaning anxiety ($r = -.23$, $p < .001$), and meaning avoidance ($r = -.21$, $p < .001$) were all negatively correlated with presence of meaning. Whereas meaning anxiety was positively associated with search for meaning ($r = .16$, $p < .001$), meaning avoidance was negatively associated with search for meaning ($r = -.12$, $p < .001$). Meaning confusion was positively associated with meaning avoidance ($r = .36$, $p < .001$) and meaning anxiety ($r = .49$, $p < .001$). However, meaning avoidance and meaning anxiety were independent of each other ($r = -.01$, $p = .64$).

Table 3 presents the correlations among the six dimensions of MIL, personality traits, need satisfaction, personal aspirations, and indices of psychological adjustment. These

Table 2 Means (SDs), and correlations among dimensions of meaning in life ($N = 1063$)

	M (SD)	1	2	3	4	5
1. Presence of meaning	5.11 (.93)					
2. Search for meaning	5.18 (.80)	.12***				
3. Need for meaning	5.24 (.83)	.47***	.31***			
4. Meaning confusion	3.17 (1.06)	−.57***	.02	−.26***		
5. Meaning avoidance	3.69 (1.06)	−.21***	−.12***	−.35***	.36***	
6. Meaning anxiety	3.43 (1.02)	−.23***	.16***	.15***	.49***	−.01

*** $p < .001$

Table 3 Correlations among dimensions of meaning in life and other variables

	Presence of meaning	Search for meaning	Need for meaning	Meaning confusion	Meaning avoidance	Meaning anxiety
Personality traits						
Extroversion	.26**	.02	.06	−.24**	−.01	−.16**
Agreeableness	.27**	.09**	.28**	−.38**	−.20**	−.34**
Conscientiousness	.29**	.06*	.23**	−.31**	−.25**	−.18**
Neuroticism	−.37**	−.03	−.21**	.44**	.16**	.39**
Openness	.39**	.08*	.25**	−.40**	−.21**	−.25**
Need satisfaction						
Autonomy	.56**	.08*	.27**	−.51**	−.25**	−.36**
Competence	.52**	.05	.28**	−.51**	−.24**	−.34**
Relatedness	.47**	.08*	.27**	−.42**	−.16**	−.37**
Personal aspirations						
Financial success	−.01	.05	.12**	.15**	.06	.23**
Self-acceptance	.30**	.16**	.45**	−.14**	−.18**	.01
Fame	.08**	.08*	.13**	.10**	.03	.27**
Affiliation	.23**	.14**	.34**	−.14**	−.12**	−.05
Appearance	.05	.15**	.13**	.13**	.07*	.23**
Community feelings	.33**	.17**	.31**	−.20**	−.15**	.04
Optimism	.45**	.08*	.26**	−.52**	−.21**	−.48**
Meaninglessness	−.40**	−.01	−.32**	.62**	.34**	.53**
Self-esteem	.49**	.03	.24**	−.55**	−.20**	−.44**
Life satisfaction	.49**	.08**	.27**	−.41**	−.06*	−.28**
Positive affect	.46**	.12**	.32**	−.37**	−.16**	−.17**
Negative affect	−.18**	.06*	−.05	.39**	.14**	.41**
Depression	−.31**	−.04	−.04	.37**	.08**	.37**
Anxiety	−.21**	−.02	−.02	.27**	.04	.30**

* $p < .05$, ** $p < .01$

correlations provide ample information on the convergent and discriminant validities of the four dimensions.

3.2.1 Need for Meaning

Among the six dimensions, need for meaning had the highest associations with aspirations for self-acceptance and affiliation, $zs > 3.68$, $ps < .001$. Need for meaning and presence of meaning may be differentiated from each other by their associations with need satisfaction and psychological adjustment. Specifically, presence of meaning was moderately correlated with the satisfaction of psychological needs and variables indicating good psychological adjustment, such as life satisfaction, optimism and self-esteem. However, the associations between need for meaning and these variables were substantially smaller, $zs > 6.58$, $ps < .001$ (Hittner et al. 2003). To distinguish need for meaning from search for meaning, we found that the associations between need for meaning and many variables were larger than those between search for meaning and these variables, such as personality traits, need satisfaction, aspirations for self-acceptance, fame, and community feelings, optimism, meaninglessness, self-esteem, life satisfaction and positive affect.

3.2.2 Meaning Confusion

Meaning confusion seemed to be the opposite of presence of meaning in terms of the associations with other variables. However, the absolute values of correlation coefficients differed. Meaning confusion had smaller associations with the three intrinsic aspirations (i.e., self-acceptance, affiliation, and community feelings) than presence of meaning, $zs > 3.23$, $ps \leq .001$, whereas it had larger associations with negative affect ($z = 7.80$, $p < .001$) and a sense of meaninglessness ($z = 9.43$, $p < .001$) than presence of meaning. Variables such as neuroticism, need satisfaction, optimism, meaninglessness, self-esteem, negative affect, depression and anxiety, may help to distinguish meaning confusion from need for meaning. Nevertheless, it should be noted that the correlation between meaning confusion and meaninglessness was medium-to-large ($r = .62$).

In order to differentiate meaning confusion from meaninglessness, we then compared the associations of meaning confusion and meaninglessness with other variables. We found that meaning confusion was less negatively correlated with the goals of self-acceptance ($r = -.14$ vs. $r = -.30$, $z = 6.16$, $p < .001$) and affiliation ($r = -.14$ vs. $r = -.31$, $z = 6.57$, $p < .001$) than meaninglessness, which lent credit to its discriminant validity.

3.2.3 Meaning Avoidance

In support of the discriminant validity of meaning avoidance, the correlations between meaning avoidance and other dimensions of meaning were all small ($rs \leq .36$). Moreover, meaning avoidance can be distinguished from presence of meaning and need for meaning by its smaller associations with personal aspirations. It can be distinguished from meaning confusion by its smaller associations with need satisfaction, and many psychological adjustment indices (e.g., optimism, positive/negative affect, self-esteem, depression and anxiety).

3.2.4 Meaning Anxiety

Meaning anxiety was moderately correlated with negative affect and anxiety, which lent support to its convergent validity. The associations between meaning anxiety and many other variables were similar to the associations between meaning confusion and these variables, such as personality traits and optimism. However, meaning anxiety showed smaller associations with need satisfaction (for autonomy, $z = 5.56$, $p < .001$; for competence, $z = 6.26$, $p < .001$), life satisfaction ($z = 4.55$, $p < .001$), and positive affect ($z = 3.46$, $p < .001$) than meaning confusion. Moreover, it was more related to the pursuit of extrinsic goals (i.e., financial success, fame and appearance) and less related to the pursuit of intrinsic goals, than meaning confusion ($zs > 2.64$, $ps < .008$).

3.3 Interactions Among Dimensions of Meaning

To further examine the validity of the newly added dimensions, we analyzed the interactions among the meaning dimensions. For simplicity, we report in detail only significant interactions between need for meaning and presence of meaning, and those between presence of meaning and meaning anxiety (avoidance) on meaning avoidance (anxiety), because these interactions may help illustrate the construct validity of the meaning dimensions. The interaction between need for meaning and presence of meaning may reflect the extent to which the effects of need for meaning depended on the satisfaction of this need. The interactions among presence of meaning, meaning anxiety, and meaning avoidance may provide some clue to whether meaning anxiety and meaning avoidance would be two mutually exclusive results associated with lack in MIL.[1]

3.3.1 Interactions Between Need for Meaning and Presence of Meaning

We found significant interactions between need for meaning and presence of meaning on meaning anxiety, $\beta = -.85$, $t = -3.25$, $p = .001$ and optimism, $\beta = .89$, $t = 3.55$, $p < .001$ (Fig. 1). Simple slopes tests indicated that when presence of meaning was low (1 SD below mean), need for meaning was strongly associated with meaning anxiety, $\beta = .50$, $t = 12.10$, $p < .001$. This association was much smaller when presence of meaning was high (1 SD above mean), $\beta = .30$, $t = 4.17$, $p < .001$. In other words, meaning anxiety was the highest among those who scored high on need for meaning but low on presence of meaning. Optimism depended more on presence of meaning when need

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[1] There were six meaning dimensions, which could yield 15 two-way interaction terms. Moreover, we had also a large number of dependent variables. It was unrealistic to report all the significant results in the text. In addition to the results we reported, we also found significant interactions between meaning confusion and meaning avoidance on presence of meaning, need for meaning, aspirations for financial success and fame, life satisfaction, and positive/negative affect, significant interactions between meaning confusion and search for meaning on presence of meaning, meaning anxiety, and depression, significant interactions between meaning confusion and presence of meaning on meaning avoidance, search for meaning, need for meaning, aspirations for self-acceptance, self-esteem, optimism and depression, significant interactions between meaning confusion and meaning anxiety on search for meaning, presence of meaning, need for meaning, aspirations for fame and community feelings, optimism, positive/negative affect, and life satisfaction, significant interactions between meaning avoidance and meaning anxiety on presence of meaning, aspirations for financial success, fame and appearance, positive/negative affect, anxiety and depression, significant interactions between meaning avoidance and presence of meaning on search for meaning, aspirations for appearance and community feelings, self-esteem, optimism, and significant interactions between presence of meaning and meaning anxiety on need for meaning and search for meaning, optimism and depression. Details of these results can be obtained from the first author.
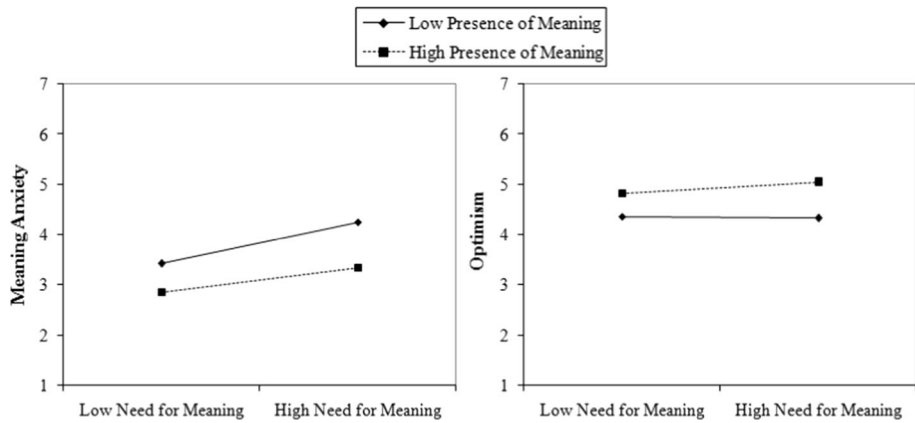
Fig. 1 Interactions between need for meaning and presence of meaning on meaning anxiety and optimism

for meaning was higher ($\beta = .38$, $t = 2.98$, $p = .003$) rather than lower ($\beta = .23$, $t = 2.53$, $p = .012$).

3.3.2 Interactions Between Presence of Meaning and Meaning Anxiety (Avoidance) on Meaning Avoidance (Anxiety)

The interaction was significant between presence of meaning and meaning avoidance on meaning anxiety, $\beta = .90$, $t = 5.76$, $p < .001$. Simple slopes tests indicated that the association between presence of meaning and meaning anxiety was non-significant when meaning avoidance was high (1 SD above mean), $\beta = -.12, t = -1.86, p = .071$ (Fig. 2). However, presence of meaning was negatively associated with meaning anxiety when meaning avoidance was low (1 SD below mean), $\beta = -.43, t = -12.76, p < .001$. The interaction between presence of meaning and meaning anxiety on meaning avoidance was just similar, $\beta = .95$, $t = 5.89$, $p < .001$ (Fig. 2). Meaning avoidance was more strongly associated with presence of meaning when meaning anxiety was low ($\beta = -.44$, $t = -7.56$, $p < .001$) rather than high ($\beta = -.08$, $t = -1.16$, $p = .25$).

3.4 Cluster Analysis

To explore whether individuals could be divided into meaningful groups according to the six dimensions of MIL, we conducted a hierarchical cluster analysis, with squared Euclidean distances used in the proximities matrix and Ward's clustering method (Borgen and Barnett 1987). Five was the most appropriate number of clusters for the data according to the Calinski and Harabasz pseudo-F stopping rule index and the Duda and Hart Je(2)/Je(1) index (Everitt et al. 2001; Milligan and Cooper 1985). We then compared the main variables across the five groups (see Table 4). For post hoc comparisons, we employed Bonferroni p-adjusted corrections for multiple comparisons.

Among the five groups, Group 1 ($n = 130$, 12.23%) had low levels of presence of meaning, accompanied with high levels of meaning confusion, meaning avoidance and meaning anxiety. We named this group the Alarming group. Group 2 ($n = 451$, 42.43%) showed low levels of need for meaning and search for meaning, and high levels of meaning avoidance. This group seemed to care the least about MIL. Therefore, we named this group
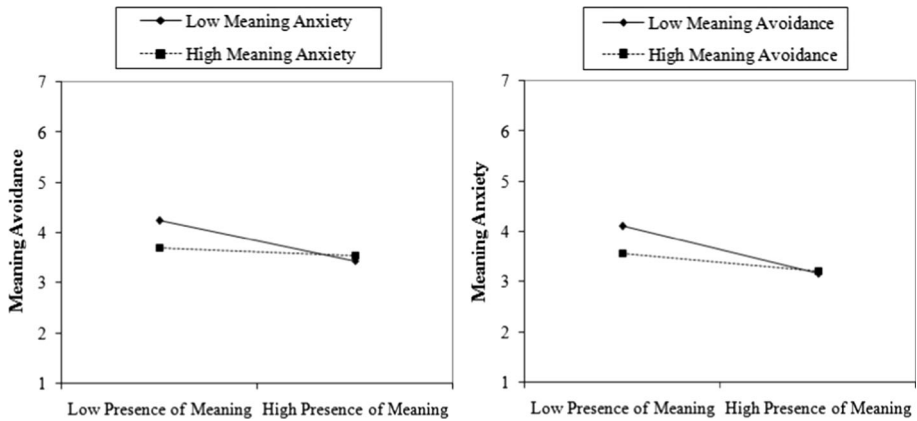
Fig. 2 Interaction between presence of meaning and meaning anxiety (avoidance) on meaning avoidance (anxiety)

the Indifferent group. Group 3 ($n = 200$, 18.81%) had high levels of both presence of meaning and search for meaning, and low levels of meaning confusion, meaning avoidance and meaning anxiety. We called them the Meaning Oriented group. Group 4 ($n = 148$, 13.92%) had high levels of need for meaning, search for meaning, and meaning anxiety, but also relatively high level of presence of meaning. Thus, they were named the Ambivalent group. The key feature that defined Group 5 ($n = 134$, 12.61%) was their low levels of search for meaning. This group also scored relatively high on presence of meaning. Hence, we named this group the Meaning Assumed group.

To summarize, a low need for meaning differentiates the Indifferent group from other groups. Low presence of MIL differentiates the Alarming group from other groups. Search for meaning differentiated the Meaning Oriented group from the Meaning Assumed group. Meaning Anxiety differentiated the Ambivalent group from the Meaning Oriented and Meaning Assumed groups.

No gender difference in the group distribution was found, $\chi^2(4) = 1.41$, $p = .84$. Age difference among the five groups was non-significant either, $F(4, 1058) = 2.01$, $p = .09$. Among the five groups, the Alarming group had the lowest scores on conscientiousness, agreeableness, need satisfaction, optimism, self-esteem, and life satisfaction, and the highest scores on neuroticism, meaninglessness and negative effect. The Indifferent group seemed to bear much in common with the Ambivalent group in terms of the indices of psychological adjustment. However, they scored lower on satisfaction of the needs for autonomy, competence and relatedness, and on two personality traits conscientiousness and openness than the Ambivalent group. Compared to the Ambivalent group, they also reported lower levels of personal aspirations. The Meaning Oriented group scored the highest on need satisfaction and many indices of psychological adjustment. The Meaning Assumed group also reported relatively better psychological adjustment than the Alarming, Indifferent and Ambivalent groups. We found that the Alarming group and the Ambivalent group scored higher on the extrinsic aspirations than the other three groups. The Meaning Oriented group and the Ambivalent group had the highest scores on the intrinsic aspirations, followed by the Meaning Assumed group, and the Alarming and Indifferent groups had lowest intrinsic aspirations. In sum, the five groups did have distinct psychological features.

Table 4 Comparisons among the five groups

	1 Alarming group (n = 130)	2 Indifferent group (n = 451)	3 Meaning oriented (n = 200)	4 Ambivalent group (n = 148)	5 Meaning assumed (n = 134)
Presence of meaning	4.25 (.96)[a]	4.68 (.63)[b]	6.03 (.66)[c]	5.44 (.63)[d]	5.65 (.73)[e]
Search for meaning	5.17 (.53)[a]	4.80 (.71)[b]	5.84 (.85)[c]	5.72 (.71)[c]	2.81 (.85)[d]
Need for meaning	5.09 (.71)[a]	4.79 (.65)[b]	5.80 (.79)[c]	5.90 (.63)[c]	5.30 (.74)[a]
Meaning confusion	4.55 (.72)[a]	3.41 (.70)[b]	1.98 (.69)[c]	3.36 (.86)[b]	2.56 (.81)[d]
Meaning avoidance	4.17 (.95)[a]	4.00 (.81)[a]	3.16 (1.39)[b]	3.22 (.76)[bc]	3.49 (1.02)[c]
Meaning anxiety	4.54 (.72)[a]	3.24 (.68)[b]	2.71 (1.07)[c]	4.38 (.73)[a]	3.04 (.85)[b]
Personality traits					
Extroversion	3.45 (.90)[a]	3.82 (1.00)[b]	4.40 (1.27)[c]	3.80 (1.26)[ab]	4.07 (1.14)[bc]
Agreeableness	4.71 (.79)[a]	5.07 (.73)[b]	5.64 (.96)[c]	5.17 (.82)[bd]	5.42 (.78)[cd]
Conscientiousness	4.14 (.72)[a]	4.41 (.87)[b]	5.01 (1.14)[c]	4.65 (.92)[d]	4.75 (.86)[cd]
Neuroticism	4.02 (.74)[a]	3.48 (.86)[b]	2.73 (1.08)[c]	3.44 (.94)[b]	2.96 (.94)[c]
Openness	4.04 (.69)[a]	4.25 (.69)[a]	5.12 (.93)[b]	4.48 (.89)[c]	4.65 (.89)[c]
Need satisfaction					
Autonomy	4.18 (.53)[a]	4.65 (.61)[b]	5.41 (.64)[c]	4.89 (.69)[d]	5.06 (.73)[d]
Competence	4.10 (.50)[a]	4.46 (.59)[b]	5.26 (.76)[c]	4.67 (.75)[d]	4.91 (.72)[e]
Relatedness	4.64 (.51)[a]	5.01 (.61)[b]	5.68 (.64)[c]	5.22 (.69)[d]	5.40 (.66)[d]
Personal Aspirations					
Financial success	3.51 (.73)[a]	3.21 (.72)[b]	3.20 (.85)[b]	3.46 (.74)[a]	3.22 (.76)[ab]
Self-acceptance	4.33 (.45)[ab]	4.33 (.44)[a]	4.64 (.39)[c]	4.65 (.35)[c]	4.47 (.41)[b]
Fame	2.70 (.91)[a]	2.40 (.72)[b]	2.37 (.85)[b]	2.76 (.83)[a]	2.41 (.73)[b]
Affiliation	4.49 (.40)[a]	4.51 (.43)[a]	4.75 (.32)[b]	4.70 (.38)[b]	4.58 (.39)[ab]
Appearance	3.45 (.73)[a]	3.22 (.67)[b]	3.22 (.70)[b]	3.49 (.69)[a]	3.07 (.73)[b]
Community feelings	3.81 (.55)[a]	3.76 (.54)[a]	4.08 (.62)[bc]	4.12 (.54)[c]	3.91 (.58)[ab]
Optimism	4.09 (.43)[a]	4.55 (.59)[b]	5.26 (.80)[c]	4.56 (.63)[b]	4.94 (.68)[d]
No meaning	3.49 (.90)[a]	2.70 (.69)[b]	1.85 (.72)[c]	2.54 (.69)[b]	2.22 (.62)[d]
Self-esteem	2.65 (.35)[a]	2.94 (.37)[b]	3.39 (.42)[c]	3.02 (.41)[b]	3.21 (.43)[d]
Life satisfaction	4.19 (.81)[a]	4.47 (.78)[b]	5.25 (1.00)[c]	4.59 (.91)[b]	4.91 (.89)[d]
Positive affect	2.96 (.63)[a]	3.09 (.52)[a]	3.62 (.55)[b]	3.32 (.57)[c]	3.42 (.45)[c]
Negative affect	2.52 (.70)[a]	2.13 (.49)[b]	1.95 (.42)[c]	2.24 (.48)[b]	1.96 (.44)[c]
Depression	1.67 (.42)[a]	1.42 (.37)[b]	1.25 (.27)[c]	1.52 (.44)[d]	1.30 (.28)[c]
Anxiety	1.58 (.41)[a]	1.41 (.36)[b]	1.29 (.28)[c]	1.52 (.38)[a]	1.35 (.31)[bc]

Values with different subscripts in the same row are significantly different from each other

4 Discussion

In the current study, we proposed four dimensions of MIL and developed scales to measure them: *need for meaning*, *meaning confusion*, *meaning anxiety* and *meaning avoidance*. Discriminant validities of these dimensions were demonstrated through factor analysis and their distinct correlations with other variables including personality, need satisfaction, personal aspirations and various indices of psychological adjustment. These four dimensions tapped into individuals' feelings, thoughts and concerns about MIL, above and beyond what have been captured in previous measures of MIL. They illuminated important individual differences in understanding and pursuit of MIL.

4.1 Dimensions of MIL

Several researchers have recognized that individuals vary in their need for meaning (e.g., Schlegel and Hicks 2016). However, to the best of our knowledge, no scale has been developed to measure such an individual difference. We constructed a measure of need for meaning that contained six items that assessed the extent to which individuals feel a need for their lives to be meaningful. These items loaded on the same latent factor in the EFA and CFA. Need for meaning may be the driving impetus behind actions aimed at finding or enhancing levels of MIL. Indeed, among the six dimensions, need for meaning had the strongest correlations with individuals' aspirations for self-acceptance and affiliation. This may be seen as evidence of its motivational property. Moreover, the interaction between presence of meaning and need for meaning on meaning anxiety showed that individuals worry about leading a meaningless life more when a strong (vs. weak) need for MIL is unfulfilled.

Meaning confusion is whether individuals have a clear idea about what a meaningful life is and how to find meaning in life. Meaning confusion was negatively correlated with presence of meaning, and positively correlated with meaninglessness. It was also positively correlated with both meaning avoidance and meaning anxiety. That is, individuals who feel confused about MIL tend not only to avoid thinking about MIL, but also to worry about having a meaningless life. Moreover, meaning confusion had stronger negative associations with several indices of psychological adjustment (i.e., life satisfaction, self-esteem and positive affect) than meaning avoidance and meaning anxiety. These results provide support for the importance of a coherent meaning framework to individuals' well-being. The associations of meaning confusion with personality, need satisfaction, life satisfaction, positive/negative affect, anxiety and depression were comparable to the associations between meaninglessness and these variables. Nevertheless, meaning confusion was less strongly associated with the levels of aspirations for self-acceptance and affiliation than meaninglessness, which implies that a sense of confusion is less harmful to intrinsic goals than a sense of meaninglessness.

The concept of meaning avoidance has been alluded to, but never been explicitly discussed in previous studies. For instance, Schnell's (2010) conceptualization of existential indifference, as characterized by the absence of both meaningfulness and crisis of meaning, implies that some people may accept low levels of MIL without feeling upset or uncomfortable. It is possible that indifferent individuals have a low need for meaning. However, it is also possible that they actively eschew thoughts about meaning. MIL involves self-transcendence-connecting the self with something that is more abstract, profound and long-lasting (e.g., Duckworth et al. 2005). As such, finding and maintaining

MIL can be a difficult and painful task. For instance, several lines of research have indicated that MIL is obtained through self-development, interpersonal relationships, and social commitment, rather than through the pursuit of mere pleasure (which is often transient and superficial; e.g., McGregor and Little 1998; Lambert et al. 2013; Van Tongeren et al. 2016). Hence, meaning avoidance may occur as a defensive response when individuals' attempts to find meaning are frustrated. Buttressing this inference, we found that meaning avoidance mitigated feelings of anxiety when individuals experience low levels of MIL.

Meaning anxiety is also an important variable to consider when studying individual differences in thoughts and feelings about MIL. Meaning anxiety has been occasionally mentioned in studies of reactions to trauma (e.g., Tu and Chiou 2007). Traumatic experiences, such as serious disease and loss of loved ones, may evoke worries about the meaning of life. Nevertheless, it is not rare to hear people express such worries in our daily lives. Meaning anxiety and meaning confusion were moderately correlated. However, meaning anxiety seemed to be less negative than meaning confusion, given its smaller associations with several indices of psychological adjustment. In addition, compared to meaning confusion and other dimensions of MIL, meaning anxiety had stronger associations with the importance attached to extrinsic goals, such as financial success, fame and appearance. These results echo findings that suggest psychological threats may orient individuals towards extrinsic pursuits (Sheldon and Kasser 2008). Ironically, the preference for extrinsic goals may diminish, rather than enhance individuals' well-being and MIL (e.g., Burroughs and Rindfleisch 2002).

4.2 Group Classification

Individuals could be divided into distinct groups through the six dimensions of MIL, which provided further evidence on the validity of these dimensions. The six groups were heterogeneous in terms of their thoughts and feelings about MIL, rather than simply lying on a continuum ranging from meaninglessness to meaningfulness. For instance, although both the Alarming and the Ambivalent groups had the highest levels of meaning anxiety, they differed strikingly in all other dimensions. Table 5 summarizes the differences in personality, need satisfaction, personal aspirations, and psychological adjustment among the five groups. It can be observed that the five groups differed systematically on all the variables. The Meaning Oriented group showed the best psychological adjustment, and the Alarming group showed the worst. Although the Indifferent and the Ambivalent groups scored similarly on the adjustment indices, they may be differentiated via need satisfaction and the strength of aspirations. Specifically, the Ambivalent group scored higher on the satisfaction of the needs for autonomy, relatedness and competence, and all the six aspirations, than the Indifferent group.

It is worth noting that the groups showed very interesting differences in the importance attached to intrinsic and extrinsic aspirations. The Meaning Oriented group scored high on intrinsic goals but low on extrinsic ones, whereas the reverse was true for the Alarming group. These results are consistent with the literature showing that a focus on intrinsic goals (vs. extrinsic ones) is associated with greater well-being (Ryan and Deci 2000). The Indifferent group scored low on both types of goals. Among the five groups, individuals in this group cared the least about MIL. Without a strong desire to make life meaningful, they seemed to lack the craving for both types of life goals. The Ambivalent group, in contrast, had high aspirations for both types of goals. The eagerness to enhance MIL and reduce anxiety may drive these individuals to embrace all kinds of goals in their lives.

Table 5 Psychological features of the five groups

	1 Alarming group ($n = 130$)	2 Indifferent group ($n = 451$)	3 Meaningful oriented ($n = 200$)	4 Ambivalent group ($n = 148$)	5 Meaning assumed ($n = 134$)
Personality traits					
Extroversion	Low	Medium	High	Medium	Medium–high
Agreeableness	Low	Medium	High	Medium	Medium–high
Conscientiousness	Low	Medium	High	Medium–high	Medium–high
Neuroticism	High	Medium	Low	Medium	Low
Openness	Low	Low	High	Medium	Medium
Need satisfaction	Low	Low–medium	High	Medium	Medium–high
Personal aspirations					
Intrinsic	Low	Low	High	High	Medium
Extrinsic	High	Low	Low	High	Low
Psychological adjustment	Low	Medium	High	Medium	Medium–high

These interesting group differences would not have be identified if we did not consider the four additional dimensions of MIL. Nevertheless, we should interpret the results from the cluster analysis with caution. First, the proportion of individuals in each group would vary if we used other clustering methods. Yet, there isn't an agreed upon method in the literature. Second, the Indifferent group was disproportionately large. This may be a function of the specific clustering method we used or the characteristics of the current sample. However, the percentage (42%) was not that much larger than that of the existentially indifferent group (35%) identified in Schnell's (2010) investigation of a German sample. It should also be noted that even for the Indifferent group, need for meaning was far above the mid-point on the scale. Hence, individuals in this group may not be truly "indifferent" about MIL.

Nonetheless, the unique characteristics of the current sample warrants more discussion. Participants were graduate students from China, a collectivistic society with low religiosity (Hofstede 1980; Stark and Liu 2011). These cultural factors may help explain the unique group distribution and associations among the MIL dimensions. For instance, the correlation between presence of and search for meaning has typically been negative in previous studies involving mostly Western samples (e.g., Steger and Kashdan 2007). However, the two variables were positively correlated in the current study. A positive correlation between the two variables has also been identified in a sample from Japan, another society known to be highly collectivistic (Steger et al. 2008). People in collectivistic cultures tend to adopt a dialectical style of thinking which emphasizes connections between objects and integration of contradictory elements (Nisbett et al. 2001). Therefore, they may be more likely to unite the process of searching for MIL with the presence of MIL than those in individualistic cultures. In fact, a central feature of the Meaning Oriented group is the coexistence of high levels of both search for and presence of meaning. A dialectical thinking style may influence the associations among other dimensions of MIL as well. For instance, the association between meaning avoidance and need for meaning was only moderately negative. It implies that some individuals may need MIL, but avoid thinking about it. This apparent contradiction may not occur (or be weaker) in individualistic cultures.

The sample was also predominantly non-religious. Given the importance of religion to meaning (e.g., Emmons and Paloutzian 2003), this may contribute to the large proportion of participants in the Indifferent group. Indeed, compared to people in most other nations, the Chinese think less frequently about MIL. In the sixth World Value Survey, only 9.6% Chinese participants indicated that they often thought about meaning and purpose of life, relative to 40.2% among the whole sample (World Values Survey Association n.d.). Future studies should investigate the associations among dimensions of MIL, and the distribution of meaning groups in diverse cultures.

4.3 Limitations and Conclusion

There are several limitations of the current study. The most obvious one is that, as we have discussed in great detail, participants were graduate students from a Chinese university. Besides the cultural factors, their relatively young age and high education level may have also influenced our measures. However, we believe that the dimensions we identified in this sample could be generalized to other samples, though the mean levels of the dimensions may vary. Second, as we mentioned above, the current study was cross-sectional. It only provided preliminary evidence on the relationships among dimension of MIL and other variables. No causal relationships can be inferred. Nevertheless, this study provides convincing evidence in support of the validity and importance of the additional dimensions of MIL. Scales developed to measure these dimensions may be used in future studies, in supplement to the scales assessing presence of meaning and search for meaning. This study suggests avenues for future studies on MIL that would definitely broaden our understanding of MIL and its impact on individuals' goal-setting and well-being.

References

Alter, A. L., & Hershfield, H. E. (2014). People search for meaning when they approach a new decade in chronological age. *Proceedings of the National Academy of Sciences, 111*, 17066–17070. doi:10.1073/pnas.1415086111.

Battista, J., & Almond, R. (1973). The development of meaning in life. *Psychiatry, 36*, 409–427. doi:10.1521/00332747.1973.11023774.

Beaumont, S. L. (2009). Identity processing and personal wisdom: An information-oriented identity style predicts self-actualization and self-transcendence. *Identity: An International Journal of Theory and Research, 9*, 95–115. doi:10.1080/15283480802669101.

Borgen, F. H., & Barnett, D. C. (1987). Applying cluster analysis in counseling psychology research. *Journal of Counseling Psychology, 34*, 456–468. doi:10.1037/0022-0167.34.4.456.

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1*, 185–216. doi:10.1177/135910457000100301.

Burroughs, J. E., & Rindfleisch, A. (2002). Materialism and well-being: A conflicting values perspective. *Journal of Consumer Research, 29*, 348–370. doi:10.1086/344429.

Crumbaugh, J. C., & Maholick, L. T. (1964). An experimental study in existentialism: The psychometric approach to Frankl's concept of noogenic neurosis. *Journal of Clinical Psychology, 20*, 200–207.

Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL-90. *Psychopharmacology Bulletin, 9*, 13–28.

Duckworth, A. L., Steen, T. A., & Seligman, M. E. (2005). Positive psychology in clinical practice. *Annual Review of Clinical Psychology, 1*, 629–651. doi:10.1146/annurev.clinpsy.1.102803.144154.

Emmons, R. A. (2003). Personal goals, life meaning, and virtue: wellsprings of a positive life. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 105–128). Washington, DC: American Psychological Association.

Emmons, R. A., & Paloutzian, R. F. (2003). The psychology of religion. *Annual Review of Psychology, 54*, 377–402. doi:10.1146/annurev.psych.54.101601.145024.

Everitt, B. S., Landau, S., & Leese, M. (2001). *Cluster analysis* (4th ed.). New York: Oxford University Press.

Frankl, V.E. (1963). *Man's search for meaning: An introduction to logotherapy*. New York, NY: Washington Square. (Original work published 1946).

Frankl, V. E. (1969). *The will to meaning: Foundations and applications of logotherapy*. New York, NY: New American Library.

Fredrickson, B. L., Grewen, K. M., Coffey, K. A., Algoe, S. B., Firestine, A. M., Arevalo, J. M., et al. (2013). A functional genomic perspective on human well-being. *Proceedings of the National Academy of Sciences, 110*, 13684–13689. doi:10.1073/pnas.1305419110.

Fry, P. S. (1998). Spousal loss in late life: A 1-year follow-up of perceived changes in life meaning and psychosocial functioning following bereavement. *Journal of Personal & Interpersonal Loss, 3*, 369–391. doi:10.1080/10811449808409711.

Gagné, M. (2003). The role of autonomy support and autonomy orientationin prosocial behavior engagement. *Motivation and Emotion, 27*, 199–223. doi:10.1023/A:1025007614869.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*, 504–528. doi:10.1016/S0092-6566(03)00046-1.

Grouzet, F. M. E., Kasser, T., Ahuvia, A., Fernandez-Dols, J. M., Kim, Y., Lau, S., et al. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology, 89*, 800–916. doi:10.1037/0022-3514.89.5.800.

Hicks, J. A., & King, L. A. (2009). Positive mood and social relatedness as information about meaning in life. *Journal of Positive Psychology, 4*, 471–482. doi:10.1080/17439760903271108.

Hittner, J. B., May, K., & Silver, N. C. (2003). A Monte Carlo evaluation of tests for comparing dependent correlations. *The Journal of General Psychology, 130*, 149–168. doi:10.1080/00221300309601282.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. BeverlyHills, CA: Sage.

Jim, H. S., Purnell, J. Q., Richardson, S. A., Golden-Kreutz, D., & Andersen, B. L. (2006). Measuring meaning in life following cancer. *Quality of Life Research, 15*, 1355–1371. doi:10.1007/s11136-006-0028-6.

Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as acentral life aspiration. *Journal of Personality and Social Psychology, 65*, 410–422. doi:10.1037/0022-3514.65.2.410.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin, 22*, 280–287. doi:10.1177/0146167296223006.

Kunzendorf, R.G., & Maguire, D. (1995). Depression: The reality of 'no meaning' versus the delusion of negative meaning. Unpublished manuscript, Lowell: University of Massachusetts.

Lambert, N. M., Stillman, T. F., Hicks, J. A., Kamble, S., Baumeister, R. F., & Fincham, F. D. (2013). Tobelong is to matter sense of belonging enhances meaning in life. *Personality and Social Psychology Bulletin, 39*, 1418–1427. doi:10.1177/0146167213499186.

McGregor, I. U., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology, 74*, 494–512. doi:10.1037/0022-3514.74.2.494.

Milligan, G. W., & Cooper, M. C. (1985). An examination of procedures for determining the number of clusters in a data set. *Psychometrika, 50*, 159–179. doi:10.1007/BF02294245.

Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review, 108*, 291–310. doi:10.1037/0033-295X.108.2.291.

Park, C. L. (2010). Making sense of the meaning literature: an integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin, 136*, 257–301. doi:10.1037/a0018301.

Pavot, W., Diener, E., Colvin, C. R., & Sandvik, E. (1991). Further validation of the satisfaction with life scale: Evidence for the cross-method convergence of well-being measures. *Journal of Personality Assessment, 49*, 71–75.

Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillside, NJ: Erlbaum.

Reker, G. T. (1992). *Manual: Life attitude profile-revised*. Petersborough, Ontario: Student Psychologists Press.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior, 30*, 91–127. doi:10.1016/j.riob.2010.09.001.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78. doi:10.1037/0003-066x.55.1.68.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: a review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166. doi:10.1146/annurev.psych.52.1.141.

Ryff, C. D., & Singer, B. (1996). Psychological well-being: Meaning, measurement, and implications for psychotherapy research. *Psychotherapy and Psychosomatics, 65*, 14–23. doi:10.1159/000289026.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the life orientation test. *Journal of Personality and Social Psychology, 67*, 1063–1078. doi:10.1037//0022-3514.67.6.1063.

Schlegel, R. J., & Hicks, J. A. (2016). Reflections on the scientific study of meaning in life. *Journal of Constructivist Psychology,*. doi:10.1080/10720537.2015.1119080.

Schlegel, R. J., Hicks, J. A., Arndt, J., & King, L. A. (2009). Thine own self: True self-concept accessibility and meaning in life. *Journal of Personality and Social Psychology, 96*, 473–490. doi:10.1037/a0014060.

Schnell, T. (2009). The sources of meaning and meaning in life questionnaire (SoMe): Relations to demographics and well-being. *The Journal of Positive Psychology, 4*, 483–499. doi:10.1080/17439760903271074.

Schnell, T. (2010). Existential indifference: Another quality of meaning in life. *Journal of Humanistic Psychology, 50*, 351–373. doi:10.1177/0022167809360259.

Sheldon, K. M., & Kasser, T. (2008). Psychological threat and extrinsic goal striving. *Motivation and Emotion, 32*, 37–45. doi:10.1007/s11031-008-9081-5.

Sjöström-Strand, A., & Fridlund, B. (2007). Stress in women's daily life before and after a myocardial infarction: A qualitative analysis. *Scandinavian Journal of Caring Sciences, 21*, 10–17. doi:10.1111/j.1471-6712.2007.00433.x.

Stark, R., & Liu, E. Y. (2011). The religious awakening in China. *Review of Religious Research, 52*, 282–289.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology,*. doi:10.1037/0022-0167.53.1.80.

Steger, M. F., & Kashdan, T. B. (2007). Stability and specificity of meaning in life and life satisfaction over one year. *Journal of Happiness Studies,*. doi:10.1007/s10902-006-9011-8.

Steger, M. F., Kawabata, Y., Shimai, S., & Otake, K. (2008). The meaningful life in Japan and the United States: Levels and correlates of meaning in life. *Journal of Research in Personality, 42*, 660–678. doi:10.1016/j.jrp.2007.09.003.

Steger, M. F., Oishi, S., & Kashdan, T. B. (2009). Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood. *The Journal of Positive Psychology, 4*, 43–52. doi:10.1080/17439760802303127.

Tu, M. S., & Chiou, C. P. (2007). Perceptual consistency of pain and quality of life between hospice cancer patients and family caregivers: A pilot study. *International Journal of Clinical Practice, 61*, 1686–1691. doi:10.1111/j.1742-1241.2007.01347.x.

Van Tongeren, D. R., Green, J. D., Davis, D. E., Hook, J. N., & Hulsey, T. L. (2016). Prosociality enhances meaning in life. *The Journal of Positive Psychology, 11*, 225–236. doi:10.1080/17439760.2015.1048814.

Vickberg, S. M. J., Bovbjerg, D. H., DuHamel, K. N., Currie, V., & Redd, W. H. (2000). Intrusive thoughts and psychological distress among breast cancer survivors: Global meaning as a possible protective factor. *Behavioral Medicine, 25*, 152–160. doi:10.1080/08964280009595744.

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology, 64*, 678–691. doi:10.1037/0022-3514.64.4.678.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070.

World Values Survey Association. (n.d.). World values surveys six-wave integrated data file, 2010–2014 [dataset]. Retrieved March 3, 2015, from http://www.worldvaluessurvey.org.

Zhang, H., Sang, Z., Chan, D. K. S., Teng, F., Liu, M., Yu, S., et al. (2016). Sources of meaning in life among Chinese University students. *Journal of Happiness Studies, 17*, 1473–1492. doi:10.1007/s10902-015-9653-5.