

Research Articles

Benign and Malicious Envy Scale: An Assessment of its Factor Structure and Psychometric Properties

Jia Yuin Fam^{*a}, Caroline Yu Li Yap^b, Sri Bala Murugan^c, Tziyun Lee^d

[a]Centre for Commercial Law and Justice, Sunway University, Selangor Darul Ehsan, Malaysia

[b]Department of Accounting, Sunway University, Selangor Darul Ehsan, Malaysia

[c]Centre for Commercial Law and Justice, Sunway University, Selangor Darul Ehsan, Malaysia

[d]Faculty of Education, SEGi College Subang Jaya, Selangor Darul Ehsan, Malaysia

Abstract

Recent theorizing and research have proposed two subtypes of envy, namely benign envy and malicious envy. However, many of the existing measures have mainly focused on the malicious dimension of envy. The Benign and Malicious Envy Scale (BeMaS) appears to be an appealing measure to fulfill this research need. The current study aims to evaluate the psychometric properties of BeMaS in terms of its factorial validity, construct validity, and reliability. The current study recruited two samples of university students for this purpose ($N_1 = 500$; $N_2 = 356$). As hypothesized, exploratory factor analysis in Study 1 yielded a two-factor structure of BeMaS (47% variance explained), which is further supported with confirmatory factor analysis in Study 2 ($TLI = .919$, $CFI = .940$, $RMSEA = .078$, $\chi^2/df = 4.039$). Both subtypes of envy significantly correlated with other psychological (depression, anxiety, and stress) and behavioral problems (conspicuous consumption orientation), evidencing the construct validity of BeMaS. Benign envy scale and malicious envy scale demonstrated good internal consistency in both samples. In conclusion, the psychometric assessments provided strong evidence for BeMaS as a valid and reliable measure of envy.

Keywords: Benign and Malicious Envy Scale, benign envy, malicious envy, psychometric, reliability, validity

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*Corresponding author at: Centre for Commercial Law and Justice, Sunway University, Selangor Darul Ehsan, Malaysia, E-mail: jjayuin@sunway.edu.my



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Theoretical part

Envy is an unfavorable emotion that occurs among almost all cultures around the globe. Envy is frequently cited as a common outcome of social comparison (Steinbeis & Singer, 2013), whereby envy arises when the 'envier' desires the superiority of the 'envied' (Parrott, 1991, p.10). Indeed, envy occurs when "a person lacks another's superior quality, achievement, or possession and either desires it or wishes that the other lacked it" (Parrott & Smith, 1993, p. 906). Identically, Maijala et al. (2000, pp. 1345-1346) define envy as "a painful and contradictory emotion based on an experience of lacking and comparison, which typically involves a wish to have something good the other possesses and the envious person is lacking." Envy is an emotion which consists of two main components, which is the lacking of something and the desires to have that thing (Maijala et al., 2000). Given this general perception of envy as an unpleasant emotion, it is not surprising to find envy associated with various emotional and behavioral problems when left unchecked, such as depression (Appel et al., 2016), psychological distress (Thompson et al., 2016), schadenfreude (Blom, 2015), harmful behavior (Duffy et al., 2008), and unethical behavior (Moran & Schweitzer, 2008).

In contrast to these studies aforementioned, which primarily consider the negative perspective of envy, there are also some studies which see envy from a positive perspective that are described here below. In evolutionary terms, it has been observed that the sense of inferiority is essential for individuals to remain competitive (Hill & Buss, 2008). According to Ramachandran and Jalal (2017), individuals are motivated by envy to undertake actions to narrow down the envier-envied performance gap. For instance, Van de Ven (2017) demonstrated that envious feeling could motivate the envier to improve himself/herself. This motivational perspective of envy has been evidenced in various research settings, which



include students (Sitinjak, 2016), salespersons (Milovic & Dingus, 2014), and organizational settings (Floyd et al., 2016).

These two contradictory perspectives of envy give rise to the proposal of two subgroups of the envy experience, namely benign and malicious envy (for a review, see Smith & Kim, 2007). In brief, malicious envy is characterized as negative, destructive, and hostile emotion towards the superiority of others. Malicious envy will drive the envious to level down others to lose their superiority and advantages (Van de Ven et al., 2009). By contrast, benign envy is a less-hostile form of envy. Benign envy is expected to motivate the envious to improve themselves to achieve their desired level. This distinction between the two subtypes of envy is based on the functional perspective of emotion (Van de Ven, 2016). Importantly, functionalists posit emotion as a complex and flexible mode of adaptation to the environment, whereby individuals can react very distinctively in the service of the same emotion (Campos et al., 1994). From the functional perspective, it is plausible that individuals experience envy when they found someone of superiority, leading to a desire to reduce the envious-envied gap. To achieve this goal, the envious can either improve their position to reach the same or better level; or to pull down the envied to lower level. Building on this rationale, it seems reasonable to have both constructive and destructive responses in the service of envy, which emphasizes the need to distinguish between benign and malicious envy.

However, there are some studies that disagree that a difference exists between benign and malicious envy due to two main reasons, which are (i) lack of theoretical, empirical supports for the need to differentiate between the two subtypes, and (ii) methodological and measurement issues in examining the two subtypes (see Cohen-Charash & Larson, 2017). While it is easy to counter the former criticism with the various recent studies that found significant different role of both envies (Lange et al., 2016; Van de Ven, 2017; Xiang et al., 2018), the latter criticism raises a need for a psychometrically validated measure which can simultaneously examine both subtypes of envy.

Upon review of the current literature, it is noteworthy that many of the existing measures have examined envy as a unidimensional construct. For instance, the Envy subscale from Materialism Scale (Belk, 1985) assesses envy as a destructive trait where the envious desire for something possessed by another. The York Enviousness Scale (Gold, 1996) puts the main focus on resentment and ill will of the envious. The most widely used Dispositional Envy Scale (Smith et al., 1999) assesses individual tendencies to envy, covering areas relating to



the sense of inferiority, ill will, and unfairness. Most of these existing measures have examined only the malicious dimension of envy, while the benign dimension was merely acknowledged at a theoretical level (such as Belk, 1985). Due to the lack of a validated measure of benign envy, many of the recent studies have relied on observations, non-validated scale, and other related measures to assess envy (e.g., Crusius & Lange, 2014; Duarte, 2011; Kwon et al., 2017; Van de Ven et al., 2011). In light of this, there is an urgent need for a psychometrically validated envy measure to enhance this line of research.

At this point, there is only one envy measure which accounts for both benign and malicious envy, which is the Benign and Malicious Envy Scale (BeMaS) developed by Lange and Crusius (2015). Consistent with the core concept of envy, the BeMaS depicts situations of lacking and desires to narrow down the envier-envied gap (level up oneself and level down others). In particular, benign envy scale covers the items related to the liking of the envied and increased self-enhancement; while malicious envy scale encompasses of items related to hostile, resentment, and anger feelings towards the envied. Although the BeMaS was originally developed and tested in several samples (three Amazon Mechanical Turk samples and one marathon runner sample), it has also been implemented in several student samples, which include Midwestern region of the United States (Vrabel et al., 2018), China (Xiang et al., 2018), and Indonesia (Sitinjak, 2016). Therefore, there is a need to evaluate further the psychometric properties of the BeMaS, whereby stronger psychometric evidence can help invite more future studies to investigate into this matter.

It is the purpose of this study to (i) evaluate the factorial validity of BeMaS using exploratory and confirmatory approach, (ii) investigate the construct validity of BeMaS by correlating it with other psychological (depression, anxiety, and stress) and behavioral problems (conspicuous consumption orientation), and (iii) examine the reliability of BeMaS. As recommended by Kline (2005), the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted using different samples.

Method (Study 1)

Participants

Participants of the current study were 500 university students who were enrolled in a business school during the period of data collection (199 males and 301 females), aged between 18 and 27 years old (mean = 19.66, $SD = 1.003$). The current research project was



approved by the university's research ethics committee. With support from course instructors, enumerators were sent to classes for data collection. All students who attended the classes were invited to participate in the current study on a voluntary basis. The students were provided with a questionnaire attached with informed consent form and participants' information sheet. The questionnaires were collected immediately upon completion.

Measure

Benign and Malicious Envy Scale (BeMaS; Lange & Crusius, 2015)

The BeMaS is a measure which examines two subtypes of envy, namely benign envy and malicious envy. The BeMaS consists of ten items which require the participants to rate their envious feeling on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The higher average score indicates more envious feelings. This measure was originally tested by Lange and Crusius (2015) in four studies ($N_1 = 365$, $N_2 = 194$, $N_3 = 192$, $N_4 = 474$), providing some supports for its psychometric properties.

Depression Anxiety Stress Scales – 21 items (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 is a measure which examines three emotional states, namely depression, anxiety, and stress. The DASS-21 requires the participants to rate how frequently they encountered the 21 symptoms of depression, anxiety, and stress over the past week on a 4-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Total scores of the three subscales are calculated by multiplying the sum of the score of respective subscale by two. Higher total score indicates a more severe psychological problem. The depression (7 items; $\alpha = .895$), anxiety (7 items; $\alpha = .770$), and stress subscale (7 items; $\alpha = .783$) had demonstrated satisfactory internal consistency in the present study.

Conspicuous Consumption Orientation Scale (CCO; Chaudhuria et al., 2011)

The CCO is a unidimensional measure which examines conspicuous consumption orientation. The participants are required to rate their conspicuous tendencies on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). Higher total score indicates higher conspicuous tendencies. The CCO demonstrated excellent internal consistency in the present study (11 items; $\alpha = .900$).



Statistical Procedure

All data collected were subjected to a series of psychometric tests using SPSS 25. First, descriptive analysis was performed to examine the mean, standard deviation, skewness, and kurtosis of all variables. Second, EFA was performed to examine the factor structure of BeMaS. Third, zero-order correlation was performed to examine the construct validity of BeMaS. Specifically, the relationships between BeMaS, DASS, and CCO were examined. Lastly, Cronbach's alpha was implemented to assess the internal consistency of BeMaS.

Result (Study 1)

Descriptive Analysis

Descriptive statistics for the BeMaS raw scores are presented in Table 1. As all skewness and kurtosis values were within the acceptable range of ± 2 (Pallant, 2010), the assumption for data normality was met.

Table 1

Descriptive analysis for items in Benign and Malicious Envy Scale for Study 1

Item	Mean	SD	Skew	Kur
1. When I envy others, I focus on how I can become equally successful in the future.	3.85	1.261	-0.298	-0.362
2. I wish that superior people lose their advantage.	2.65	1.300	0.551	-0.186
3. If I notice that another person is better than me, I try to improve myself.	4.34	1.088	-0.462	0.273
4. Envyng others motivates me to accomplish my goals.	3.67	1.370	-0.126	-0.708
5. If other people have something that I want for myself, I wish to take it away from them.	2.16	1.253	1.027	0.439
6. I feel ill will toward people I envy.	2.29	1.173	0.667	-0.131
7. I strive to reach other people's superior achievements.	3.51	1.300	-0.080	-0.490
8. Envious feelings cause me to dislike the other person.	2.38	1.239	0.596	-0.432
9. If someone has superior qualities, achievements, or possessions, I try to attain them for myself.	3.49	1.317	-0.054	-0.503
10. Seeing other people's achievements makes me resent them.	2.49	1.246	0.427	-0.585

Note. Skew = Skewness; Kur = Kurtosis.

Factorial Validity

EFA was performed to examine the factor structure of the BeMaS. Given that the current data was normally distributed, and significant correlation between the factors might exist, the data were subjected to Maximum Likelihood EFA with Promax rotation as recommended by Fabrigar et al. (1999). Also, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy



(KMO value = .823) and Bartlett's Test of sphericity (Test value = 1710.286, $p < .001$) showed that the current data was appropriate for EFA.

Examination of eigenvalues and scree plot supported a two-factor structure of BeMaS, whereby the two factors accounted for approximately 47% of the total variance (Table 2). All items were well-loaded to factor 1 (range between .527 and .714) and factor 2 (range between .581 to .836), with no notable cross-loading (cross-loading less than .2). Inspection on the items found that all items were loaded to the intended factor, in which factor 1 consisted of all items of benign envy (item 1, 3, 4, 7, and 9), while factor 2 consisted of all items of malicious envy (item 2, 5, 6, 8, and 10). Hence, both factors were named accordingly as benign envy scale and malicious envy scale. As hypothesized, benign envy scale and malicious envy scale significantly correlated among each other $r(498) = 0.314$, $p < .001$.

Table 2

Exploratory factor analysis for Benign and Malicious Envy Scale for Study 1

Item	Rotated Loadings		Communalities
	F1	F2	
Item 1	.714	-.108	.467
Item 3	.691	-.083	.443
Item 4	.650	.024	.434
Item 7	.595	.130	.425
Item 9	.527	.130	.343
Item 2	.069	.581	.370
Item 5	-.027	.794	.616
Item 6	-.030	.836	.681
Item 8	-.047	.713	.487
Item 10	.056	.655	.458
Percent of variance	32.188	15.065	47.252
Eigenvalue	3.767	1.986	



Construct Validity

Construct validity was evaluated using zero-order correlation, where the correlation of BeMaS with other instruments were examined (Table 3). The result revealed significant relationships between benign envy, depression $r(498) = 0.124$, $p < .01$, anxiety $r(498) = 0.148$, $p < .01$, stress $r(498) = 0.199$, $p < .001$, and conspicuous consumption orientation $r(498) = 0.311$, $p < .001$. Identical but stronger relationships were found between malicious envy, depression $r(498) = 0.380$, $p < .001$, anxiety $r(498) = 0.342$, $p < .001$, stress $r(498) = 0.355$, $p < .001$, and conspicuous consumption orientation $r(498) = 0.339$, $p < .001$. Altogether, the results support the construct validity of BeMaS.

Table 3

Zero-Order Correlations for Benign and Malicious Envy Scale with Depression Anxiety Stress Scales and Conspicuous Consumption Orientation Scale or Study 1

Construct	Correlation			
	Depression	Anxiety	Stress	Conspicuous consumption Orientation
Benign envy	.124**	.148**	.199***	.311***
Malicious envy	.380***	.342***	.355***	.339***

Note. ** $p < .01$. *** $p < .001$.

Reliability

The result of the reliability analysis is presented in Table 4. Both benign envy scale (5 items; $\alpha = .774$) and malicious envy scale (5 items; $\alpha = .839$) demonstrated good internal consistency in the present study. Hence, the current finding supports BeMaS as a reliable measure for benign and malicious envy.

Table 4

Reliability analysis of Benign and Malicious Envy Scale for Study 1

Construct	Cronbach's α
Benign envy	.774
Malicious envy	.839

Method (Study 2)

Participants

A total of 356 university students from a different Malaysian university were recruited for Study 2 (135 males and 221 females). Identical to Study 1, the participants were aged between 18 and 27 years old in Study 2 ($M = 21.42$, $SD = 2.312$). The procedure was the same as described in Study 1.

Measure

Study 1 supported the original two-factor structure of BeMaS (Lange & Crusius, 2015), consisting of benign and malicious envy scales. Hence, all items were retained in Study 2. Both benign envy scale (5 items; $\alpha = .780$) and malicious envy scale (5 items; $\alpha = .873$) demonstrated good internal consistency in Study 2.

Statistical Procedure

The same descriptive analysis was performed as in Study 1. CFA was performed to evaluate the two-factor structure of BeMaS. The factor structure was evaluated using a set of fit indices recommend by Jackson et al. (2009), namely non-normed fit index (TLI), comparative fit index (CFI), root mean square error of estimation (RMSEA), and relative chi-square (χ^2/df). The cut-off point for good model was set as .9 and higher for TLI and CFA, .08 and below for RMSEA, while 5 and below for χ^2/df . The CFA was conducted using Amos 25.

Result (Study 2)

Descriptive Analysis

Table 5 shows the means, standard deviations, skewness, and kurtosis for all items of BeMaS. All items were normally distributed, with all values within the acceptable range of ± 2 .



Table 5

Descriptive analysis for items in Benign and Malicious Envy Scale for Study 2

Item	<i>M</i>	<i>SD</i>	Skew	Kur
1. When I envy others, I focus on how I can become equally successful in the future.	4.28	1.185	-0.462	-0.072
2. I wish that superior people lose their advantage.	2.86	1.505	0.440	-0.793
3. If I notice that another person is better than me, I try to improve myself.	4.52	1.166	-0.675	0.325
4. Envyng others motivates me to accomplish my goals.	4.00	1.415	-0.467	-0.500
5. If other people have something that I want for myself, I wish to take it away from them.	2.62	1.497	0.545	-0.793
6. I feel ill will toward people I envy.	2.85	1.473	0.313	-0.888
7. I strive to reach other people's superior achievements.	3.95	1.270	-0.375	-0.289
8. Envious feelings cause me to dislike the other person.	2.94	1.520	0.299	-0.903
9. If someone has superior qualities, achievements, or possessions, I try to attain them for myself.	4.12	1.333	-0.476	-0.303
10. Seeing other people's achievements makes me resent them.	2.82	1.469	0.261	-0.980

Note. Skew = Skewness; Kur = Kurtosis.

Confirmatory Factor Analysis

CFA was performed to further evaluate the factor structure of the BeMaS (Table 6). Referring to Study 1, two latent constructs were developed (benign envy and malicious envy), with five items loaded to each latent construct accordingly. The two-factor structure of BeMaS demonstrated a satisfactory model fit, whereby all of the fit indices met the preset cutoff points (TLI = .958, CFI = .969, RMSEA = .058, $\chi^2/df = 2.189$). In reviewing for the standardized factor loading, all items are significantly loaded into the targeted latent construct within satisfactory range (range between .554 to .800). Furthermore, bootstrapping with 5,000 bootstrap samples was performed to examine the stability of the BeMaS. With no zero contained in 95% bias-corrected confidence intervals and significant p values, the two-factor structure was evidenced to be stable. Again, a significant relationship was found



between benign envy scale and malicious envy scale $r(498) = 0.296, p < .01$. Hence, the results of CFA supported the factorial validity of BeMaS. A graphical presentation of the two-factor structure model was illustrated in Figure 1.

Table 6

Confirmatory factor analysis for Benign and Malicious Envy Scale for Study 2

Factor	Item	Standardized Factor Loadings	95% BC CI
Benign envy	Item 1	.642	.534 - .731
	Item 3	.554	.431 - .658
	Item 4	.630	.531 - .714
	Item 7	.691	.586 - .779
	Item 9	.710	.604 - .788
Malicious envy	Item 2	.744	.664 - .808
	Item 5	.738	.653 - .805
	Item 6	.787	.719 - .841
	Item 8	.734	.651 - .803
	Item 10	.800	.734 - .851

Note. All standardized factor loadings are significant at the level of $p < .001$.
BC CI = bias-corrected confidence interval



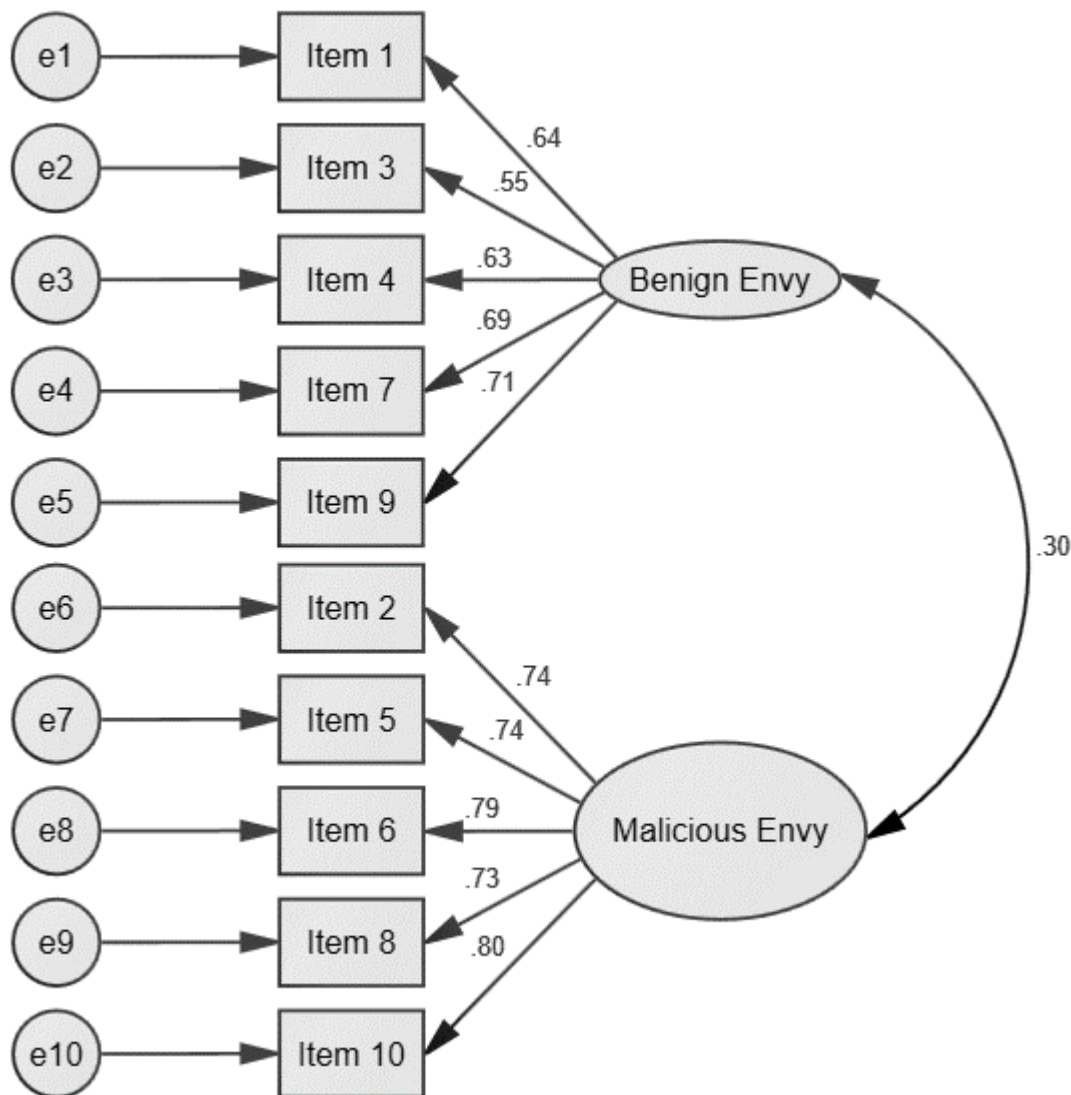


Figure 1. Two-factor structure model for Benign and Malicious Envy Scale for Study 2

Discussion

The main purpose of the current study was to explore the psychometric properties of the BeMaS, a measure which distinguishes between benign and malicious envy, in two samples of university students. Selection of this measure is mainly due to the lack of a validated measure in current literature to simultaneously assess benign and malicious envy. In particular, the BeMaS was evaluated in a series of psychometric assessments, which included exploratory factor analysis, confirmatory factor analysis, and Pearson correlation analysis. All of the assessments supported the excellent psychometric properties of BeMaS.

In the first study, the results from EFA replicated the two-factor structure obtained from the original study (Lange & Crusius, 2015). The two-factor structure of BeMaS explained for roughly 47% of the total variance, with all items been well-loaded on the intended factor (factor loading > .5). More precisely, the two factors referred to benign envy and malicious envy. Moreover, the factor structure of BeMaS was further examined using CFA in the second study. The CFA model demonstrated a satisfactory model fit to the data. Bootstrapping analysis with 5,000 bootstrap samples further supported the model stability of BeMaS. This finding supports the recent theorizing to distinguish between benign and malicious envy (Van de Ven, 2016). While the existing envy scales are undoubtedly effective in capturing the malicious dimension of envy, the inability to capture for the benign dimension might not fully depict the envious experience. This finding might serve as a potential explanation on how the previous studies found envy to be both constructive and destructive, whereby the envious feeling might (1) motivate the enviers to level up oneself in order to compete with the envied (benign envy); or (2) drive the enviers to level down the envied (malicious envy).

As a means to establish the construct validity of BeMaS, the present study examined the relationship between BeMaS and other problems. Both subtypes of envy correlated significantly with psychological (depression, anxiety, and stress) and behavioral problems (conspicuous consumption orientation). Malicious envy reported comparatively stronger relationships with these problems than benign envy. While previous studies tend to map all negative outcomes onto malicious envy and all positive outcomes onto benign envy (Cohen-Charash & Larson, 2017), this finding contradicts this view by showing that both envy forms are related to dark emotions and behavior. As proposed by Lange et al. (2018), despite the motivational tendency of benign envy, the envier can attempt to level up oneself (improve social status) through destructive behavior (conspicuous consumption). Hence, it is important to keep note that both forms of envy constitute a negative emotional state. Both benign and malicious envy reflect the fundamental core of the envious experience, the lacking of something and the desires to have that something, which can be equally painful for the enviers. This is further evidenced by the significant relationship between both types of envy in this study.

Additionally, the BeMaS demonstrated satisfactory internal consistency in the current study. However, although the reliability of BeMaS is supported in the present study, it is recommended for future research to evaluate its internal consistency before data analysis.



American Psychological Association has urged researchers to “provide reliability coefficients of the scores for the data being analysed even when the focus of their research is not psychometric” (Wilkinson & Task Force on Statistical Inference, 1999, p. 596). The false assumption of score reliability as a constant might lead to misinterpretation of research findings.

Overall, the BeMaS has demonstrated good psychometric properties in the present study. However, some limitations of the current study should be accounted. First, given that all participants of the current study were university students, the interpretation of the present findings should not go beyond this scope. It is recommended for future research to enhance the psychometric evidences for BeMaS by replicating the current study in other populations. Second, the psychometric assessment implemented in this study was mainly test-level assessment. It is recommended for future research to utilize the Item Response Theory approach, which can provide more information at item-level. Lastly, it is regrettable that the current study examined only relationships between BeMaS and negative affect. Future study is recommended to investigate how BeMaS correlates with another positive affect, such as motivation and self-enhancement, which can help to strengthen the theoretical background of envy research.

Conclusions

In a nutshell, this study serves as an initial step to boost research in envy. With regards to recent theorizing of envy, the BeMaS appears to be an appealing measure for envy. The results revealed BeMaS as a valid and reliable measure of benign and malicious envy. The simple design of the BeMaS should aid researchers and practitioners for quick assessment of envious feelings. Given that BeMaS is effective in distinguishing benign and malicious envy, future research is recommended to utilize the BeMaS to strengthen this line of research.

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Competing Interests

The authors have declared that no competing interests exist.



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About the authors

Jia Yuin Fam holds MSc (Developmental Psychology) from University Putra Malaysia (UPM). Currently, he is doing PhD (Developmental Psychology) at UPM. His research interests include psychometrics, well-being, and behavioral addictions.

Caroline Yu Li Yap is a teaching fellow at Sunway University Business School. She holds a Master in Education from University of Malaya. She has been teaching Accounting and Finance modules since 2009.

Sri Bala Murugan is a lecturer at Sunway University Business School. He teaches Business Law to students enrolled in business related programmes such as Accounting, Finance, Management and Marketing in their first year of undergraduate study. He writes on legal issues and has chapter contributions to various textbooks. He also conducts training workshops in commercial law for business professionals and corporate executives.

Tziyun Lee has done her undergraduate research on envy and tendency to gossip among college students. Her research interests include psychometrics, emotions, and youth studies.

Corresponding Author's Contact Address

Jia Yuin Fam*

Sunway University,

5, Jalan Universiti, Bandar Sunway,

47500 Selangor Darul Ehsan, Malaysia

Email: jjayuin@sunway.edu.my

