

## EXAMINING THE CULTURAL MARGINALISATION THEORY OF NEET/HIKIKOMORI RISK TENDENCIES IN SINGAPOREAN YOUTH

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It has been suggested that social withdrawal (NEET/Hikikomori behaviour) occurs as a result of an individual's difficulty to adapt to social norms and pressures within given cultures (marginalisation), and is present in collectivistic cultures with high social pressures and expectations. Since most of the NEET/Hikikomori studies have been conducted in Japan, we examine its applicability in Singapore with the NEET/Hikikomori Risk scale. We collected data from university students, and were able to confirm its convergent validity. To better understand its social and psychological context, we conducted an exploratory analysis to find associations with perceived deficits in social relationships, self-esteem and competence, as well as personality, anxiety, depression, and cultural self-construal. Consistent with previous findings in Japan, the evidence supports the risks of NEET/Hikikomori tendencies in Singapore as concurrent with cultural marginalisation, perceived social rejection and low views of self.

**Key words:** culture, *hikikomori*, Lasso regression, personality, Singapore, social withdrawal

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#### *NEET/Hikikomori Social Withdrawal in the Japanese Context*

According to Cabinet Office, Government of Japan (2012) definitions, 'NEET' (i.e., Not in Education, Employment, or Training) refers to someone who does not attend school, is single, is not employed at a regular job, and is not actively looking for employment. A *hikikomori* is defined as someone who does not leave their residential space (except for limited functions: e.g., convenience stores) for six months or more (excluding medical reasons). While these two terms have differing operational definitions, they share many similar psychological tendencies and behavioural expressions (e.g., not

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showing up to work or school as required) that are symptomatic of social withdrawal. By focusing on these psychological commonalities and treating them as part of a spectrum of social withdrawal, we are better able to analyse the mechanisms and processes of social marginalisation involved with NEET/*Hikikomori* tendencies and risk (Uchida & Norasakkunkit, 2015).

### *Theory of Cultural Marginalization*

One approach to understanding Japanese social withdrawal, is to see it as a culmination of clashes between macro-micro socio-economic factors and traditional culture, resulting in a loss of motivation towards work and social interaction. Norasakkunkit et al. (2012) suggested that the rigid, traditional, and hierarchical structure of Japanese society, while historically conducive in facilitating economic development through industrialisation, stifles the efficiency and innovation necessary to stay competitive in today's global market economy. As a result, traditional societal values clash with the post-industrial culture of innovation, thereby hindering economic restructuring and reducing jobs. Furthermore, in traditional Japanese society, characterised by interdependence and collectivism (Markus & Kitayama, 1991), one's success is also determined by how well one can integrate or embed into the social environment, through societal markers like permanent employment. In the context of the prolonged economic recession since the 1990s, such markers become increasingly difficult to achieve, but corresponding societal measures of success have not necessarily changed, pushing added pressures towards Japanese youths. Some, particularly those who face difficulty in achieving this socially-defined success (e.g., unable to find a job), end up perceived as being unable to contribute cohesively towards society, thus becoming marginalised and at risk of social withdrawal. Furthermore, such societal success standards can often be internalised as personal standards (particularly for East Asians, Asakawa & Csikszentmihalyi, 2000), and individuals may then ironically display less motivation towards conforming to interdependent social norms upon failures in achieving them (Norasakkunkit, 2016; Norasakkunkit & Uchida, 2011; Suwa & Suzuki, 2013). Indeed, past studies have highlighted a weak job market as a reason for reduced motivation in job-hunting, and inclination towards social withdrawal (Furlong, 2008).

In Japan, this reinforces the notion of *Hikikomori* behaviour as a result of cultural marginalisation, stemming from conflicting socio-cultural pressures that emerge from the rift between traditionalism (collectivism) and globalisation (Norasakkunkit et al., 2012; Furlong, 2008; Li & Wong, 2015; Liu et al., 2019). We believe that this process of marginalisation via social withdrawal is not limited to the Japanese cultural context. NEET/*Hikikomori* social withdrawal has also been observed in other collectivistic East Asian countries with similar traditional/collectivist-globalisation pressures (e.g., China and South Korea, Li & Wong, 2015), where youths face similar difficulties with entering the job market (Singapore: Mui, 2018; China, Hong Kong, and Taiwan: Mok, 2016). Consequently, in Singapore, there has been a growing interest in the NEET/*Hikikomori* phenomenon, and there is much to gain by studying the Japanese context.

### *NEET/Hikikomori Risk in the Singaporean Context*

While anecdotal accounts of *hikikomori* behaviour exist in Singapore, prior research on this kind of social withdrawal is rare (Chua & Chua, 2017). Nevertheless, there has been a growing interest in social withdrawal in both local news media outlets (Yuen, 2019; Mokhtar, 2019), online forums (e.g., Reddit: *Zanina\_wolf*, 2018), and academic research (Bowker et al., 2019; Wong et al., 2019). Bowker and colleagues (2019) found that past occurrences of *hikikomori* behaviour (withdrawal of six months or more) were significantly higher in Singaporean university students than American university students. Furthermore, Singaporean male students with a history of *hikikomori* behaviour also reported higher levels of social anhedonia. Arguably, this mirrors the findings that high scorers on the NEET/*Hikikomori* Risk (NHR) scale in Japan also have reduced interpersonal orientation and social motivation (Norasakkunkit & Uchida, 2011; Ishii & Uchida, 2016). While not equivalent, this provides initial evidence that the social withdrawal in Singapore may be similar to the type prevalent in Japan.

On economic policies, Singapore is known for its open market economy, and wide acceptance of globalisation and associated Western values, but like Japan at the end of the 20th Century, the Singaporean economy has seen a slowdown in recent years. Culturally, it is a society that is rooted in East-Asian collectivism and interdependence, with shared tendencies across local ethnicities. One notable example would be the widespread existence of the culture-specific *Kiasu* trait, a colloquial Singaporean (*Singlish*) term describing a set of values that encompasses social comparisons, and a fear of falling behind (Bedford & Chua, 2018). This stems from interdependent Confucianist values of face and morality, that motivate one to pursue success for the sake of others (Bedford & Hwang, 2003), and is considered a widely adopted social norm regardless of racial/ethnic background (Cheng & Hong, 2017). That means that even non-Chinese Singaporeans of Malay, Indian, or any other ethnicity may share these originally Confucianist values. Evidently, Singaporean university students reported higher levels of depressive symptoms and anxiety relative to Nigerian and American university students (Bowker et al., 2019), which could be an outcome of this pressure to perform to societal expectations. Given the current weakening job market and economic slowdown, we suggest that some individuals who inevitably fail in culturally-imposed expectations of success (academic grades/finding a good job) may develop withdrawal tendencies, in a manner consistent with the cultural marginalisation theory (see Norasakkunkit et al., 2012).

However, unlike the Japanese context, the Singaporean social context makes it difficult for behavioural social withdrawal (actual *Hikikomori* behaviour), due to governmental monitoring of compulsory education and mandatory military service for young male adults, that function as preventive mechanisms (Wong et al., 2019). Consequently, unlike Japan where cultural marginalisation is reflected in the prevalence of behavioural social withdrawal (NEET/*Hikikomori* behaviour), in Singapore, cultural marginalisation is likely indicated by the psychological dimensions of social withdrawal (one's risk tendencies towards NEET/*Hikikomori* behaviour). The presence of societal mechanisms and government policies to curb the expression of behavioural social withdrawal

does not necessarily mitigate the underlying psychological factors (NEET/*Hikikomori* risk) stemming from cultural marginalisation. Furthermore, if social withdrawal is indeed an adaptive measure for these individuals to avoid further psychopathological issues or self-harm (Sugai, 2016), the denial of the physical space to withdraw in Singapore may exacerbate the development of psychopathological disorders amongst these individuals.

Consequently, we are interested to find out how NEET/*Hikikomori* risk, rather than behaviour, is construed in Singapore. Our study thus comprises two parts. The first part aims to examine if underlying the risk of social withdrawal tendencies in Singapore are similar to that of Japan. If Japanese-type social withdrawal tendencies are indeed prevalent in Singapore, they should share similar psychological factors. The second part aims to explore other psychological constructs that are associated with Singaporean social withdrawal tendencies in related domains of cultural self-construal, personality, psychopathology (depression and anxiety), and relational/subjective well-being. This would help to establish a foundation on the nature of social withdrawal in Singapore for future studies to build off.

#### *Social Withdrawal Tendencies (NEET/Hikikomori Risk)*

To quantify the underlying psychological factors of social withdrawal, Uchida and Norasakkunkit (2015) developed the NHR scale as a measure of the deviant psychological tendencies by Japanese NEETs and *hikikomoris* with regard to mainstream cultural attitudes, values and behaviours. As such, it also provides a measurement of the individual risk tendencies towards social withdrawal, particularly among youth who may still be in some form of formal employment or educational institution,<sup>1</sup> across three main domains: a preference for non-traditional freelance and part-time work over traditional regular employment; a fear of facing challenges, possibly due to low confidence in social skills or work-related skills; and a lack of a clear or realistic goal in one's life, that is due in part to uncertain economic prospects. These were determined based on research concerning behavioural tendencies and psychopathological symptoms of NEETs and *hikikomoris* in Japan.

#### *The Present Research*

Our primary aim was to establish the validity of the culture marginalisation theory in explaining NEET/*Hikikomori* risk in the Singaporean context. If valid, we expect consistencies in associated tendencies with those previously identified in the Japanese context. We examine the convergent validity of the NHR scale in Singapore, through confirmatory data analyses to replicate Japanese findings of predictors of social withdrawal. We hypothesised that social withdrawal tendencies, measured through the NHR scale, would have an inverse relationship with subjective well-being (Uchida & Norasakkunkit, 2015), self-esteem (Yong & Kaneko, 2016), and interdependent self-construal (Norasakkunkit & Uchida, 2011; Ishii & Uchida, 2016).<sup>2</sup> These hypotheses

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<sup>1</sup> This is opposed to other social withdrawal questionnaires (e.g., Hikikomori Questionnaire, Teo et al., 2018), that were designed as diagnostic tools for clinical purposes.

were preregistered, and our analyses largely follows our preregistered analysis plan (<https://osf.io/cw6jy/>). All modifications and changes are detailed in our Supplementary Material S-1.

Our secondary aim was to elucidate the psychological make-up of social withdrawal tendencies in Singapore by exploring their associations with psychological constructs. Based on the above review of past literature, we included several questionnaires to quantify a range of tendencies, such as participants' relational well-being, holistic/analytical cognition, personality, and psychopathology, particularly on depression and anxiety. While not the focus of this paper, we provide a full rationale for the examination of these tendencies in our Supplementary Material S-2. Adopting such a data-driven exploratory approach prioritises discovery of new patterns of effects (Jebb et al., 2017), and may thus be more effective than confirmatory approaches in understanding the associated psychological tendencies and their linkages.

## METHOD

### *Procedure*

127 Participants (Mean age = 21.3,  $SD = 1.8$ , Males = 33; Ethnicity: Chinese = 85.8%, Malays = 6.3%, Indian = 3.1%, Others [Burmese, Eurasian, Filipino] = 4.7%; Nationality: Singaporean/ Permanent Residents = 122, Others = 5) were undergraduates recruited from the National University of Singapore for course credit. The usage of undergraduate samples was deliberate, as NHR has been linked to youth anomie and student apathy due to impending pressures of job-hunting upon graduation (Norasakkunkit & Uchida, 2011). Participants were tasked to complete an online questionnaire which included measurements for social withdrawal tendencies (NHR) and the abovementioned psychological constructs.<sup>3</sup> The survey was administered in English, which is the language of instruction at the university, and all but 7 participants indicated English as a first language. All participants gave informed consent prior to participating in the study, and this study received approval from the National University of Singapore's Department of Ethics Review.

### *Materials*

To measure social withdrawal tendencies as the outcome variable, we used the three-factor NHR scale (factors: *Freeter* Lifestyle Preference; Lack of Self Competence; Unclear Ambition for the Future, Uchida & Norasakkunkit, 2015) consisting 27 items on a 7-point Likert scale. To quantify the related psychological constructs of interest for the exploratory analysis, the following scales (or subscales) were used as predictors: for well-being, we measured subjective well-being through the Satisfaction With Life Scale (SWLS; Diener et al., 1985); self-esteem through the Rosenberg Self-Esteem Scale (SE; Rosenberg, 1965); emotional well-being through emotion regulation via the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), which had two subscales for cognitive reappraisal and expressive suppression; and relational, autonomy, and competence well-being from the Self-Determination Theory framework (Ryan & Deci, 2000) through the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015). The BPNSFS quantifies both need satisfaction and need frustration of these three basic psychological motivations (autonomy need satisfaction; autonomy need frustration; relatedness need satisfaction; relatedness need frustration; competence need satisfaction; competence need frustration). Personality was measured through the 10-item Big Five Inventory (BFI-10; Rammstedt & John, 2007) for each of the five personality traits of extraversion, agreeableness, openness, conscientiousness, and neuroticism. Psychopathological constructs

<sup>2</sup> In particular, we expect interdependent self-construal to replicate results by Ishii and Uchida (2016), in that the *Freeter* Lifestyle Preference factor should be significantly related to interdependence.

<sup>3</sup> Participants also completed measures of music preference and habits for a separate study.

for depression, stress and anxiety were measured through the Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995). Independent-interdependent self-construal was measured through the respective subscales of the Self-Construal Scale (SCS; Singelis, 1994), and analysis-holism thinking styles through the four subscales of the Analysis-Holism Scale (AHS; causality, attitude towards contradictions, perception of change, locus of attention; Choi et al., 2007).

#### *Data Handling and Analysis*

Confirmatory data analyses were conducted through separate linear regressions for each of the three preregistered predicting variables (SWLS, self-esteem, interdependent self-construal) to test convergent validity (with known Japanese findings). Subsequently, exploratory data analyses were conducted to identify (select) closely related psychological tendencies to help contextualise the results of the confirmatory analysis for more holistic interpretation. Due to the large number ( $P = 26$ ) of predictors in our study (including controls for age and gender), we utilised commonly-used machine learning techniques (validation-set approach and Lasso regression, see Supplementary Material S-3), to identify important predictors. These approaches hold several advantages, such as addressing the overfitting problems that are typical of high dimensional data analysis, and have even been used in fields outside of the social sciences where the number of predicting variables may outnumber the number of data points ( $N$ ). Furthermore, it reduces the problems associated with multicollinearity across predictor variables, and allows for a conservative identification of stronger, most robust effects from the data.

For our analyses, Lasso regressions and cross-validations (see Supplementary Material S-3 for an introduction) were conducted in the R programming environment (R Core Team, 2017) using the *glmnet* package (Friedman et al., 2010). We followed procedures and codes<sup>4</sup> adapted from James and colleagues (2017). Our dataset was first standardised and centred, before being randomly split into a training set and a validation set. We first developed a Lasso regression model on the training set. To obtain the optimal  $\lambda$  value for the penalty function, 1000  $\lambda$  values between  $-2$  and  $10$  were randomly generated, and subject to 10-fold cross validation to determine the  $\lambda$  function that corresponded to the lowest error (mean squared error of prediction [MSEP]). Following which, we fit a Lasso regression with the optimal penalty function, and proceeded to assess the fit of the model (through MSEP) on the validation set. For the confirmatory analyses, linear regression models were run in Jamovi (jamovi project, 2018), and power was calculated using the 'pwr' package (Champely et al., 2017) in R. Reliability analyses were also run in Jamovi.

## RESULTS

#### *Descriptive Statistics*

Gender did not significantly predict NHR scores,  $t(125) = 1.36, p = .175$ , similar to Japanese data from Uchida and Norasakkunkit (2015). Overall, the NHR scale had high reliability (Cronbach's  $\alpha = .83$ ), as well as each of the factors (*Freeter* Lifestyle Preference, Cronbach's  $\alpha = .73$ ; Lack of Self Competence, Cronbach's  $\alpha = .78$ , Unclear Ambition, Cronbach's  $\alpha = .71$ ), suggesting that the internal consistency of the scale was valid for our Singapore sample. Descriptive information (means, *SDs*, Cronbach's alphas) for each questionnaire (predicting variables) are available in Table 1.

#### *Confirmatory Analyses*

Separate linear regressions for subjective well-being (SWLS), and self-esteem, and interdependence revealed a significant inverse relationship between NHR and SWLS ( $b = -0.72, SE = 0.27, 95\% \text{ Confidence Interval [CI]: } [-1.25, -0.19], t = -2.7, p = .008, R^2 = .17$ ), as well as Self-Esteem ( $b = -1.82, SE = 0.29, 95\% \text{ CI } [-2.38, -1.25], t = -6.4, p$

<sup>4</sup> The analysis scripts are available in our Supplementary Material S-4.

Table 1. Descriptive Information for Predictor Variables

Scale	Questionnaire (Predictor)	Range	Mean	SD	Skewness	Kurtosis	Reliability (Cronbach's alpha)
SWLS	SWLS	6-35	23.3	5.99	-0.442	-0.181	.876
BPNSFS	Autonomy Satisfaction	4-20	14.6	2.74	-0.408	0.652	.782
BPNSFS	Autonomy Frustration	4-20	11.5	2.99	0.426	-0.186	.747
BPNSFS	Relatedness Satisfaction	4-20	15.8	2.57	-0.547	0.628	.808
BPNSFS	Relatedness Frustration	4-20	8.84	3.21	0.704	0.851	.796
BPNSFS	Competence Satisfaction	4-20	13.7	3.31	-0.693	0.893	.915
BPNSFS	Competence Frustration	4-20	11.8	3.67	0.141	-0.585	.833
ERQ	Cognitive Reappraisal	6-36	23.3	8.81	-0.373	-0.991	.825
ERQ	Expressive Suppression	4-24	13.2	4.9	0.094	-1	.536
SE	Self Esteem	12-38	26.8	4.78	-0.235	0.627	.863
DASS	Stress	0-42	12.5	8.68	0.764	0.772	.848
DASS	Anxiety	0-42	10.4	8.53	1.24	1.65	.827
DASS	Depression	0-42	11.3	9.93	0.975	0.254	.914
BFI-10	Extraversion	2-10	5.43	2.02	0.497	-0.45	.495*
BFI-10	Agreeableness	2-10	6.69	1.42	-0.188	0.57	-.0267*
BFI-10	Conscientiousness	2-10	6.19	1.52	0.183	-0.134	.228*
BFI-10	Neuroticism	2-10	6.36	1.96	-0.0719	-0.542	.434*
BFI-10	Openness	2-10	6.77	1.65	-0.0992	-0.318	.0414*
SCS	Independence	15-105	69.8	12	-0.297	3.43	.857
SCS	Interdependence	15-105	73.7	10.9	-0.86	6.43	.860

Correlation coefficient  
Correlation coefficient  
Correlation coefficient  
Correlation coefficient  
Correlation coefficient

AHS	Causality	1-7	5.02	0.869	-0.568	2.69	.783
AHS	Attitude Toward Contradictions	1-7	4.88	0.797	-0.448	-0.967	.606
AHS	Perception of Change	1-7	4.66	0.869	-0.4	0.378	.735
AHS	Locus of Attention	1-7	4.87	1.04	-0.477	0.877	.855
AHS	Composite Holistic Orientation	1-7	4.86	0.561	-0.604	1.73	.798

*Note.* SWLS = Satisfaction With Life Scale, 7-point Likert scale; BPNSFS = Basic Psychological Need Satisfaction and Frustration Scale, 5-point Likert scale; ERQ = Emotion Regulation Questionnaire, 7-point Likert scale; SE = Rosenberg Self Esteem Scale, 4-point Likert scale; DASS = Depression Anxiety Stress Scales, 4-point Likert scale; BFI-10 = Big Five Inventory 10, 5-item Likert scale; SCS = Self-Constructual Scale, 7-item Likert scale; AHS = Analysis-Holism Scale, 7-item Likert scale.

\* Correlation coefficient reported as scale consisted of only 2 items.



$< .001$ ,  $R^2 = .35$ ). *Post-hoc* power analyses revealed observed power = 0.74 ( $f^2 = 0.054$ ) for SWLS and observed power = 0.99 ( $f^2 = 0.33$ ) for Self-Esteem. These results suggest a medium power to detect a small effect size of the inverse relationship between subjective well-being and NHR, and a high power to detect a medium effect size on the relationship between self-esteem and NHR. Finally, the relationship between interdependence and NHR was not significant ( $b = 0.09$ ,  $SE = 0.16$ , 95% CI  $[-0.22, 0.40]$ ,  $t = 0.59$ ,  $p = .56$ ,  $R^2 = .012$ ). However, when the same analysis was conducted with the *Freeter* Lifestyle Preference factor as the dependent variable (as was the case with Ishii & Uchida, 2016), we found a negative relationship with interdependence ( $b = -0.12$ ,  $SE = 0.06$ , 95% CI  $[-0.24, -0.001]$ ,  $t = -2.0$ ,  $p = .047$ ,  $R^2 = .12$ ),<sup>5</sup> and observed power analyses revealed a low power = 0.57 ( $f^2 = 0.036$ ) to detect a small effect. Gender and age were controlled for in all of the above analyses. In sum, these results largely support our preregistered hypotheses on the convergent validity of the NHR scale in our Singaporean sample, and replicates past research.

#### *Exploratory Analyses of NHR and Related Factors by Lasso Regression*

For overall social withdrawal tendencies, measured through the NHR scale, a 10-fold cross-validation revealed the optimal penalty function  $\lambda = 0.24$ , MSE<sub>P</sub> = 0.78 (after standardisation). The Lasso regression identified the following predicting variables (reported with the respective penalised estimates): relatedness need frustration (0.17), competence need frustration (0.003), self-esteem (−0.18), and depression (0.04).

For the *Freeter* Lifestyle Preference factor of the NHR scale, a 10-fold cross-validation revealed the optimal penalty function  $\lambda = 0.15$ , MSE<sub>P</sub> = 0.93. The Lasso regression identified the following predicting variables (reported with the respective penalised estimates): relatedness need satisfaction (−1.2), locus of attention (holistic; 0.06), interdependent self-construal (−0.01), and anxiety (0.07).

For the Lack of Self-Competence factor of the NHR scale, a 10-fold cross-validation revealed the optimal penalty function  $\lambda = 0.93$ , MSE<sub>P</sub> = 0.83. The Lasso regression identified the following predicting variables (reported with the respective penalised estimates): relatedness need satisfaction (−0.19), relatedness need frustration (0.89), expressive suppression (0.14), self-esteem (−0.67), extraversion (−0.65), and depression (0.08).

Finally, for the Unclear Ambition for the Future factor of the NHR scale, a 10-fold cross-validation revealed the optimal penalty function  $\lambda = 0.05$ , MSE<sub>P</sub> = 0.98. The Lasso regression identified the following predicting variables (reported with the respective penalised estimates): competence need frustration (0.05), self-esteem (−0.15), conscientiousness (−0.13), and interdependent self-construal (0.11).

We note that because of our conservative analysis method (Lasso regression), only strong effects were identified from the data. As such, we included a correlation matrix (Supplementary Material S-5), that may highlight other relationships within the data, but

<sup>5</sup> Ishii and Uchida (2016) examined correlations between *Freeter* Lifestyle Preference and Interdependent orientation ( $r = -.25$ ,  $p < .01$ ) in Japanese NEETs. Using Pearson's correlation, we found a comparable correlation ( $r = -.19$ ,  $p = .032$ ) in our Singaporean undergraduate sample.

exclude them from the discussion as it has a stronger possibility of identifying false positive effects.

## DISCUSSION

### *Validity of the NHR Scale in Singapore*

Following our confirmatory hypotheses, self-esteem was negatively associated with NEET/*Hikikomori* risk. Likewise, the inverse relationship between NHR and subjective well-being (Uchida & Norasakkunkit, 2015) was also replicated in our sample. These results suggest that some of the known predictors of NHR in Japan also significantly predict NHR in Singapore, and that the NHR scale is indeed associated with the known negative psychological outcomes of NEET/*Hikikomori* social withdrawal. For an exploratory understanding of the nuances in the Singaporean context, the Lasso regression identified strongly related psychological constructs for each of the 3 factors of the NHR scale. Considering the limitations of our dataset, this data-driven approach offers a quick but sufficiently robust method to understanding the different aspects of NEET/*Hikikomori* risk in Singapore in order to compare it to known findings in Japan for this paper. As such, our discussion here focuses on the potential implications of these findings, but more in-depth research will be required to establish the generalisability and causality of these relationships. Across the 3 factors, self-esteem, relatedness need (dis)satisfaction and frustration, competence (dis)satisfaction and frustration, independent and interdependent self-construal, and depression were repeatedly identified. These are consistent with core aspects of NEET/*Hikikomori*-type social withdrawal tendencies, such as the internalised low view of self, conflicting cultural pressures, poor perceived social relationship qualities, and depression tendencies. Interestingly, we noticed that personality variables were associated with different aspects of NHR. Here, the Lack of Self-Competence factor was negatively associated with extraversion (introversion), and the Unclear Ambition factor was negatively associated with conscientiousness. Introversion and low conscientiousness are also associated with poor intergenerational (parental) relationships (Belsky et al., 2003), and this is consistent with known triggers of social withdrawal (discussed below). This is perhaps consistent with past literature on low conscientiousness being associated with antisocial and deviant behaviour (Ozer & Benet-Martínez, 2006), which are also behaviours also related to youth marginalisation that potentially manifest as social withdrawal (Varnum & Kwon, 2016). However, we are hesitant to speculate on any causal effects, and it is also unclear if these effects are unique to our Singaporean sample or are generalisable to NEET/*Hikikomori* risk elsewhere.

Our exploratory analyses reveal results that are largely consistent with past research. Despite measuring different attitudes, the 3 factors consistently highlight tendencies that relate to cultural marginalisation, perceived social rejection and low views of self. The different patterns of associated tendencies suggest that the factors account for different aspects of NEET/*Hikikomori* risk.

### *Understanding NHR in a Singaporean Context*

Our results suggest the presence of *Hikikomori*-type social withdrawal tendencies in Singaporean university students. Here, a wider examination of the external circumstances of the Singaporean experience may help to contextualise the result. Firstly, we note that the conflict between individualistic-collectivistic socio-cultural conditions that have been attributed to lead to cultural marginalisation and social withdrawal in Japan are also present in Singapore. Singaporean students in particular, face high levels of stress in the education system due to a systematic emphasis on meritocracy (Tan & Dimmock, 2015). On one hand, this policy allows for social mobility through individually rewarding academically successful students with scholarships and fast-tracked careers, regardless of ethnic or social background. But on the other hand, this prioritisation of individualistic academic achievement, is coupled with collectivistic *kiasu* cultural norms of face and reputation, resulting in a high-pressure environment that is ripe for cultural marginalisation. While institutional rewards are individualistic, successes and failures are internalised in relation to close relationships (e.g., family) because of collectivistic norms (i.e., an academic failure may be perceived as social rejection from family due to self-evaluations of not meeting parental expectations). Accordingly, we observed that the overall NHR scale was associated with self-esteem, relatedness and competence frustration, and positively related to depressive symptoms. This also bears resemblance to the Japanese situation described earlier.

While our research does not examine causal effects, we speculate a possible explanation in that individuals with high NHR in Singapore may have insufficient adaptive mechanisms to dismiss threats to self-esteem that are based on perceived social rejection. Especially in interdependent Confucianism-related societies, where relationship harmony is an important component of self-esteem (Kwan et al., 1997) alongside tight social norms (Gelfand et al., 2006). Past research on social withdrawal in Japan has also highlighted instances of emotionally distant families and/or school bullying (Suwa et al., 2003), and these share similar underlying themes of perceived social rejection, possibly leading to mild-to-moderate depression (Uchida & Norasakkunkit, 2015) following the internalisation of such triggers. Indeed, relatedness need frustration is facilitated through perceived social rejection, and has previously been linked to depression (Chen et al., 2015). Such an interpretation appears to account for our exploratory results, and are also rooted with social withdrawal in Japan. Considering that our exploratory approach was designed for theory generation, and more research is needed to establish the causal nature of these relationships.

In reference to past literature, one area of contention, is the nature of the relationship between interdependent self-construal and social withdrawal tendencies. While interdependence was negatively associated with the *Freeter* Lifestyle Preference factor, it was positively associated with the Unclear Ambition factor. Ishii and Uchida (2016) argue that the original (former) finding demonstrated a deviation from interdependent cultural norms amongst individuals with a preference for *Freeter* lifestyles. At the same time, the interdependence in the Unclear Ambition factor could also be explained by one's internalisation of societal values and markers. Internalisation of social indicators of

success are more common in interdependent East Asian youth (Asakawa & Csikszentmihalyi, 2000), so a possibility could be that the higher the interdependence, the higher the individual need for achieving societal success. Yet, if these needs cannot be satisfied, the individual could be at greater risk of developing NEET/*Hikikomori* tendencies, particularly in the form of having unclear future ambitions.

In comparing Singaporean and Japanese cultures, we note that while similar in many areas, both countries display markedly different cultural orientations for Hofstede's Masculinity and Uncertainty Avoidance dimensions (Hofstede et al., 2010). Masculinity indicates competitiveness as societal motivation, and Uncertainty Avoidance indicates the extent to which individuals eschew risky behaviour. We note that Japan scores higher than Singapore on both dimensions. One possibility is that these dimensions quantify individual sentiment, but not collective or institutional attitudes. For example, Japan frequently faces many natural disasters that instil tight cultural norms and implicit rules in most individuals that contribute towards Uncertainty Avoidance. By contrast, the precariousness of Singapore's position is more salient among policymakers, who then implement strong explicit rules (laws) and policies to avoid potential threats. Consequently, Singaporean individuals may feel less need for Uncertainty Avoidance as top-down policies may have been successful in averting threats. Similarly, Japanese individuals may be more intrinsically motivated by competition (high Masculinity) than Singaporean individuals, but this does not reflect the societal pressures or views on success or failure, that are imposed by the collective on the individual (as an aggravating factor of NHR, explained above). As such, we argue that these cultural differences are less relevant towards the develop of NHR tendencies in individuals, but more research is needed to clarify this point.

Nevertheless, we can conclude that NEET/*Hikikomori* risk, stemming from cultural marginalisation in an interdependent, collectivistic culture with a globalised economy, are present in our sample of Singaporean university students and mirrors the Japanese *Hikikomori* psychological experience in many aspects.

#### *Limitations and Future Directions*

As much of our discussion was based on our exploratory findings, future research can focus on validating and extending the proposed mechanisms here for a better understanding of NEET/*Hikikomori* risk in collectivistic cultures. Exploratory data analysis is useful in designing models but their reliability should be confirmed with larger samples (Sakaluk, 2016). While we have utilised machine learning techniques to improve the reliability of our findings, future research should nevertheless confirm the applicability and generalisability of these findings to better understand the causal mechanisms and models involved in the phenomenon of social withdrawal. Furthermore, NEET/*Hikikomori* behaviour has been rising globally despite its cultural linkages, with recent research discovering social withdrawal in cultures that are not collectivistic or interdependent. Accordingly, that may imply different risk factors and tendencies. For example, a lack of autonomy was identified as a commonality of Finnish *Hikikomoris* (Husu & Välimäki, 2017), and is instead suggestive of a deviation from independent self-

construals in individualistic cultures. As such, while we believe that our results support the cultural marginalisation theory in Singapore, more varied, cross-cultural research would be beneficial towards increasing our understanding of the phenomenon globally across cultures.

One limitation of our study is the small sample size, so future research can replicate and extend the study with larger samples to confirm these findings. Furthermore, our study focused on social withdrawal as a psychological tendency, and not as a behavioural expression. More research in Singapore is needed to see if the psychological aspects of social withdrawal, which are similar to Japan, leads to behavioural social withdrawal following the Japanese model. As mentioned earlier, we are concerned that if the affordances to withdraw behaviourally are not present in the Singapore context, this may exacerbate the development of psychopathological tendencies in high NHR individuals, without the mitigating effect of behavioural social withdrawal. Here we lacked the resources to test this relationship, so this crucial question remains unanswered. Nevertheless, our paper identifies the existence of NHR tendencies in Singapore, and may provide an important start-point towards assessing the prevalence and spread of *Hikikomori* behaviour on a larger scale.

#### AUTHOR'S CONTRIBUTION

K.L. and Y.U. conceptualised the study. C.D. and L.L. conducted the study, and K.L. conducted the analyses. All authors contributed to the manuscript. Y.U. supervised the project.

#### CONFLICTS OF INTEREST

We do not have any conflicts of interest to disclose.

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