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Analyzing the relationship between belief in God and life satisfaction in Asian countries using multilevel modeling

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Abstract

In the era of increasingly rapid globalization, the relationship between divinity and life satisfaction has become an interesting topic. This relationship is not only related to spiritual and ethical aspects but also has significant implications for the welfare of society. This research examines the relationship between life satisfaction and sociodemographic variables on belief in God in Asian countries according to the World Values Survey (WVS) wave 7 using multilevel modeling. The data used is secondary data from the WVS wave 7 where the population is the entire population in the Asian region and the sample is 34,501 individuals from 22 countries who meet the criteria. Data analysis uses multilevel model since the data is structured hierarchically. The results of this study showed that the random intercept model was the best model with five significant predictor variables. As they get older, women who believe in God have a higher family income and a secondary education, they have higher life satisfaction.

Keywords: Belief in God; Sociodemographic; Life Satisfaction; World Values Survey

1. Introduction

Belief in God is often associated with religious people. According to data from the World Values Survey (WVS) wave 7 for 2017-2021, 75.94% of respondents believed in God and 29.97% were on the Asian continent [1]. Countries in Asia are home to various religions including Islam, Hinduism, Buddhism, Christianity, and other religions. Each religion has different teachings and beliefs that can influence the way individuals experience life satisfaction and level of belief in God. In many Asian countries, religion plays a very important role in everyday life. This can be reflected in religious practices, rituals, and cultural traditions that can strengthen belief in God and provide moral and spiritual structure for individuals.

Belief in God has become an important part of human life. Individuals' religious beliefs can play a role in shaping their perceptions of life, values, and life goals. Apart from that, belief in God is also related to well-being [2]. Well-being can be seen from various aspects of human life, one of which is life satisfaction. In the era of increasingly rapid globalization, the relationship between belief in God and life satisfaction has become a topic of interest. This relationship is not only related to spiritual and ethical aspects but also has significant implications for social welfare.

Individuals with intrinsic religiosity believe that religion is the main motivation in their lives. There is a statistically significant and positive correlation between life satisfaction scores and religious beliefs based on intrinsic orientation [3], [4]. Spirituality and religion, especially attitudes toward God, correlate with life satisfaction. Stronger faith-based prayer beliefs were associated with greater life satisfaction over time [5], [6].

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One research on the relationship between belief in God and life satisfaction in 77 countries including the World Values Survey (WVS) and The European Values Survey (EVS) samples used a multilevel analysis method. The result was that people who believe in God tend to be more satisfied with life than people who do not believe in God [7]. Analysis of data from 43 European and Anglo-Saxon countries obtained from WVS and using Hierarchical Linear Modeling (HLM) showed that personal religiosity only appears to be associated with higher levels of life satisfaction in societies where the average religiosity is also higher [8]. The results of research using data from 27 European countries and Hierarchical Linear Modeling (HLM) analysis found that age, family income, and religiosity significantly influence life satisfaction [9].

In a sample of 1,077 adolescents from France, Germany, Poland, and the United States, the study found that across all cultures, religiosity had a positive impact on higher life satisfaction. This association is stronger in the cultures with a high level of overall religiosity, namely Poland and the United States, compared to one of the two cultures with the lowest level of importance of religion, namely Germany [10]. Religion and other cultural identities may interact to impact well-being, and religious anxiety may be associated with lower well-being in some instances [11].

The level of life satisfaction can also be influenced by sociodemographic factors, such as age, gender, income, and education [12]. Research in 14 European countries used a multilevel model because the data had a hierarchical data structure. The results of this study showed that gender and income level are positively correlated with life satisfaction. Age is negatively correlated with life satisfaction. Education level is negatively correlated with life satisfaction. Gross Domestic Product has almost no effect or a small effect on life satisfaction [13]. Research in New Zealand using the generalized linear mixed model method showed that age and gender influenced life satisfaction [14].

Analysis of sequential logistic regression model data with three-level mixed effects (country/region/individual) in 27 European countries showed a statistically significant influence of sociodemographic factors such as gender, financial situation, and employment on life satisfaction [15]. Values and measures of religious beliefs and spirituality are significant and positive predictors of life satisfaction based on data analysis with Hierarchical Linear Modeling (HLM) in 57 countries included in the WVS sample. This study also reported that age, gender, and education also had a significant effect on life satisfaction [16].

Linear mixed modeling analysis in the 88 countries sampled by the WVS was used in predicting individual-level outcomes based on a combination of individual- and group-level effects. The results of this study showed that life satisfaction is higher among women, among younger individuals, and among those with relatively higher household incomes. Greater life satisfaction is also associated with more frequent attendance at religious events, identification as a religious person, and higher Gross Domestic Product [17].

Based on previous research, this research examines the relationship between belief in God and sociodemographic variables on life satisfaction in Asian countries according to the World Values Survey (WVS) wave 7 using multilevel modeling. The WVS data has a hierarchical structure, where level 1 units are individuals and level 2 units are countries, hence the data is analyzed using multilevel modeling. The response variable is life satisfaction. The predictor variables at level 1 are belief in God, age, gender, income level, and education level. Meanwhile, the predictor variables at level 2 are Gross Domestic Product and the percentage of belief in God for each country.

2. Material and methods

2.1. Data

The data at level 1 (individual) used in this research is secondary data taken from World Values Survey (WVS) wave 7. WVS wave 7 started in mid-2017, the majority of the survey was completed in 2018-2020, and only about a dozen countries conducted field research since the pandemic outbreak in 2021-2022 [1]. Meanwhile, data at level 2 (country) which includes Gross Domestic Product from websites [18] and the percentage of belief in God is calculated from the number of people who believe in God in that country divided by the number of people in the WVS sample in that country multiplied by 100%.

The population of this study is the entire population in the Asian region. The sample for this research is the population selected in the WVS sample in Asian countries. There were 34,051 respondents in 22 Asian countries in the WVS wave 7 sample who met the criteria to be sampled in this study.

2.2. Measure

The variables used in this research include a response variable and predictor variables. The response variable in this study is life satisfaction. Level 1 predictor variables (individual level) include belief in God, age, gender, family income, and highest level of education. Level 2 predictor variables (country level) include Gross Domestic Product and the percentage of belief in God for each country. The description of the research variables is displayed in Table 1.

Table 1 Variables Description

Variables		**Category**	**Scale**
Y	Life Satisfaction	1 – 10	Interval
Level 1			
X_1	Belief in God	No Yes	Nominal
X_2	Age	-	Ratio
X_3	Gender	Male Female	Nominal
X_4	Family Income	Low Middle High	Ordinal
X_5	Education	Low Middle High	Ordinal
Level 2			
Z_1	Gross Domestic Product	-	Ratio
Z_2	Percentage of Belief in God	-	Ratio

Life satisfaction explains how much life satisfaction is felt by responses on a scale of 1 (very dissatisfied) to 10 (very satisfied). Belief in God explains how much the respondent believes in God, with 0: no and 1: yes. Age describes the respondent's age in years. Gender describes the gender of the respondent, with 1: male and 2: female. Family income level explains the level of the respondent's income, with 1: low, 2: middle, and 3: high. Education level describes the respondent's highest level of education, with 1: low, 2: middle, and 3: high. Gross Domestic Product explains the Gross Domestic Product of each country in USD. The percentage of belief in God explains how many percent a country believes in God, calculated by the number of respondents who believe in God in that country divided by the number of respondents in that country multiplied by 100%.

2.3. Multilevel Analysis

The multilevel regression model is a statistical model that is useful in explaining the relationship between predictor variables and a response variable in a regression model using each data set in a group. The data in multilevel regression analysis is hierarchical data or multilevel data. Data consists of observation items that are nested or grouped into higher-level items.

The null model without predictor is the simplest, this model is used to ascertain whether the response variable varies between groups. The null model equation is as follows [19]:

$$Y_{ij} = \beta_{0j} + \varepsilon_{ij}, \varepsilon_{ij} \sim N(0, \sigma^2) \text{ individual level}$$
$$\beta_{0j} = \gamma_{00} + U_{0j}, U_{0j} \sim N(0, \tau_{00}) \text{ country level} \quad (1)$$

where Y_{ij} is the response variable for ith individual in jth country and ε_{ij} is the random effect for the individual, β_{oj} is intercept at level 1, γ_{00} is intercept at level 2, and U_{0j} is the random effect for jth country.

The random intercept model is a model where the intercept is modeled as a random effect by assuming the influence of the predictor variable on the response variable is the same for each country. The random intercept model equation is as follows [20]:

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + \varepsilon_{ij}, \varepsilon_{ij} \sim N(0, \sigma^2) \text{ individual level}$$
$$\beta_{0j} = \gamma_{00} + U_{0j}, U_{0j} \sim N(0, \tau_{00}) \text{ country level} \quad (2)$$

where X_{ij} is predictor level 1.

The random slope model is a model where the slope corresponding to predictor variable is modeled as a random effect by assuming that each country has a different slope. The random slope model equation is as follows [20]:

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + \varepsilon_{ij}, \varepsilon_{ij} \sim N(0, \sigma^2) \text{ individual level}$$
$$\beta_{0j} = \gamma_{00} + U_{0j}, U_{0j} \sim N(0, \tau_{00}) \text{ country level} \quad (3)$$
$$\beta_{1j} = \gamma_{10} + U_{1j}, U_{1j} \sim N(0, \tau_{11})$$

where β_{1j} is the regression coefficient in jth country and U_{1j} is the random effect slope for jth country.

Whether a multilevel model is used or not can be determined by the value of the intraclass correlation coefficient (ICC). The ICC is the proportion of variation in response variable values that occurs between levels 2 and the expected correlation between the response variable values of two units at the same level 1 and level 2 [21].

$$ICC = \tau_{00}/(\tau_{00} + \sigma^2) \quad (4)$$

where τ_{00} is the variance at level 2, σ^2 is the variance at level 1. The ICC value of more than 5% (0.05) indicates that the variation between groups is greater than expected. The higher the ICC value, the stronger the correlation between individuals, so an ordinary regression analysis cannot be carried out because it violates the assumption of independence, and multilevel analysis is required [22].

Design Effect (DE) is a correction factor to adjust the sample size required for cluster sampling. The DE value for prevalence estimation in cross-sectional studies depends on the number of subjects per cluster (n_c) and ICC, DE can be formulated as follows [21]:

$$DE = 1 + (n_c - 1)ICC \quad (5)$$

Value DE of more than 2 indicates that there is an independent violation of the standard error estimate. Therefore, multilevel model analysis needs to be used to calculate multilevel characteristics of the data [21].

2.4. Restricted Maximum Likelihood Model (REML)

The estimation methods that are often used in multilevel models are the Maximum Likelihood (ML) and Restricted Maximum Likelihood Model (REML). REML works by maximizing the likelihood of the contrast error which is a linear combination of $\boldsymbol{Y}$ data that is orthogonal to the explanatory design matrix. For example, a general multilevel model in matrix form is written as follows [23].

$$\boldsymbol{Y} = \boldsymbol{X\beta} + \boldsymbol{W\delta} + \boldsymbol{\varepsilon} \quad (6)$$

where $\boldsymbol{Y}$ is a vector of size $n \times 1$ representing the response variable at the ith observation in group j, $\boldsymbol{X} = [\boldsymbol{WZ}]$, $\boldsymbol{W}$ is a design matrix of size $n \times q$, $\boldsymbol{Z}$ is a design matrix of size $q \times p$, $\boldsymbol{\beta}$ is a vector of fixed effects $p \times 1$ and $\boldsymbol{\delta}$ are random vectors $q \times 1$. The REML method maximizes the independent error contrast likelihood function from the linear combination of data $\boldsymbol{Y}$. The chosen linear combination $\boldsymbol{A^T Y}$ is not $\boldsymbol{Y}$ as follows [23].

$$\boldsymbol{A^T Y} = \boldsymbol{A^T X\beta} + \boldsymbol{A^T(W\delta + \varepsilon)} \tag{7}$$

where, $\boldsymbol{A}$ is an idempotent matrix of rank $n-p$, $\boldsymbol{E(A^T Y)} = \boldsymbol{0}$ if and only if $\boldsymbol{A^T X\beta} = \boldsymbol{0}$. If $\boldsymbol{Y}\sim\boldsymbol{N(X\beta, \Sigma)}$ and $\boldsymbol{A^T X\beta} = \boldsymbol{0}$, then $\boldsymbol{A^T Y}\sim\boldsymbol{N(0, A^T \Sigma A)}$. Assuming $\text{cov}(\delta_{jh}, \delta_{jl}) = 0, h \neq l, j = 1, \dots, m, h, l = 1, \dots, q$. The likelihood function is as follows [23].

$$L(\boldsymbol{A^T Y}) = (2\pi)^{-0.5(n-p)} |\boldsymbol{A^T \Sigma^{-1} A}|^{-0.5} \exp\left(-0.5(\boldsymbol{A^T Y})^T (\boldsymbol{A^T \Sigma^{-1} A})^{-1} (\boldsymbol{A^T Y})\right) \tag{8}$$

Let $P = \boldsymbol{A(A^T \Sigma^{-1} A)^{-1} A^T}$ after some algebraic calculations, the log-likelihood function is as follows [23].

$$\log L(\boldsymbol{A^T Y}) = \frac{-1}{2}\{(n-p)\log(2\pi) + \log|\boldsymbol{\Sigma}| + \log|\boldsymbol{X^T \Sigma^{-1} X}| + \boldsymbol{Y^T PY}\} \tag{9}$$

Next, take the first derivation of the log-likelihood function on σ_e^2 and $\sigma_r^2 (r = 1, \dots, q)$ to obtain [23].

$$\frac{\partial \log L(\boldsymbol{A^T Y})}{\partial \sigma_e^2} = -\frac{n-p}{2\sigma_e^2} + \frac{\boldsymbol{Y^T PY}}{4\sigma_e^4} \tag{10}$$

$$\frac{\partial \log L(\boldsymbol{A^T Y})}{\partial \sigma_r^2} = \frac{-1}{2}\{tr(\boldsymbol{PW_r W_r^T}) - \boldsymbol{Y^T PW_r W_r^T PY}\} \tag{11}$$

by setting it equal to zero and solving it, the REML estimator for residual variance is obtained as follows [23].

$$\hat{\sigma}_e^2 = \frac{\boldsymbol{Y^T \hat{P} Y}}{n-p} \tag{12}$$

where $\hat{P} = \boldsymbol{A}\left(\boldsymbol{A^T \hat{\Sigma}^{-1} A}\right)^{-1} \boldsymbol{A^T}$ which must be calculated iteratively. By recalculating the new solution of log-likelihood to obtain new estimates of the variance components and reformulating the new matrix $\widehat{\boldsymbol{\Sigma}}$. This process continues until it converges. REML estimates do not include procedures for estimating fixed effects, but fixed effects are estimated using the maximum likelihood for $\boldsymbol{\beta}$ where $\widehat{\boldsymbol{\beta}} = \left(\boldsymbol{X^T \hat{\Sigma}^{-1} X}\right)^{-1} \boldsymbol{X^T \hat{\Sigma}^{-1} X}$ with $\widehat{\boldsymbol{\Sigma}}$ is the REML estimate of $\boldsymbol{\Sigma}$. One of the important assumptions underlying the REML estimation method is the normality of the error distribution. When the errors are not normally distributed, the parameter estimates produced by the REML method remain asymptotically unbiased. However, the asymptotic standard error is not accurate. Therefore, significance tests and confidence intervals become unreliable. This problem does not completely disappear even though sample sizes become larger [23].

2.5. Likelihood Ratio Test

The Maximum Likelihood (ML) estimation can produce a statistic called deviance. The deviance can indicate how well the model fits the data [24]. In nested models, the deviance test is used to find out whether a more general model is better than a simple model or whether a model with random effects is better than a model without random effects.

The deviance test is also called the likelihood ratio test. This test compares the log-likelihoods of the two models, such as the log-likelihood from the model without random effect and the model with random effect where the random effect represents the effect caused by the variance between groups (level 2). The difference in variance for two nested models has a chi-square distribution, with degrees of freedom equal to the difference in the number of parameters estimated in the two models. The likelihood ratio test statistic is defined as follows [21]:

$$LRT = -2(LogL_{ReduceModel} - LogL_{FullModel}) \tag{13}$$

With the decision criteria H_0 is rejected if $LRT > X^2_{(\alpha,\upsilon)}$, where υ is the difference in the number of parameters from the two models. If H_0 is rejected, then it can be concluded that the model with random effect is significant or better fits the data.

2.6. Normality Assumption

In multilevel regression analysis, the normality assumption is one of the important assumptions that must be checked to ensure the reliability of the results. This assumption refers to the normal distribution of residuals at various levels of the model. Examining the normality assumption at level 1 can be done by calculating the skewness and kurtosis values

from level 1 residual data. A skewness value that is close to 0 and kurtosis less than 2 indicates that the residual follows a normal distribution. Meanwhile, at level 2, you can use the method of checking the histogram of the residual data at level 2 to form a symmetrical pattern or not [25].

3. Results and discussion

3.1. Descriptive Statistics

From Figure 1, the country with the highest average life satisfaction is Kyrgyzstan at 8.39 since Kyrgyzstan has experienced an increase in life satisfaction due to freedom of choice and financial satisfaction [26]. The country with the lowest average life satisfaction is Iran at 6.21 because it showed that income is the strongest predictor of life satisfaction, in developing countries such as Iran, which face significant economic, political, and social challenges [27]. Meanwhile, for Indonesia, it is 7.55 because happiness and life satisfaction in Indonesia are influenced by individual factors, factors within the household, health, unemployment, living environment, and religiosity [28]. The average percentage of belief in God in Asian countries is 76.517% with a standard deviation of 27.660. Tajikistan has the highest percentage of belief in God, namely 99.92% because Tajikistan is one of five Central Asian countries and is mostly inhabited by Sunni Muslims [29]. China has the lowest percentage of belief in God with 17.68% because China has a communist ideology [30]. Meanwhile, for Indonesia, it is 97.55% because Indonesia presents legal consequences that are based on the one and only God [31].

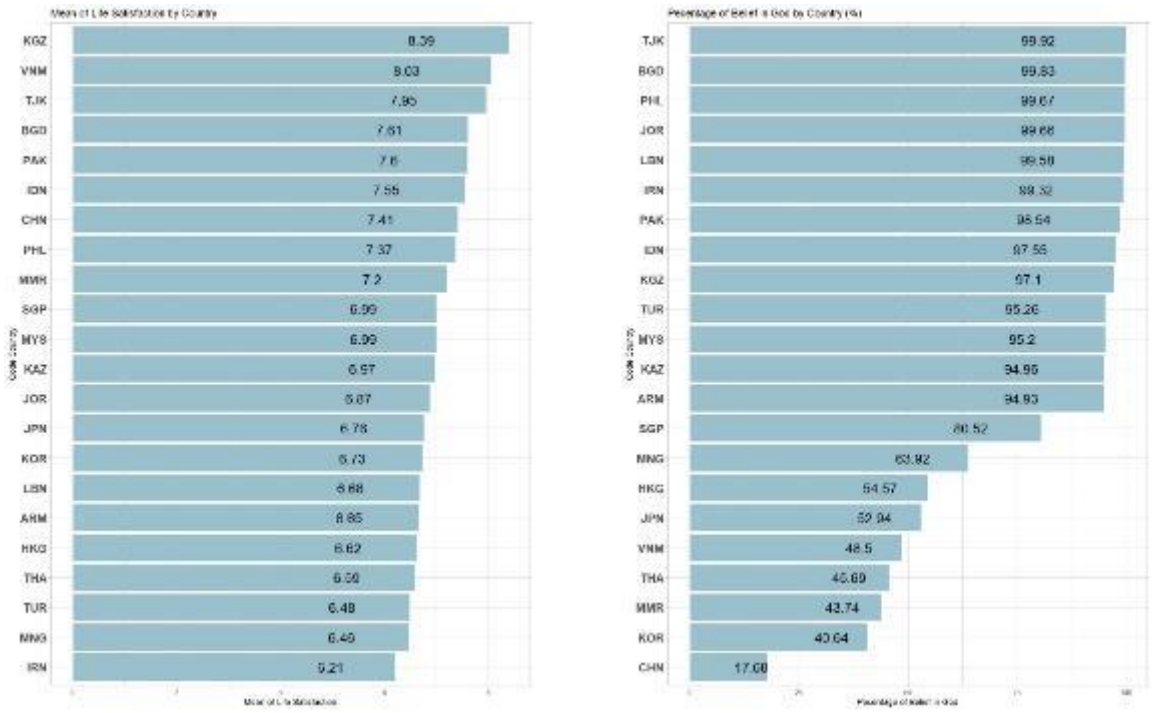

Figure 1 Histogram Mean of Life Satisfaction and Percentage of Belief in God by Country

Table 2 displays that the average life satisfaction is 7.097 with a standard deviation of 2.186, which means that residents in Asian countries feel satisfied with their lives. A total of 26,720 individuals who believe in God have an average satisfaction of 7.12, while 7,331 individuals who do not believe in God have an average life satisfaction of 7. The average age is 42.156 years with a standard deviation of 12.02. The youngest is 18 years old and the oldest is 103 years old. A total of 16,044 men had an average life satisfaction of 7.04, while 18,007 women had an average life satisfaction of 7.14. A total of 8,910 individuals with low family incomes had an average life satisfaction of 6.65 and 22,365 individuals with middle family incomes had an average life satisfaction of 7.17, while 2,776 individuals with high family incomes had a life satisfaction of 7.07. A total of 7,195 individuals with low education had an average life satisfaction of 7.1 and 14,403 individuals with medium education had an average life satisfaction of 7.13, while 12,453 individuals with high education had a life satisfaction of 7.05. The average per capita income in Asian countries is 14,241.71 USD with a standard deviation of 20,150.42. Singapore has the highest per capita income, namely 77,710.1 USD because the governance and bureaucratic reforms that occurred in Singapore were able to manage the national economy in coordination with

foreign capital and produce significant economic results [32]. The country of Tajikistan has the lowest per capita income at 916.7 USD because Tajikistan's economy relies heavily on remittances, agriculture, and a small export base [33]. Meanwhile, for Indonesia, it is 4334.2 USD because the factors that significantly influence GDP are inflation, government spending and exchange rates [34].

Table 2 Descriptive Statistics

	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Life Satisfaction	7.097	2.186	1	10
Age	42.156	12.020	18	103
Gross Domestic Product (USD)	14.241.71	20.150.42	916.692	77.710.09
Percentage of Belief in God (%)	76.52	27.66	17.68	99.92
	N	**Mean of life satisfaction**	**Standard Deviation of life satisfaction**	
Belief in God (No)	7.331	7	1.99	
Belief in God (Yes)	26.720	7.12	2.24	
Male	16.044	7.04	2.19	
Female	18.007	7.14	2.18	
Family income low	8.910	6.65	2.58	
Family income middle	22.365	7.17	2	
Family income high	2.776	7.07	1.92	
Education low	7.195	7.1	2.39	
Education middle	14.403	7.13	2.19	
Education High	12.453	7.05	2.05	

3.2. Multilevel Analyses

The first model (null model) yielded a country intercept variance of 0.327, so the ICC is obtained as follows. ICC $= 0.327/(0.327 + 4.485) = 0.068$. These results indicate that 6,8% of the variance in life satisfaction for each individual is due to country differences. The ICC $= 0.068 > 0.05$ indicates that multilevel analysis needs to be used [19]. DE $= 1 + (1547.773 - 1) \times 0.068 = 106.169$. The DE value with the average number of individuals per country in WVS wave 7 data ($n_c = 34051/22 = 1547.773$) is 106.169. This value greater than 2 indicates that multilevel analysis needs to be used [22].

Table 3 Multilevel Models Estimation

Variable	**Null Model**	**Random Intercept Model**	**Random Slope Model**
Fixed Effect			
Level 1			
Intercept (γ_{00})	7.096 (0.123)*	6.426 (0.136)*	6.710 (0.356)*
Belief in God		0.093 (0.037)*	0.092 (0.037)*
Age		0.003 (0.001)*	0.002 (0.001)*
Male (reference category)			
Female		0.075 (0.023)*	0.075 (0.023)*
Family income low (reference category)			

Family income middle		0.576 (0.028)*	0.576 (0.028)*
Family income high		1.378 (0.047)*	1.378 (0.047)*
Education low (reference category)			
Education middle		−0.085 (0.033)*	−0.084 (0.033)*
Education high		−0.043 (0.038)	−0.042 (0.038)
Level 2			
Gross Domestic Product			−0.001 (0.001)
Percentage of Belief in God			−0.228 (0.431)
Random Effect			
Intercept (τ_{00})	0.327 (0.572)	0.321 (0.566)	0.126 (0.355)
Residual (σ^2)	4.485 (2.118)	4.357 (2.087)	4.357 (2.087)
τ_{11GDP}			0.000 (0.005)
$\tau_{11percentage}$			0.126 (0.355)
ICC	0.068	0.069	0.028
R^2	0.062	0.089	0.089
Log-likelihood	−73917.78	−73445.65	−73448.63
AIC	147841.6	146911.3	146931.3
BIC	147899.9	146995.6	147074.7

*$p < 0.05$

Table 3 shows that in the second model (random intercept model), 6 individual level predictors have a significant effect on life satisfaction ($p < 0.05$). By including individual-level variables in the model, the variance between countries decreases from 0.327 to 0.321. These results suggest that most of the differences between countries are due to individual-level factors. Then, the proportion of variance shows the R^2 value which shows that the difference in life satisfaction can be explained by the level 1 predictor variable of around 8.9%.

In the third model (random slope model), the results show that 6 individual-level predictors have a significant effect on life satisfaction and country-level predictors do not have a significant effect on life satisfaction ($p < 0.05$). By including both individual-level and country-level variables in the model, the variance between countries decreases from 0.321 to 0.126. These results suggest that most of the differences between countries are due to individual and country-level factors. The variance proportion shows the R^2 value which shows that the difference in life satisfaction can be explained by level 1 predictor variables and level 2 predictor variables of around 8.9%.

Model comparison using the likelihood ratio test between the null model and the random intercept model obtained a deviance difference of 944.26 with a p-value < 0.001. The likelihood ratio test with the chi-square distribution produces a statistical significance test $LRT_1 = 944.26 > \chi^2_{(0.05;7)} = 14.067$ which shows the random intercept model is better than the null model. The degrees of freedom are obtained from the difference in the number of parameters estimated in the random intercept model of 10 parameters and the null model of 3 parameters. Model comparison between the null model and the random slope model obtained a deviance difference of 938.3 with a p-value < 0.001. The likelihood ratio test with the chi-square distribution produces a statistical significance test $LRT_2 = 938.3 > \chi^2_{(0.05;14)} = 23.685$ which shows the random slope model is better than the null model. The degrees of freedom are obtained from the difference in the number of parameters estimated in the random slope model of 17 parameters and the null model of 3 parameters. Model comparison between the random intercept model and the random slope model obtained a deviance difference of -5.96 with $p - value = 0.5425$. Hence, the comparison between these two models is using AIC and BIC values. The random intercept model is better than the random slope model due to lower values of AIC (146911.3) and BIC (146995.6).

From the best model of the random intercept model, the belief in God variable has a $\hat{\beta}_1 = 0{,}093$ and $p - value = 0.011 < 0.05$. This positive estimated regression coefficient means that the belief in God variable increased is

significantly increasing individual life satisfaction. This result is in line with research by [7] that people who believe in God tend to be more satisfied with life than people who do not believe in God. Other research by [3],[4],[6] also states that belief in God has a significant positive relationship with life satisfaction.

The age variable has a $\hat{\beta}_2 = 0{,}003$ and $p - value = 0.002 < 0.05$. This regression coefficient is significant so that the age variable is significant. This positive estimated regression coefficient means that as people get older, people in Asian countries likely feel more satisfied with their lives. These results are in line with research by [14],[16] which shows that age is positively and significantly correlated with life satisfaction. However, these results are inversely proportional to the research of [13] which shows that age has a significant negative correlation with life satisfaction.

The gender variable has a $\hat{\beta}_3 = 0{,}075$ and $p - value = 0.001 < 0.05$. This regression coefficient is significant so that the gender variable is significant. The estimated regression coefficient is positive so female individuals have higher life satisfaction than male individuals. The family income variable has a $\hat{\beta}_4 = 0{,}567, \hat{\beta}_5 = 1{,}378$ and $p - value = 0.000 < 0.005$. This regression coefficient is significant so that the family income variable is significant. The positive estimated regression coefficient means that the higher the family income, the higher their life satisfaction. These results are in line with research by [13],[17] that gender and family income are positively correlated with life satisfaction. Research conducted by [14],[16] also states that gender also has a significant positive effect on life satisfaction.

The final middle education variable has a $\hat{\beta}_6 = -0{,}085$ and $p - value = 0.010 < 0.05$. This regression coefficient is significant so that the final secondary education variable is significant for life satisfaction. Meanwhile, the highest education variable has a $\hat{\beta}_7 = -0{,}043$ and $p - value = 0.248 > 0.05$. This regression coefficient is not significant so that the highest education variable is not significant for life satisfaction. The higher an individual's level of education, the possibility of feeling more satisfied with their life decreases or even has no effect at all. These results are in line with research by [13] that education is negatively correlated with life satisfaction. Research conducted by [16] also states that education has a significant effect on life satisfaction.

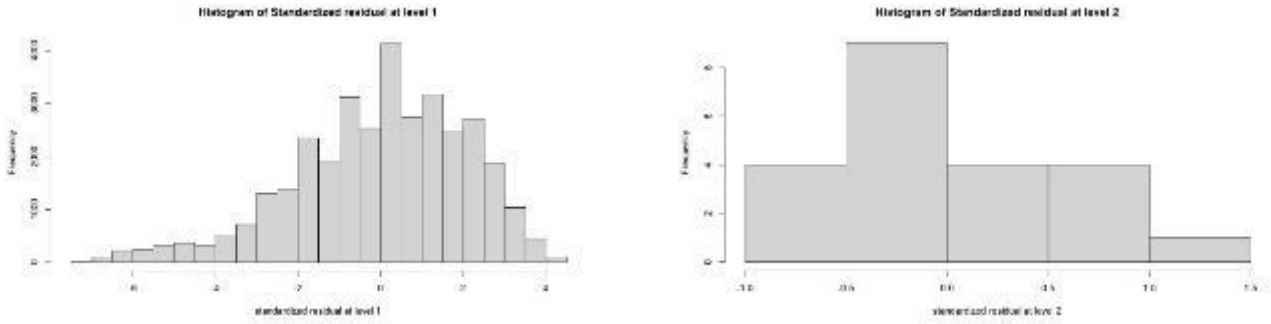

Figure 2 Histogram of Standardized Residual at Level 1 and Level 2

The skewness and kurtosis values of level 1 residual data are -0.63 and 0.25. Figure 2 shows that the left histogram is almost symmetrical, indicating that level 1 errors are normally distributed, which is an important assumption in the linear regression model. Therefore, it can be concluded that the error of the random intercept model at level 1 is normally distributed as seen from the skewness value close to 0, kurtosis value less than 2, and the histogram shape is almost symmetrical [25]. The skewness and kurtosis values of level 2 residual data are 0.24 and 0.18. Figure 2 for the right histogram shows the nearly symmetrical histogram. Hence at level 2 error is normally distributed. Therefore, it can be concluded that the error of the random intercept model at level 2 is normally distributed as seen from the skewness value close to 0, kurtosis value less than 2, and the histogram shape is almost symmetrical [25].

4. Conclusion

The relationship between belief in God and sociodemographic variables on life satisfaction in Asian countries using multilevel modeling has a significant effect. Factors that influence life satisfaction are belief in God, age, gender, family income, and secondary education. Meanwhile, higher education, per capita income, and the percentage of belief in God in each country do not have a significant effect on life satisfaction. Individuals who believe in God tend to be more satisfied with their lives than people who do not believe in God. As an individual age, his or her life satisfaction also increases, female individuals have higher life satisfaction than men, individuals who have a high family income have life satisfaction higher than individuals who have low and middle family income, individuals with secondary education have

higher life satisfaction than individuals with low and high levels of education, per capita income in a country and the percentage of belief in God in a country do not affect satisfaction life.

Compliance with ethical standards

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