

# Students are Happier in Madrasah: The Results of Bayesian Analysis on Indonesian National Survey Data

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## Abstract

Islamic education is an important part of the Indonesian education system. This is not only because Indonesia is the biggest Muslim country in the world, but also because Islamic education has a social, cultural, and political role in Indonesian society. Nevertheless, madrasahs in Indonesia face several challenges entrenched from financial constraints. This leads to adverse consequences such as restrictions in the provision of infrastructure, inadequate quality of teachers, and low academic achievement in the national exam. Furthermore, students in madrasahs have more burdens than those in regular schools; for instance, students in madrasahs have more subjects to study, longer school hours, and must adhere to stricter rules and conduct. The challenges faced by madrasah raise concerns regarding its effects on students' subjective well-being. Therefore, the present study aims to investigate whether there is a difference in students' happiness between those who attend madrasahs and the regular schools. The data collected were based on the results of face-to-face interviews with 1,299 secondary education students in Indonesia. The results of the Bayesian ANCOVA analysis showed that the best-fitting model for predicting students' happiness contained type of school and wealth level as predictors. The results also showed that the happiness level of madrasah students was significantly higher than their counterparts in regular high school. The finding is noteworthy because students' happiness in madrasah is higher than in the regular school, despite the lower level of wealth. The results further discussed the literature on religiosity and happiness in the context of adolescent education.

## INTRODUCTION

Islamic education is an essential part of the Indonesian education system. As the biggest Muslim country in the world, Islamic education has ingrained itself into the social, cultural, and political fabric of Indonesian society (Ahmad, 2015). Generally, Indonesia has two types of institutionalized Islamic education: pesantren and madrasah. Pesantren is regarded as the traditional version of Islamic education, while madrasah is the modern version. This is due to the absence of a curriculum in pesantren; the educational contents are based on the ulama—commonly known in Java as Kyai or Kiai (Afrianty et al., 2007).

The distinction between modern and traditional Islamic education is getting blurred due to the improvement in the instructional content of madrasahs since the 1970s. This, however, has motivated the pesantren to transform into a modern educational institution gradually

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(Asrohah, 2011). Hence, it is common to find pesantren entitled to be ‘modern’ pesantren. One could notice the transformation of pesantren from its initial traditional model to a more modern one. For instance, pesantren that includes a formal structure of education from elementary school to higher education level; pesantren that offers educational program targeted towards community development; and pesantren that all the students are studying at a formal educational institution—the religious education is conducted outside the school hours (Asrohah, 2011).

Pesantren traditionally has at least three roles in the Muslim community: (1) transmission of religious knowledge, (2) preserving the Islamic tradition, and (3) center for ulama production (Afrianty et al., 2007). While pesantren is geared toward the production of ulama, madrasah is more toward the production of Muslim intellectuals (Niam, 2010). Thus, one fundamental difference between pesantren and madrasah is that the former only focuses on Islamic knowledge and values, while madrasah adopts non-religious subjects in its curriculum. The non-religious subjects in madrasah are adopted from the national education curriculum; therefore, madrasah in Indonesia is under the auspices of two ministries: the Ministry of Religion Affairs (MoRA) and the Ministry of Education and Culture (MoEC).

Compared to regular primary and secondary education, madrasah emphasizes more on Islamic subjects. For instance, in a regular senior secondary education in Indonesia, the average allocated time for religious subjects is three hours per week (Ministry of Religious Affairs, 2014). While in a madrasah, the average allocated time for Islamic subjects is eight hours. The Islamic-related subjects in madrasah include Al-Qur’an and Hadith, Fiqh (Islamic jurisprudence), Aqidah (theology), Akhlaq (character), Islam history, and Arabic (Ministry of Religious Affairs, 2014).

Before further discussion about the educational process in Indonesian madrasahs, it should be noted that compulsory education is 12-years of schooling in Indonesia. This consists of three levels of education: six years of elementary school, called Sekolah Dasar (SD); three years of junior high school, called Sekolah Menengah Pertama (SMP); and three years of high school, called Sekolah Menengah Atas (SMA). There are also vocational high schools with four years of schooling—Sekolah Menengah Kejuruan (SMK) (Ministry of Education and Culture, 2014). In the same vein, Islamic education follows the same model: Madrasah Ibtidaiyah (elementary school, six years of schooling); Madrasah Tsanawiyah (junior high school, three years of schooling); and Madrasah Aliyah (high school, three years of schooling). The vocational high school in Islamic education is Madrasah Aliyah Kejuruan (Ministry of Religious Affairs, 2014).

Madrasahs possessed a significant share in the overall educational statistics in Indonesia. The data collected by the National Statistics Office showed that more than one-third (38.8%) of high schools are Madrasah Aliyah (BPS, 2017b). This is equivalent to 7,843 Madrasahs Aliyah, while 12,689 (61.8%) are regular high schools (BPS, 2017a). A growing share of the student body in madrasah was also noticeable from the statistics. The number of Madrasah Aliyah students shared in Indonesian high schools has increased from 25.2% in 2011/2012 to 30% in 2015/2016 academic sessions (BPS, 2017a). This statistic showed that despite the challenges faced by madrasah and overall Islamic education in Indonesia, the Islamic society has a high aspiration for it. The challenges faced by madrasah will be discussed in the following section.

### Challenges for Madrasah

One major contribution of madrasahs to Indonesian education has been providing education for the less privileged, i.e., those of the —lower socio-economic status within the society (Asadullah & Maliki, 2018; Sunhaji, 2017). This, however, has its negative excesses, as madrasah education is often associated with second-class education within the Indonesian

community. This view is worsened by the financial constraints faced by madrasahs that affect the quality of the educational process in a madrasah, for instance, the quality of the teachers, laboratories, libraries, and computer facilities (Rosyada, 2017). A report from the Agency for Research and Development of the Ministry of Education and Culture stated that most private madrasahs were not meeting the minimum standard of service in education (ACDP, 2013). Also, from the national exam statistics, we could observe that the average results of madrasah are still lower than the regular school. For example, in the academic year of 2018/2019, the average results of the national exam of science major students in the regular school were 53, while in Madrasah Aliyah was 48.72 (Puspendik, 2019).

As mentioned before, the madrasah adopted the national educational curriculum with the addition of Islamic subjects. This leads to longer school hours in madrasahs. For instance, the school hours in Madrasah Aliyah are 51 hours per week, while in regular high school, it is 42-44 hours, depending on the class grade (Ministry of Religious Affairs, 2014). The extended school hours, among other reasons, have raised concerns that the study burden in madrasahs is heavier than that of their contemporaries in the regular school (Rosyada, 2017). Furthermore, Islamic education institutions generally implement stricter rules than other institutions. This is because, besides the education process, the institutions also demand the students to practice religious rituals, e.g., salaah (praying) and reciting Al Qur'an. Madrasah also has a regulation that is rather very sensitive to the attires of students, and it also possesses a very strict policy regarding the interaction between opposite sex. All these may not be thoroughly considered in regular schools. One even summarized that the experience in a regular Islamic school could be likened to that of a prisoner, but in a "holy prison" (Ahmad, 2015). This is because the school always imposes on to be a student of good conduct.

The various challenges faced by madrasah indeed raised concerns regarding its effects on students' well-being. Previous studies have pointed out that one of the predictors of student happiness is the academic context variables (Talebzadeh & Samkan, 2011). This study, therefore, aims to investigate the effect of the type of school (i.e., madrasah vs. regular school) on students' happiness.

### Religiosity and Happiness

This study used happiness and subjective well-being (SWB) with the same intention. Both terms are often used in social sciences literature (Argyle, 2001). Mark and Shah (2005) stated that SWB is more appropriate for understanding people's overall happiness or satisfaction with life. However, it should be noted that well being differs from SWB, which usually includes objective variables such as income and health (Argyle, 2001; Diener, 2009a; Helliwell & Putnam, 2005).

Researchers are usually investigating happiness from two main perspectives. The first one uses happiness to describe one's emotional state (e.g., positive emotion, contentment, joy, cheerful excitement). The second perspective uses the term to describe an overall life evaluation, often called life satisfaction. The distinction between the two perspectives is in the level of cognitive processing; an emotional state could be reported quite effortlessly, while life evaluation demands more substantial thinking—including calculation of the time frame and comparison with specific standards, e.g., one's happiness compared to 'what,' 'when,' and 'whom' (Steptoe et al., 2015). In this study, happiness was researched based on the second perspective.

What makes people happy? Studies on happiness have focused on internal and external factors that affect happiness. External factors that affect happiness are related to the individual's condition, including educational level, relationship, work, leisure activities, income, and health. Internal happiness factors lie within the individual, such as trait and personality, self-esteem, locus of control, resilience, spirituality, and religiousness.

Many studies on happiness showed positive and significant effects of religiosity. A systematic review study showed that religion is positively related to happiness (Witter et al., 1985). The relation is stronger for religious activity than for religiosity measures, and religion accounts for 2-6% of the variance in adult happiness (Witter et al., 1985). Another review on the relationship between religiosity and well-being depicted that more than three-quarters of the reviewed studies, 79 out of 100, found a positive effect of religious activity (Koenig et al., 2012). The review showed a positive correlation between religious involvement and higher happiness, life satisfaction, morale, or positive affect (Koenig et al., 2012).

Argyle depicted that religion affects happiness in several ways (Argyle, 2001). First, the effect of religion is through social support. One will benefit from the interaction and support from other members of the religion. Second, from the relation and closeness to God. Closeness to God, having God as a friend, is associated with a higher level of happiness. The third reason is having a firm belief. A serious commitment to religion leads to having meaning and purpose in life and gives guidance for this life and the after-life (Argyle, 2001; Lim & Putnam, 2010). In a similar view, Lim and Putnam (2010) argued that religion enhances happiness because it provides a support structure and enables individuals to cope with stress.

Another view on the relationship between religion and happiness was emphasized on the role of perceived control. Skinner stated that perceived control “refers to a whole set of beliefs about how effective the self could be in producing desired and preventing undesired outcomes” (Skinner et al., 1998). The concept also comprises convictions about the self as capable and efficacious, and about the environment as structured and responsive. Perception of control is associated with subjective well-being because it affects one’s worldviews—it provides the framework for individuals to interpret their daily experiences (Jackson & Bergeman, 2011). Highly religious individuals see the world through the lens of faith that gives them a higher perception of control; they believe that everything that happened is in God’s control.

The literature reviews conducted by (Koenig et al., 2012) found that out of 326 studies, 78.5% reported a positive association between religiosity and happiness. The reviews covered studies across diverse religious contexts, i.e., Christianity, Judaism, Islam, Hinduism, and Buddhism. A more recent study on the Asian sample concluded that religious identity is a significant determinant of happiness, even after controlling demographic variables such as age, health, location, occupation, absolute and relative wealth, and economic activity (Devine et al., 2019).

### **Religiosity and Happiness in the Educational Setting**

In the academic context, happiness studies depicted the importance of happiness for optimal psychological functioning. Seligman and colleagues’ perspective on “positive education” emphasizes the importance of education for both traditional skills and happiness (Seligman et al., 2009). They argue that the skills for happiness should be taught in school by promoting positive emotion, engagement, and meaning in the learning process (Seligman et al., 2009).

Considering that students spend a lot of time at school, it is crucial to promote happiness at school. Happiness leads to more positive attitudes, higher academic performance, and eventually, more productive citizens. Promoting happiness in school will motivate the students to be: active, raise awareness, improve creativity, and facilitate social relationships (Talebzadeh & Samkan, 2011).

A recent systematic review showed that most studies on religiosity and happiness were based on student samples (Shahama et al., 2022). Moreover, studies on religiosity and happiness in educational settings usually used young adult samples, i.e., undergraduate students (Abdel-Khalek & Singh, 2019; Abdel-Khalek & Lester, 2018; Achour et al., 2017; Aghababaei & Tekke, 2018; Sahraian et al., 2013). Only a few studies used adolescent students (Abdel-

Khalek & Eid, 2011; Eryılmaz, 2015). The systematic review also showed a lack of religiosity and happiness studies in the Southeast Asian context. Out of 49 studies, only six were from Southeast Asia, i.e., Malaysia (5 studies) and Bangladesh (1 study) (Shahama et al., 2022).

### Concept of Happiness in Islam

The concept of happiness is universal; people from every culture recognize it. Nevertheless, the understanding and expression of the concept vary across cultures and religions. The concept of happiness in Islamic thought differs from the transient forms of happiness envisaged in modern, secularized, or hedonistic cultures (Joshano, 2013). The widely accepted concept of happiness in the West is the distinction between hedonic and eudaimonic happiness. Hedonic happiness is focused on the pursuit of sensation and pleasure of the mind and body (Ryan & Deci, 2001). It refers to everyday feelings or moods, sadness, anger, and stress (Steptoe et al., 2015). While eudaimonic happiness is focused on skills, positive functioning, and expression of virtue—e.g., doing what is worth doing (Joshano, 2013).

Nasr (2014) further stated an example of West and Islamic differences in viewing happiness. The term “the pursuit of happiness,” a common term in the Western world, does not resonate in Arabic. The phrase “attainment of happiness” (Taḥṣīl al-sa’ādah) is more appropriate in the Islamic context. In the Islamic context, true happiness tends to be a permanent state—not just transient—and not just a goal to be pursued (Nasr, 2014).

Achour and colleagues (2017) stated that happiness in Islam is a feeling that resides in the heart and is characterized by peace of mind, tranquility, a sense of well-being, and a relaxed disposition. Happiness in Islam is inspired by a strong faith, and it results from proper behavior—both inward and outward (Achour et al., 2017). In a similar essence, Joshano (2013) stated that in Islam, humanity is created to worship and serve God. Therefore, worshiping God is humankind’s main reason and goal; achieving this goal is the key to a happy life. A life that only aims to maximize positive emotions and pleasures and minimize negative emotions and pains is discouraged in Islam. This does not mean that positive emotions and pleasures are forbidden in Islam. Instead, Islamic thought suggests that Muslims will experience various positive emotions and pleasures by following the Islamic lifestyle, both in this world and the after-life (Joshano, 2013). Regarding hedonic and eudaimonic typology, the concept of happiness in Islam comprises low-arousal hedonic and eudaimonic aspects (Newman & Graham, 2018).

### Sources of Happiness in Islam

What are the sources of happiness in Islamic thought? The possession of faith in God (Iman) is one of the sources of happiness in Islamic thought (Nasr, 2014). Muslims should believe in: Allah as the only God; the existence of Angels (Malā’ikah); the books of Allah, Allah’s messengers, and Muhammad SAW as the last one; the day of judgment (Qiyamah); and Allah’s predestination. Nasr stated that possessing Iman is not only a gift from Allah but also a source of happiness in the true sense (Nasr, 2014). Those who accept the faith will feel expansion or relief (Quran 94:1-4), associated with joy and happiness because God would lighten their emotional burden (Nasr, 2014).

*Tawakkul* is another source of happiness in Islam. *Tawakkul* is a complete trust or confidence in God. A Muslim with *tawakkul* will have inner contentment that overcomes all causes of sorrow and unhappiness (Nasr, 2014). Muslims are responsible for following the Divine Law or *Syariy’ah*. For example, Muslims must perform *ibadah*—worshiping God—known as the “pillars of Islam.” *Ibadah* consists of praying or *salaah*, fasting or *sawm*, pilgrimage or *hajj*, and payment of tax or *zakat*. These activities require sacrifice and self-discipline, such that in the perception of the non-Muslims, there seems to be a lot of hardship



and suffering. However, the Islamic views on hardship and suffering differ from those of the West. It is believed that hardship and disaster are a test of faith from God. To be able to pass the test, a Muslim should tolerate it and *tawakkul*. The patience in facing hardship will transform suffering into a blessing (Joshnloo, 2013).

### Rationale of the Study

A systematic review identified several limitations in religiosity and happiness studies over the past two decades (Shahama et al., 2022). First, such studies often did not represent the population, whether they used small or large sample sizes. This was due to the use of non-probability sampling. Second, they over-sampled undergraduate students. Third, there was a lack of variety between cultures, regions, and socioeconomic statuses. Fourth, most studies used self-report measures, which are prone to social desirability bias. Fifth, the studies were underpowered with a small effect size.

Considering these gaps, this study aims to address the shortcomings identified in previous religiosity and happiness studies (Shahama et al., 2022). This study used a large, nationally representative sample of adolescent students in Southeast Asia. It used structured face-to-face interviews instead of self-report measures, which provides better data quality. Finally, this study used Bayesian statistics, which provide better evidence than the frequentist approach (Faulkenberry et al., 2020; Kruschke, 2014; van de Schoot et al., 2017).

### Hypothesis

Based on the premise that *madrasah* students have higher religiosity levels and that religiosity positively affects happiness, this study proposed a hypothesis that students in *madrasah* were happier than their colleagues in regular high school.

### METHODS

The participants of this study were from a longitudinal socio-economic and health survey in Indonesia, the Indonesian Family Life Survey (IFLS). IFLS has been conducted five times in 1993, 1998, 2000, 2007, and 2014. This study used the fifth-wave data, which covered 13,535 families and 44,103 respondents in 13 provinces in Indonesia (Strauss et al., 2016). The sample represented 83% of Indonesian residents (Strauss et al., 2016). IFLS 5 was conducted by the RAND Corporation, a non-profit research organization in the USA, in collaboration with the Center for Population and Policy Studies (CPPS) Universitas Gadjah Mada.

The IFLS used stratified random sampling, which stratified on urban and rural areas and then randomly sampled within each stratum. The sampling considered Indonesia's socioeconomic and cultural variety and represented the four most populous islands—Java, Sumatra, Kalimantan, and Sulawesi—comprising 83% of the country's total population (Strauss et al., 2016). The first IFLS sampling frame was based on the 1990 census and the 1993 SUSENAS (National Socioeconomic Survey) (Strauss et al., 2009).

IFLS used face-to-face interviews in collecting the data. The interviews were mainly conducted in Bahasa Indonesia, by native-speaker interviewers. In cases where participants were not fluent in Bahasa Indonesia, the interviewers were also selected based on their local language ability. For example, the team sent to the island of Madura contained some Madurese-speaking interviewers (Strauss et al., 2016).

The participants in this study were comprised of secondary education (senior high school) students. Secondary education in Indonesia consists of junior secondary education and senior secondary education, with six years of schooling after elementary education. Senior secondary education consists of three types of schools—i.e. regular, Islamic, and vocational education.

From the total dataset of IFLS, secondary education students were selected for the analysis. The total number of participants in this study was 1,299 students. The number of

students from Islamic education (Madrasah Aliyah) was 165 (12.7%), while the participants from regular education were 1,134 students, consisting of 562 (43.3%) regular high school students and 572 (44.3%) vocational high school students. The average age of the students was 16.07 ( $SD=.79$ ). Table 1 depicts the descriptive statistics of the participants.

The IFLS surveys were reviewed and approved by IRBs in the United States and in Indonesia at the Universitas Gadjah Mada (UGM). The ethical clearance number from RAND's Human Subjects Protection Committee (RAND's IRB) was s0064-06-01-CR01.

## Variables

In the IFLS questionnaire, students' happiness level was measured by question SW12, in Book IIIA. Students were asked to rate their happiness based on the question: "Taken all things together, how would you say things are these days—would you say you were very happy, happy, unhappy or very unhappy?" The answer ranged from 1, 'Very unhappy' to 4, 'Very happy.' The average self-rated happiness of the students was 3.1 ( $SD = .45$ ). More than 92% of the respondents were happy or very happy.

Previous studies showed that wealth was associated with happiness (Lucas & Schimmack, 2009; Gere & Schimmack, 2017; Piff & Moskowitz, 2018). Therefore, in this study students' level of wealth was included in the analysis to control its effect on the level of happiness. Question SW01 from Book IIIA of the IFLS questionnaire measured the subjective wealth of the students, who were asked to rate their overall wealth from 1 'Poorest' to 6 'Richest'. The average subjective wealth of the students was 3.33 ( $SD=.79$ ).

There are concerns regarding the validity of single-item measurements in psychology. Single-item measurement is unavoidable in a large-scale national survey such as the IFLS. Using full-scale instruments with multiple items for each construct is impractical due to space constraints and the need for efficient data collection. However, studies showed that carefully constructed single-item measures can effectively assess the essence of specific construct based on criterion validity test (Abdel-Khalek, 2006; Cheung & Lucas, 2014; Jovanović, 2016).

## Data Analysis

Researchers in psychology most often used frequentist statistics or null hypothesis significance testing (NHST) over Bayesian statistics. However, Bayesian statistics is gaining popularity (van de Schoot et al., 2017; Kruschke, 2021). Some of the advantages of Bayesian inference are: the possibility of incorporating background knowledge (prior distribution), more flexibility in model specification, provide evaluation on the predictive adequacy of competing hypothesis, a clear and intuitive way of interpreting the results, and more robustness in small sample sizes (Kruschke, 2014; van de Schoot et al., 2014; van de Schoot et al., 2017; Wagenmakers et al., 2016; Faulkenberry et al., 2020).

Analysis of covariance (ANCOVA) was used to analyze the difference in happiness between students in regular school and madrasah. ANCOVA is the extended version of ANOVA (Analysis of variance). ANCOVA is useful for analyzing the mean differences between groups while including one or more continuous variables that influence the dependent variable (Field, 2017). These variables are known as covariates.

ANOVA and ANCOVA provide better analysis than carrying out several t-tests to compare means between groups, as conducting multiple t-tests will inflate the familywise error rate (Field, 2017). Another alternative method to compare group means is to use the Johnson-Neyman technique. However, this method is more applicable for experimental data that violates the assumption of homogeneity of regression slopes (D'Alonzo, 2004). The Johnson-Neyman technique is also not a standard feature of statistical software packages (D'Alonzo, 2004), and therefore, it is not practical to conduct.

Table 1. Descriptive statistics

	Madrasah N (%)	Regular N (%)	Total N (%)
Sex			
Male	71 (43.0)	549 (48.4)	620 (47.7)
Female	94 (57.0)	585 (51.6)	679 (52.3)
Age*	( <i>M</i> =15.99; <i>SD</i> =.79)	( <i>M</i> =16.08; <i>SD</i> =.79)	( <i>M</i> =16.07; <i>SD</i> =.79)
Happiness*	( <i>M</i> =3.16; <i>SD</i> =.43)	( <i>M</i> =3.09; <i>SD</i> =.45)	( <i>M</i> =3.1; <i>SD</i> =.45)
Very happy	31 (18.8)	163 (14.4)	194 (14.9)
Happy	130 (78.8)	914 (80.6)	1044 (80.4)
Unhappy	4 (2.4)	52 (4.6)	56 (4.3)
Very unhappy	0 (0)	5 (0.4)	5 (0.4)
Wealth* (Perceived income ladder)	( <i>M</i> =3.26; <i>SD</i> =.96)	( <i>M</i> =3.37; <i>SD</i> =.85)	( <i>M</i> =3.33; <i>SD</i> =.79)
1, 2 (Poorest)	24 (14.5)	116 (10.2)	140 (10.8)
3	80 (48.5)	525 (46.3)	605 (46.6)
4	55 (33.3)	445 (39.2)	500 (38.5)
5, 6 (Richest)	4 (2.4)	42 (3.7)	46 (3.5)
Missing value (Do not know)	2 (1.2)	6 (0.5)	8(.6)
Religiosity*	( <i>M</i> =2.95; <i>SD</i> =.660)	( <i>M</i> =2.75; <i>SD</i> =.655)	( <i>M</i> =2.7; <i>SD</i> =0.658)
Very religious	31 (18.8)	120 (10.6)	151 (11.6)
Somewhat religious	96 (58.2)	628 (55.4)	724 (55.7)
Rather religious	37 (22.4)	368 (32.5)	405 (31.2)
Not religious	1 (0.6)	17 (1.5)	18 (1.4)
Missing value (Refuses to answer)	0 (.0)	1 (.1)	1 (.1)
Type of school			
Regular high school (SMA)			562 (43.3)
Regular high school (Vocational SMK)			572 (44.0)
Islamic high school (Madrasah Aliyah)			165 (12.7)
Total			1,299 (100.0)

\*Note. Arithmetic mean and Standard Deviation

This study performed a Bayesian ANCOVA on students' happiness, including a fixed factor of the type of school (regular and madrasah) and level of wealth as a covariate. The analysis was conducted using JASP version 0.18 (JASP-Team, 2023) and followed the recommended procedure of Bayesian analysis (Rouder et al., 2012; Faulkenberry et al., 2020). This study used Bayesian analysis to compare four models with varying predictors of happiness level: (1) A null model; (2) A model containing only School type as a predictor; (3) A model containing only Wealth level as a predictor; and (4) A model containing both School type and Wealth level as a predictor.

Under the null hypothesis, this study expects an effect size of 0; therefore, the  $\mathcal{H}_0: \delta = 0$ . The alternative hypothesis is two-sided,  $\mathcal{H}_1: \delta \neq 0$ . Before observing data, this study assumes that  $\delta$  was distributed as a Cauchy distribution with scale  $r = 0.707$  as suggested as the default-prior Bayes factor for ANOVA settings (Rouder et al., 2012).

## RESULTS AND DISCUSSION

### Results

Table 2 shows the probability comparison of the models based on Bayesian inference. The table includes the prior and posterior probabilities of the model, the Bayes factors, and the error.  $BF_M$  is the change in model odds after observing the data, while  $BF_{10}$  is the relative predictive adequacy against the best model (Faulkenberry et al., 2020).

The results showed that only Model 3 and Model 4 had their odds increased after observing data ( $BF_M = 2.279$  and  $BF_M = 3.889$ , respectively). Model 4 was the most probable



Table 2. Model comparison

No	Models	P(M)	P(M data)	BF <sub>M</sub>	BF <sub>10</sub>	error %
1	Null model	0.250	0.002	0.006	0.004	1.046
2	School type	0.250	0.002	0.005	0.003	1.047
3	Wealth	0.250	0.432	2.279	0.765	1.046
4	Wealth + School type	0.250	0.565	3.889	1.000	

\*Note. BF<sub>10</sub> = relative predictive adequacy against the best model

between these two models,  $P(M|data) = 0.565$ . Therefore, the best-fitting model for predicting students' happiness was the one containing School type and Wealth level as predictors.

BF<sub>10</sub> gives the relative predictive adequacy of the model compared to the best-fitting model (Faulkenberry et al., 2020). The Bayes factor showed that including only School type as a predictor for Happiness (Model 2) gives BF<sub>10</sub> = 0.003, which contrasts with the best model (Model 4). Thus, the observed data are  $1/0.003 = 333.33$  times more likely under the model containing School type and Wealth level as predictors than the model containing only School type (Model 2). Based on these results, the evidence to support  $\mathcal{H}_1$  surpasses the support for  $\mathcal{H}_0$ , see table 3.

To account for model uncertainty, this study also performed Bayesian model averaging to test the effects of both predictors. Table 3 shows the inclusion of Bayes factors, the results of Bayesian model averaging, and the Bayes factor for each effect. The table shows that the data were 1.305 more likely under the models containing School type as a predictor and 264.95 times more likely under models containing Wealth level.

Table 4 depicts the estimate of the effects of each predictor on students' happiness. The change in the school type (i.e., studying in a madrasah) increased the students' happiness level by 0.042 points, with a 95% credible interval = [0.006, 0.079]. Each additional Wealth level increased students' happiness by 0.065 points, with a 95% credible interval = [0.034, 0.095].

The descriptive statistics (see Table 1) showed that the happiness level of students in madrasah was significantly higher ( $M=3.16$ ;  $SD=.43$ ) than that of students in regular schools ( $M=3.09$ ;  $SD=.45$ ). Figure 1 shows the bar plots of the Happiness level by school type. Most students in madrasah (97.6%) reported being happy or very happy, in contrast with only two-thirds of students (66%) in regular high school. As for the level of religiosity, students in the madrasahs reported higher religiosity ( $M=2.95$ ;  $SD=.66$ ) than those in regular school ( $M=2.75$ ;  $SD=.65$ ). Table 1 also shows that more than three-quarters of students in madrasah (77%) reported being 'Somewhat religious' or 'Very religious,' compared to only two-thirds of students (66%) in regular high school, see Figure 1.

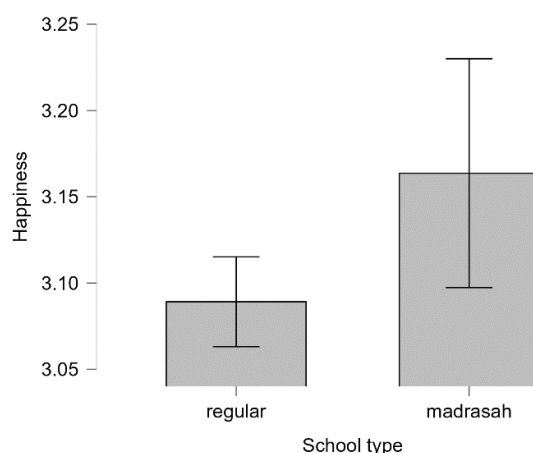


Figure 1. Bar Plots of students' Happiness level

Table 3. Analysis of Effects - Happiness

Effects	P(incl)	P(excl)	P(incl data)	P(excl data)	BF <sub>incl</sub>
Wealth	0.500	0.500	0.996	0.004	264.950
School type	0.500	0.500	0.566	0.434	1.305

Table 4. Model Averaged Posterior Summary

Variable	Level	<i>M</i>	<i>SD</i>	95% Credible Interval	
				Lower	Upper
Intercept		3.116	0.022	3.072	3.160
Wealth		0.065	0.015	0.034	0.095
School type	regular	-0.042	0.018	-0.079	-0.006
	madrasah	0.042	0.018	0.006	0.079

As mentioned in the introduction of this study, madrasah is associated with less privileged students—those from families of a lower socioeconomic class. The descriptive statistics confirmed this, as 63% of madrasah students reported their families as being in a lower socioeconomic class, compared to only 56.5% of students from regular school.

## Discussion

This study aims to investigate the effects of school type on students' happiness. The study compares the happiness level of students in Islamic high schools (Madrasah Aliyah) and regular high schools. Based on the premise that madrasah students have higher religiosity levels and that religiosity positively affects happiness, this study proposed a hypothesis that students in madrasah were happier than their colleagues in regular high school. The results of the Bayes factor showed that the hypothesis was supported.

This study is noteworthy because of several reasons. First, there were limited studies on the association between religiosity and happiness in Southeast Asian context. Second, the data in this study were collected from a large national-representative sample of students in an Islamic country. Third, the data were collected based on a structured interview; thus, the data were more reliable than self-administered questionnaires. Fourth, this study used Bayesian inference, providing better evidence than classical null hypothesis significance testing (NHST) (Faulkenberry et al., 2020; Kruschke, 2014; Pek & Van Zandt, 2020).

This study also highlighted that madrasah students' happiness was higher than those of regular students, even after controlling for the level of wealth. It should also be noted that the happiness level in madrasah was higher than those in regular high school, even though the wealth level in madrasah is lower than those in regular high school. This is consistent with prior studies that income was not associated with the level of happiness (Kushlev et al., 2015).

The present study's findings agreed with prior studies on adolescents that underlined the association between religious activities and happiness (Abdel-Khalek, 2009, 2011; Achour et al., 2017; Eryilmaz, 2015). Eryilmaz, in his study on happiness in adolescents, reported that one of the strategies of improving high school students' happiness is by participating in religious activities (Eryilmaz, 2015). Studies on happiness categorized religious activities as "meaningful activities" and "passive leisure" that positively affect happiness (Tkach & Lyubomirsky, 2006; Eryilmaz, 2015).

Eryilmaz further reported how students viewed how religious activities affected their happiness (Eryilmaz, 2015). Participating in religious activities—such as praying, fasting, and reciting the Holy Quran, is how students discharge their religious duties. By doing this, the students reported they felt relieved because they fulfill their responsibility to God. They also reported that by praying to God, they were cherishing a hope that their wishes would be someday granted. Religious activities also functioned as a coping mechanism for the students;

they helped them relieve their minds when facing difficulties (Eryilmaz, 2015). The religious activities conducted by the students will strengthen the faith or *Iman*, which is a source of happiness in Islamic thought. *Iman* will make the students feel an expansion of relief associated with joy and happiness (Nasr, 2014).

The happiness of students in secondary education in general, especially in madrasahs, is essential for the country's future development. The happiness level becomes an indicator of a nation's advancement, similar to the level of crime, income, and education statistics (Diener, 2009b). Furthermore, numerous researches have shown that happiness has positive byproducts for individuals, families, and communities. Happy people tend to gain better social life conditions (e.g., higher likelihood of marriage, fewer divorces, more friends, stronger social support, and richer social interaction). Happiness is also related to a better performance at work, such as greater creativity, increased productivity, higher quality of work, more energy, flow, and higher income (Lyubomirsky et al., 2005).

In the setting of Indonesia, madrasah students' happiness is even more crucial because human resources strongly rely on the Muslim population. The current students in secondary education would be the backbone of human resources in the future. One might argue that secondary education in Indonesia is mainly comprised of regular high school. Nevertheless, the number of madrasahs and the share of the madrasah student body in Indonesian secondary education have been growing steadily in recent years. This phenomenon might be explained by Islamic revivalism in South and Southeast Asia, particularly in Indonesia (Tan, 2007). There is a growing interest in parents about Islamic education and its quality. These parents support the idea that religious activities and knowledge should be included in the process of education. Furthermore, more well-educated parents want to aid their children with religious values that could guard them against the influence of negative social values of modernization (Bakar, 2009).

Another point that should be considered regarding the importance of happiness in madrasah students is related to the provision of education for the lower socio-economic classes in Indonesia. As discussed before, the number of madrasahs accounted for over one-third of the Indonesian secondary education system. However, madrasah and overall Islamic education in Indonesia mainly cater to the educational needs of students from low-income families (Asadullah & Maliki, 2018). This is also shown by the result of the analysis of students' wealth levels in this study. In this context, it is evident that the madrasah is one of the motors of upward social mobility in the lower socio-economic class in Indonesia (Sunhaji, 2017). Nevertheless, despite the crucial role of madrasahs, there is still no equal recognition from the government (Sunhaji, 2017).

## CONCLUSION

The idea to promote the improvement of study conditions in madrasah was to boost the students' happiness, as it further relies strongly on funding availability. The problem of funding in madrasah indeed is a complex one (ACDP, 2013). The government and the Indonesian community should be more concerned about the provision of funding for madrasahs. The central government, the local government, the local community, and other stakeholders of the madrasah should sit together and resolve the issues for sustainable provision of its funding. The problems related to better funding in madrasahs, such as inadequate coordination between the Ministry of Education and Culture and the Ministry of Religion Affairs, the decentralization of educational responsibility, and inconsistencies of funding mechanisms in the local government, should be addressed for better study conditions in madrasah. It should be remarked that the result of the present study is neither to show that madrasah was superior despite its' suboptimal study condition nor a means to justify the suboptimal condition of madrasah. On the contrary, the present study's result should raise awareness to promote the improvement of Islamic

education, especially in madrasah. There should be a long-term plan to improve study conditions in Islamic educational institutions. This is because, with limited resources, the practice of religion at school in madrasah is proven to affect students' happiness positively. Improvement in other areas of the study condition is expected to raise students' happiness in the madrasah further.

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## AUTHOR CONTRIBUTION STATEMENT

The author confirms sole responsibility for the study conception and design, data analysis, interpretation of results, and manuscript preparation.

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